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C O N T E N T S

## The Problems of Contemporary Education

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## The Problems of Contemporary Education

## On Differentiation Strategies in the EFL Mixed-Ability Classroom: Towards Promoting the Synergistic Learning Environment

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**Abstract**

The aim of the research was to examine the implementation of various differentiation practices seen from teachers' and learners' perspectives. The paper reviews recent research studies related to the adjustments teachers make to content, process and product, according to the patterns in student readiness, interest or learning profile and provides a descriptive analysis of the teacher and student responses to the effectiveness of differentiation techniques.

This paper draws on the analysis of teachers' and students' responses to the key interview questions about their experiences and views of mixed-ability and same-ability classes. The data were collected by means of two web-based surveys using Google Forms and involving 25 teachers of the Alibra School in Moscow and 100 undergraduate B.Ed. students of Moscow City University (MCU). The participants' responses were visualized and published on the Internet with open access to the questionnaires' data. Open-ended questions were organized and thematically coded in NVivo to facilitate analysis. The coding of several debatable cases was further manually checked and examined by the authors.

The results indicate that the majority of the teachers purposefully apply a variety of management tools in different parts of the lessons to achieve elaborate educational results and to infuse a growth-oriented mindset in the classroom. With regard to the students' views on the notion in question, the research reveals broad patterns in learners' attitudes characterized by certain correlations between students' academic training and format preferences.

**Keywords:** differentiation techniques, mixed-ability, same-ability, learning abilities, individualization.

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## 1. Introduction

In the area of ELT the concept of differentiation is frequently raised as an issue. In the face of diversity challenges teachers encounter every day, it is significant to give students multiple opportunities which guarantee their development, boost motivation and are indispensable for the students to feel supported during the lesson. Given that meeting learners' needs is one of most teachers' persistent efforts, the term differentiation is relevant in various educational contexts. Having worked in ELT for a while any educator will realize how tough it is to get a homogeneous class when working with adults. That happens for different reasons, but mostly because students come to us with varying proficiency levels, cultural backgrounds, interests, studying habits, learning profiles and motivation. In the teaching environment classes may be incredibly mixed regarding the level, and some students may have what is known as a "spiky" profile and demonstrate consistent proficiency at speaking, reading and listening but struggle with writing (Roberts, 2012). However, even though most of the teachers may experience difficulty in trying to manage heterogeneous classes, they still refuse or avoid using various differentiation techniques, probably assuming that differentiation is trying to do "something different for each of the 30-plus students in a single classroom", which can be very time-consuming and ineffective (Tomlinson, 2001). One point that most teachers would make against differentiation is that it is a distractor from the learning process rather than a helping tool. Additionally, educators may maintain that "with so much to do in classrooms today, it is just much easier to have everybody doing the same thing" (Williard-Holt, 1994). There is no doubt that it is less demanding to level the pace of the lesson and engage all students in identical activities, but on the other hand, Tomlinson makes a fair point saying that "one-size-fits-all instruction will inevitably sag or pinch – exactly as single-size clothing" (Tomlinson, 2001).

Literature Review

Surveying the key terms of the current paper and defining the meanings traditionally attributed to differentiation and mixed-ability teaching we begin by emphasizing that although the two notions share some common ground, a clear distinction between them should be recognized. In particular, "mixed-ability teaching is more concerned with pupil management for teaching purposes, whereas differentiation places the emphasis fairly and squarely on the requirements of individual learners, whether they be in streamed, 'setted' or mixed-ability groupings" (Convery, Coyle, 1993).

One widespread understanding, or rather misunderstanding of individualization and differentiation is that differentiated instruction involves "teaching everything in at least three different ways – that a differentiated classroom functions like a dinner buffet" (Kamarulzaman et al., 2017). Researchers will argue that is it neither a differentiated classroom, nor it is practical.

As a result, it gives rise to misconceptions about differentiation, i.e. "differentiation is primarily an approach to teaching certain groups of students (e.g., students with individualized education programs (IEPs), English language learners, gifted students) or to teaching in special programs or settings. While the truth is that "differentiation is necessary for teaching all students in all kinds of settings, including the general education classroom. Differentiation is rooted in good teaching, but good teaching is not always differentiated" (Hockett, 2018).

In addressing diversity, differentiated instruction recognizes individual learners as unique and thus offers various ways in learning (Mulroy, 2003; Tomlinson, 2000, Tomlinson, 2001, Tomlinson, 2013; Valiende et al., 2011). It is not only a pedagogical approach, but it also involves organization of learners' personal needs aiming towards their personal outcome (Koutselini, 2006). Naturally enough, the process and tools of differentiation are complex and require "a focus upon the teaching plan, the teaching and learning interaction and then an evaluation of what took place" (O'Brien, 2006).

The central figure in differentiation, thus, is a teacher who responds to his or her students' readiness, interests, learning profile (i.e. learning preferences, styles, culture), and also environment. This approach was first put forward in Vygotsky's Zone of Proximal Development (ZPD) that explains the progress of one's knowledge (or rather the occurrence of learning) as one is given a task slightly higher or more challenging than his or her level of ZPD (Kamarulzaman et al., 2017). Through different differentiation techniques and differentiation instruction students are provided with a variety of choices on output, input and performance, which boosts their engagement, positively influences the level of motivation and, as a result, academic performance.

Differentiating instruction means "shaking up" what goes on in the classroom so that students have multiple options for taking in information, making sense of ideas and expressing what they learn (Tomlinson, 2013). We fully support Roberts who points out that differentiation is what teachers do to "meet the individual needs of the students" (Roberts, 2012).

Specifically, Tomlinson and Roberts speak about differentiating three curricular elements by the teacher:
1)      content – input, what students learn;
2)      process – how students go about making sense of ideas and information; and
3)      product – output, how students demonstrate what they have learned Tomlinson, 2001).

On the other hand, Rachael Roberts calls it:
1)      differentiation by task;
2)      differentiation by teaching method;
3)      differentiation by outcome (Roberts, 2012).

Another important point to make is that teachers can also differentiate for readiness (by varying degrees of difficulty based on the ability level of the learner), interests (differentiate content by interest) and learning profiles. We are inclined to agree with Gregory and Chapman who noticed that students connect better in their learning when their readiness level, interests and/or learning profiles have been respected and valued (Gregory, Chapman, 2002).

According to specialists in ELT, differentiated instruction is an approach that caters for every student's learning needs recognizing "that each learner is unique" (Theisen, 2002). Differentiated instruction as a result of enhanced motivation also improves students' academic achievement. Moreover, as Lavandenz and Armas found in their study English language learners were engaged in learning itself when the instructor employed cooperative learning that provided the students avenues for meaningful conversations (Lavandenz, Armas, 2008).

Russian ELT specialists as well as their western colleagues highlight the necessity for implementing differentiation instruction in an ELT classroom in order to overcome learning difficulties, facilitate students' learning abilities and enhance their uptake (Oorshak et al., 2001: 19; Schukina, 2015; 20; Buldina, 2016; Antonova, 2017; Pribylnova, 2018).

Through this research, we would like to find out how the teachers in our school feel about differentiation, whether they find it effective for the learning process, whether they differentiate at all and if so, what techniques they use. If the teachers do not differentiate, it will give us an opportunity to carry out or offer a workshop or a seminar where we would have the chance to acquaint the educators with some best international practices and expertise. In the second part of the research our motivation is to find out whether the students of the B.Ed. degree course notice differentiation techniques used in the classroom, whether they find them useful and if yes, whether it caters for the individual needs of the learners.

## 2. Materials and methods
### Participants and Research Instruments

The findings of the present paper reveal attitudes towards the use of differentiation strategies as investigated by means of two anonymous online surveys involving B.Ed. undergraduate students of Moscow City University and teachers of the Alibra School in Moscow. The research uses a relatively narrow sample of 125 respondents which constitutes nearly ½ of the number of the teachers that work in the Alibra School in Moscow (25 respondents) and ¼ of all B.Ed. students majoring in English of the Institute of Foreign Languages of Moscow City University (100 respondents), and thus can be considered representative for the purposes of a pilot explanatory study. The questionnaires were labeled properly to indicate that the data obtained would be presented as general conclusions. In order to avert biases associated with the figures, the survey results have been published on the Internet with open access to the questionnaires' data (Differentiation in EFL Classroom (Teacher's Version); Differentiation in EFL Classroom (Students' Version)).

### Questionnaire Description

The following tables present the questions used in the surveys and discuss the study objectives and research expectations.

**Table 1.** Differentiation in EFL Classroom (Teacher's Version)

| № | *Question* | *Question Type* | *Rationale* | *Expectations* |
|---|---|---|---|---|
| 1 | How long have you been teaching? | Closed | To estimate teachers' mastery and the variety of differentiation techniques. | Less qualified teachers will avoid differentiation completely and/or use a limited range of techniques; more experienced teachers will be more skilled in this respect. |
| 2 | What qualifications do you have? | Closed | See 1 | See 1 |
| 3 | Which field of ELT do you work in? | Closed | To assess the teachers' readiness to differentiate. | Teachers who teach exam classes will less eagerly differentiate due to the format and the peculiarities of the assessment requirements of the syllabus. |
| 4 | Have you ever had mixed-ability classes? | Closed | To estimate how conducive the learning situation is to differentiation. | The majority of the teachers will answer "yes". |
| 5 | Have you ever had students with "spiky" profiles? | Closed | See 4 | See 4 |
| 6 | Do you take into account different learners' abilities when planning a lesson? | Closed | To determine the target respondents for the questionnaire. | See 4 |
| 7-9 | Do you adapt the tasks in any of these ways? | Closed | To evaluate the respondents' knowledge and repertoire of differentiation techniques. | The repertoire of differentiation techniques will be quite limited. |
| 7a-9a | Do you think that any of the things above help learners to learn? Why? | Open | To uncover teachers' rationale behind using each of the differentiation techniques. | Some teachers will give more detailed and opinionated answers. |
| 10 | Do you adapt the task on the spot to different learners' needs if you see that the task is too difficult/too easy for them? | Closed | See 7-9 | Most of the teachers will not differentiate on the spot. |

| 10a | If you answered 'yes', say when and how you do it. | Open | To compare and contrast differentiation techniques of the respondents with the best worlds' practices for further analysis. | Most teachers will skip the question and/or will not specify how and when they differentiate. |
|---|---|---|---|---|
| 11 | Do you adapt your teaching and/or classroom activities and /or syllabus by doing things not mentioned above? | Open | See 7-9 | Most of the teachers do not use other differentiation techniques. |
| 12 | Do you think differentiating tasks stimulates student's productivity? Why? | Open | To discover the teachers' general attitude towards differentiation. | Respondents will give detailed and opinionated answers. |

**Table 2.** Differentiation in EFL Classroom (Students' Version)

| № | *Question* | *Question Type* | *Rationale* | *Expectations* |
|---|---|---|---|---|
| 1 | How long have you been learning English? | Closed | To define students' proficiency in English. | Most students will report extensive experience in ESL (8+ years). |
| 2 | How can you evaluate your level of English? | Closed | See 1 | See 1 |
| 3 | Do you study in a mixed-ability class or in the same-ability class? | Closed | To indicate the range of students in homogeneous and heterogeneous classrooms. | The number of students in mixed- and same-ability classes will be relatively equal with a narrow margin of 5-10 percent. |
| 4 | Do your language sessions provide enough opportunity to speak/write about topics and experiences that are important and/or interesting to you? | Closed | To identify whether the existing learning environment creates equal opportunities for all students and provides them with the same resources. | Most students will admit to having interest-based language sessions which include activities of various levels of complexity and meet their learning needs. |
| 5 | On average, how supportive and sensitive to students' needs are your English language teachers? | Closed | To define whether learning conditions are characterised by effective and sufficient guidance, support and feedback. | Students will be largely satisfied with the degree to which teachers provide academic and behavioural support. |

| 6 | How often do teachers encourage the students of your group to engage in different activities when working on the same concept, such as "Some of us will study … while some of us will …"? | Closed | To certify whether teachers' use of instructional strategies is appropriately adjusted to differentiate for students' readiness. | A significant number of students may report a lack of flexible and differentiated instruction. |
|---|---|---|---|---|
| 7 | In what ways do teachers adapt tasks and examples to best fit students' shared and individual needs? | Closed | To identify if teaching strategies respond to the students' shared and individual needs. | Students may mention receiving adapted tasks for homework and more time allotted to weaker students to complete tasks. |
| 8 | Do your language instructors always practice re-teaching or reviewing key concepts and skills if the class finds it difficult to move on? | Closed | See 5 | See 5 |
| 9 | Are you ever paired or grouped in your English lessons? To what extent do you think it helps? | Closed | To evaluate the used criteria for pairing and grouping students. | Most students will report grouping either by ability or randomly, probably due to being unequipped with sufficient knowledge of differentiation strategies. |
| 10 | If you do work in pairs/groups, how are they usually organized? | Closed | See 9 | See 9 |
| 11 | How often do you receive feedback from your teachers? How useful do you find it? | Closed | See 5 | Most students will report receiving constructive feedback from educators. |
| 12 | To what extent do you agree that mixed ability classes provide more room for student development? | Open | To discover students' general attitude towards differentiation and to determine which format in students' views leads to greater achievements. | The students' perception of mixed-ability classes may be both positive and negative with a correlation between their academic performance and format preferences. |

In their research the authors used the Pearson Chi-Square statistical test in order to prove or disprove their hypothesis empirically. The authors assume that to the question "Do your language sessions provide enough opportunity to speak/write about topics and experiences that are important and/or interesting to you?" most of the students will answer in the affirmative and will find their classes sufficiently interesting and motivating. It is also predicted that the students will find pair grouping techniques effective (around 60 %). In general, it is assumed that the students might have overall positive views on mixed-ability pairing. However, the authors think that a fairly high percentage of students will find mixed-ability pairing ineffective (around 40 %).

**3. Results**
**Teachers' Views**

Altogether 25 teachers took part in the survey, which is nearly half of the teachers that work in the school. The teachers that took part in the survey come from different teaching backgrounds, qualifications and experience (Table 3), so that would provide broad information, indicative enough to make conclusions about the whole school.

**Table 3.** Teacher Sample Description

| Category | Qualifications (%) | | | | | Field of ELT (%) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CELTA or TESOL | DELTA or Trinity Diploma | TKT | PGCE | Other | General English | Teaching Young Learners | Academic English / English for Specific Purposes | Business English | Exam Preparation | Teacher Training | Teaching Teens |
| **Teachers** | 44 | 12 | 24 | 4 | 16 | 92 | 52 | 28 | 40 | 64 | 28 | 4 |

The figures reveal that 48 % of the respondents have extensive experience in ELT (10+ years). 36 % of the survey participants completed 5-10 years as full-time teachers, 4 % of them spent 3-5 years teaching. One response was from a teacher with professional teaching experience of three years with an overall ELT experience of nearly eight years. As expected, most of the teachers (64 %) have ELT qualifications. Most of the respondents are active in more than one area of ELT, 92 % work with General English and 52 % with young learners, 64 % in exam preparation.

*Q6\*. Do you take into account different learners' abilities when planning a*

*lesson?*



| | Yes | No | Maybe | Other |
|---|---|---|---|---|
| ■ Q6* | 72 | 20 | 4 | 4 |
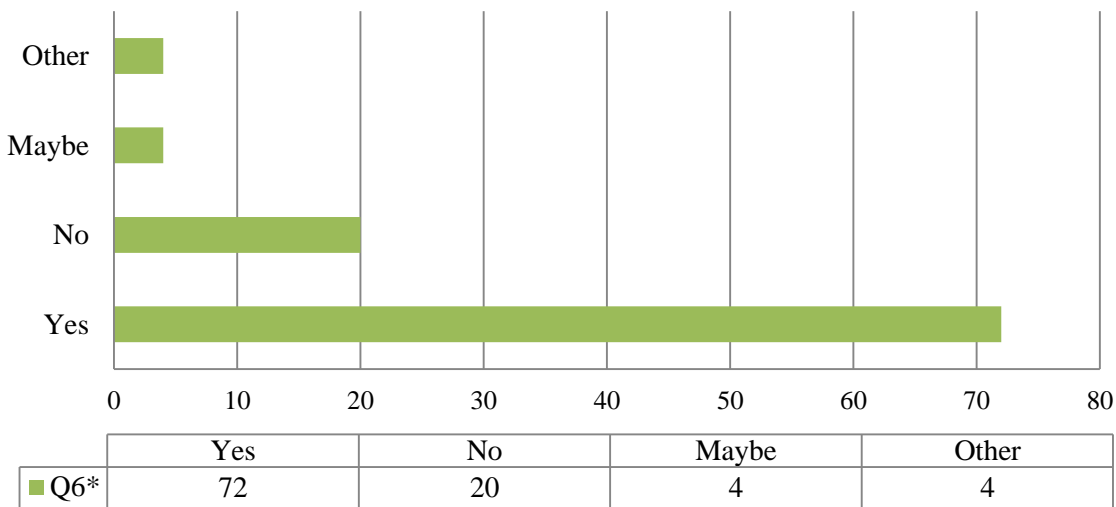
**Fig. 1.** Focus on abilities in lesson planning

In line with the research expectations, most of the teachers have mixed-ability classes (80 %) and only 20 % of the respondents train homogeneous groups. At the same time, some of them pointed out that they work with students, who have "spiky" profiles and demonstrate "different levels of skill in an overall area" (EPALE, 2020), which suggests some ground for differentiation, too. So, only two respondents did not mention working with learners with "spiky" profiles.

The value of the Pearson Chi-Square test statistic for Figure 1 is 7.35. The p-value is 0.06. The critical $\chi2_{0.05;3}$ value is 7.81, which indicates that the hypothesis drawn from the authors' theory is not disproved by empirical investigation.

It was assumed that those respondents, who do not differentiate in their lessons (8 out of 25), would not finish the questionnaire but contrary to that expectation, some of them did. Attempting to explain the reasons not to differentiate (Figure 2), 33 % of the respondents found it "too time-consuming", 17 % estimated that "differentiation doesn't help", the other 17 % admitted that "weaker or stronger students should change the group". A smaller sample from the same group of the respondents (8 %) wrote "some of my former students told me not to give them easier tasks".

***Q 6a**. If you answered "No" to the previous question, please, explain WHY. Tick as many things as relevant. If it is something else, please specify.*
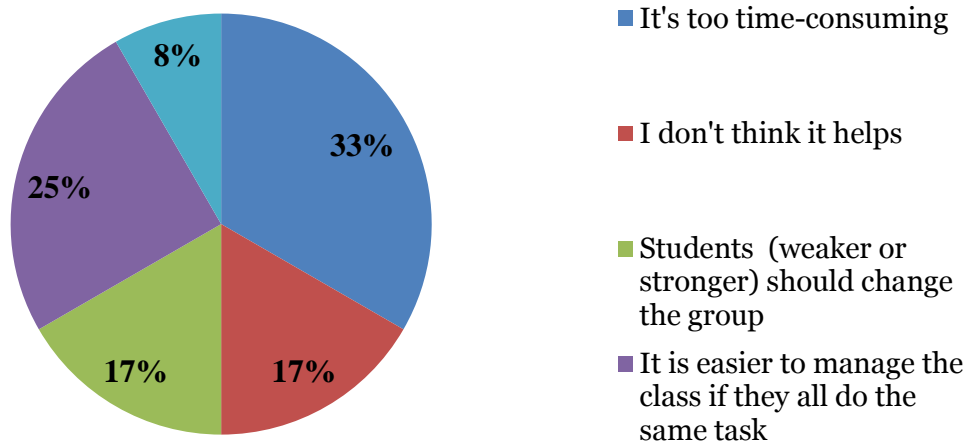


**Fig. 2.** Reasons not to differentiate

The value of the Pearson Chi-Square test statistic for Figure 2 is 12.82. The p-value is 0.01. The critical $\chi2_{0.05;4}$ value is 9.48, which indicates that the hypothesis drawn from the authors' theory is not disproved by empirical investigation.

The next set of questions aimed to examine differentiation techniques leveraged by the teachers in more detail. Regarding differentiation by task, 66.7 % of the respondents "allow more time to weaker students to prepare". Exactly the same proportion of educators "design more complicated tasks to stretch stronger students". 38.1 % and 33.3 % respectively "adapt hand-outs" and "adjust homework tasks". Only 4.8 % do all the above.

Concerning differentiation by method, most of the teachers do all the suggested things (66.7 %), 4.2 % of the respondents "do not do all of the above" and one teacher (4.2 %) "uses Bloom's taxonomy for differentiation". With regard to differentiation by output, it is evident that "setting different requirements for task completion" and "encouraging weaker students more than stronger ones" are the most favoured techniques by the respondents 47.6 % and 52.4 % respectively. A significant number of the teachers set individual targets (42.9 %), while only 3 % adapt tests for weaker and/or stronger students. Some 4.8 % labelled differentiation by method as "too time-consuming".

The other questions the respondents were asked to reply to, were supposed to determine why the teachers find the specified differentiation technique effective and explain how they are tried

out. Although, it turned out that most of the answers overlap and the respondents gave more general reactions than expected, a sound understanding of differentiation techniques by teachers manifested itself in the following attitudes:

*Teacher 1: I can make stronger students think outside the box, come up with different ways to do the same task, e.g. name as many synonyms or antonyms as possible, remember set expressions, think of a story to connect all words/expressions/grammar in question, etc. With weaker students, I can ask them to practice the material in similar patterns such as "I like swimming – He likes walking" or to create a story using my scenario.*

*Teacher 2: It's different each time, mainly depending on what the problem is. E.g. if the problem is understanding the task then I'd use paraphrasing, ICQs, CCQs, MCQs or translation from a stronger student to make it clear. If the task itself isn't well designed and is too easy/difficult, my first approach would be to put [students] in groups according to the difference in level needed for the completion of the task.*

Another objective of the research was to look into the types of differentiation techniques implemented by the survey participants. The respondents characterised this aspect of their teaching practice in the following way: 22 % differentiate by learners' profiles, 8 % differentiate by interest, 21 % differentiate by readiness, 29 % do not differentiate in other ways, 21 % differentiate in other ways, but do not specify how.

Overall, the content analysis of contributions made by 25 teachers suggests that the majority of them (80 %) speak positively of differentiation as a model for effective learning maintaining that it stimulates students' productivity. On the other hand, one respondent didn't favour differentiation stating that it only "humiliates students". Those interviewees who valued the role of differentiation argued that task adaptation may deepen students' knowledge, boost their concentration levels and facilitate language acquisition:

*Teacher 3: [Students] stop comparing themselves with peers and become more autonomous.*

*Teacher 4: Differentiating tasks enables students to progress with a proper speed, sparing them [from] the frustration of underperformance and facilitating the language acquisition.*

*Teacher 5: On the interpersonal level [students] might also feel cared for and happy that there's attention to their own needs in the lesson.*

Admittedly, the large majority of the respondents recognized the positive effects of differentiation and estimated that it does stimulate students' productivity and keeps learners involved. Most of them would agree with Roland and Barber who consider differentiated support in class as "helping students individually" (Roland, Barber, 2016), which challenges more advanced learners and supports struggling ones.

**Students' Views**

Though the research on student grouping by attainment is abundant with quantitative analyses of the outcomes, it is sparse in student voices (Tereshchenko et al., 2019). As a result of the paucity of case study material in this area, the present paper seeks to describe students' attitudes towards the potential of homogeneous and heterogeneous classrooms and the overall impact of grouping strategies on academic achievement.

As stated in the methodology, the students came from a homogeneous educational setting which was, nevertheless, characterized by divergent ESL experience and prior training (Table 4). The respondents self-categorized their level of language proficiency in the following way: basic users (2 %), independent users (59 %), proficient users (35 %), and 4 % of the participants reported having a 'plus' level (B2+) (Table 4). Table 4 also enables us to observe almost equal proportions of students in mixed-ability (58 %) and same-ability (42 %) classrooms.

**Table 4.** Student Sample Description

| Student Sample Description | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ESL Experience** (n/%) | | | **Estimated Level** (n/%) | | | | **Grouping Format** (n/%) | |
| 2-4 years | 5-7 years | 8+ years | A1-A2 | B1-B2 | C1-C2 | Other (B2-C1) | Mixed Ability | Same Ability |
| 3 (3.4) | 24 (27) | 73 (69.6) | 2 (2) | 59 (59) | 35 (35) | 4 (4) | 58 (58) | 42 (42) |

Following the theoretical framework outlined in the introduction, the survey aimed to reveal students' perception of how teachers differentiate learners' readiness, interest, or learning profiles.

*Q4. Do your language sessions provide enough opportunity to speak/write about topics and experiences that are important and/or interesting to you?*



- ■ Yes, all language sessions include activities of various levels of complexity…

- ■ Yes, most language sessions are interest-based…

- ■ I can hardly say so. There is a clear need to offer students alternative topics, a greater variety of expression options and a wider choice of how to complete assignments.
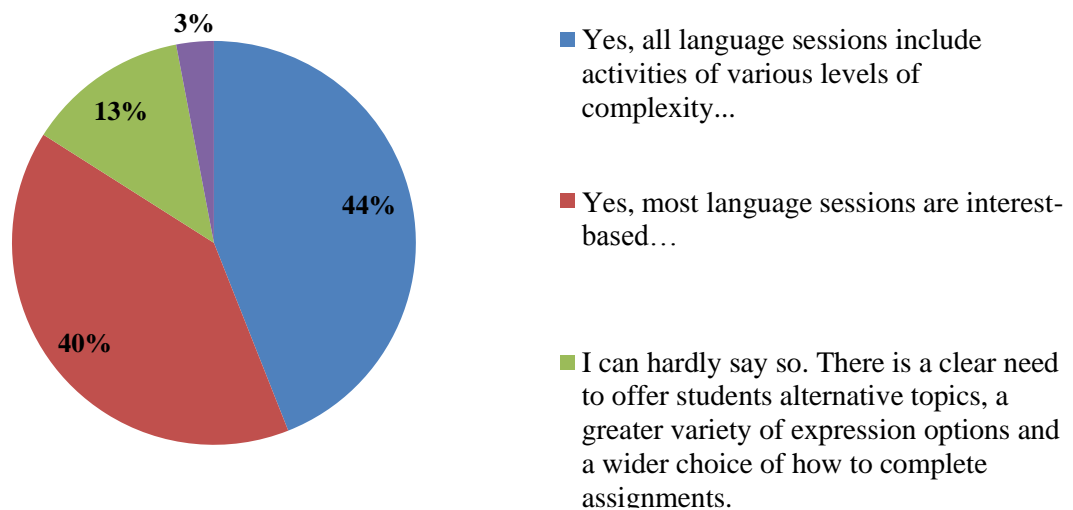
**Fig. 3.** Differentiation by interest

The value of the Pearson Chi-Square test statistic for Figure 3 is 6.2. The p-value is 0.1. The critical $\chi 2_{0.05;3}$ value is 7.81, which indicates that the hypothesis drawn from the authors' theory is not disproved by empirical investigation.

In line with the expectations, the data suggest (Figure 3) that most students have "interest-based language sessions which include activities of various levels of complexity and meet their learning needs" (44 %). At the same time, a significant group of the respondents (40 %) reported "an objective necessity to create activities that meet students' needs and focus on real-world experience and application".

In terms of differentiation by instruction, most students were found to be never (37 %) or almost never (24 %) exposed to different tasks (such as…"Some of us will study … while some of us will …") when working on the same concept. Nevertheless, a large proportion of the respondents reported getting "adapted hand-outs for listening/reading tasks" (25 %), "different/adapted tasks for homework" (28 %), "more time to rehearse before a speaking task for weaker students" (27 %). Significantly, almost one-fifth of the students acknowledged that they encountered a lack of "that experience", "no adaptation" or "the same tasks for everyone".

Another objective of the survey was to detect whether students recognize how and when teachers differentiate by readiness. With regard to this aspect, it should be stressed that most learners are engaged in supervised practice and receive sufficient feedback from their language instructors. To give an example, 74 % of the respondents wrote that "teachers always practise re-teaching or reviewing key concepts and skills if the class finds it difficult to move on".

Considering the reasons for a possible lack of revision and expansion practice, some students mentioned time pressure and the syllabus structure:

*Student 1: [I]n most subjects we and teachers find lack of time. Due to the syllabus set, rarely do we have enough of it to revise or have a question-answer clarification discussion. For the same reason there's often little opportunity for each of the students to air her/his opinion, as to revise the material by participating and both get the assessment points.*

The next set of questions focused on the students' perception of various grouping strategies and aimed to elicit their attitude to the classroom management techniques exploited by the teachers. The current research has indicated that the respondents might have different experiences and views on grouping structures.

**Q9.** *Are you ever paired or grouped in your English lessons? To what extent do you think it helps*?
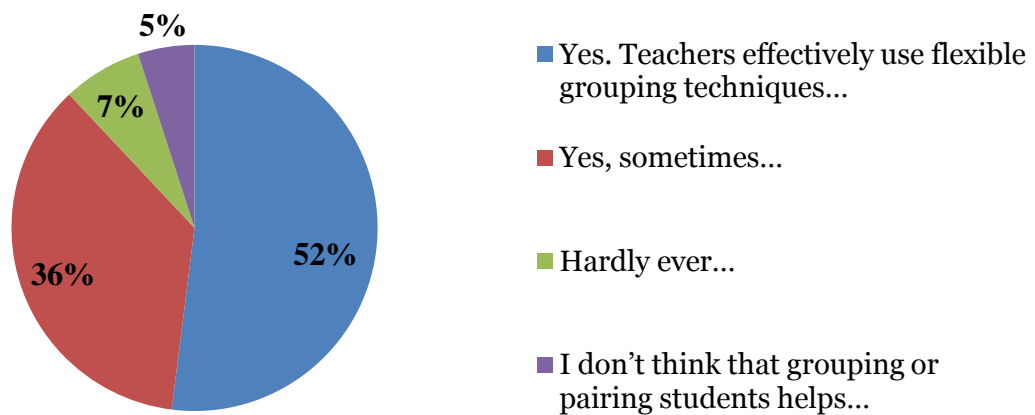


**Fig. 4.** Student grouping

The evidence displayed in Figure 4 shows that 52 % of the learners support teachers' effective use of "flexible grouping techniques enabling students to work in pairs, small groups, or alone which helps to develop a better understanding of the topic or concept and to work at an individual pace". Some 36 % mention that "grouping techniques do not always facilitate learning or contribute to a more positive learning environment". The other interviewees either report "a desperate need to engage students in group work which could help to develop a better understanding of the topic or concept" (7 %) or "don't think that grouping or pairing students helps to develop a better understanding of the topic or to work at an individual pace" (5 %).

The value of the Pearson Chi-Square test statistic for Figure 4 is 15.47. The p-value is 0.001. The critical $\chi2_{0.05;3}$ value is 7.81, which indicates that contrary to the research expectations, the respondents demonstrated sufficient knowledge of differentiation strategies.
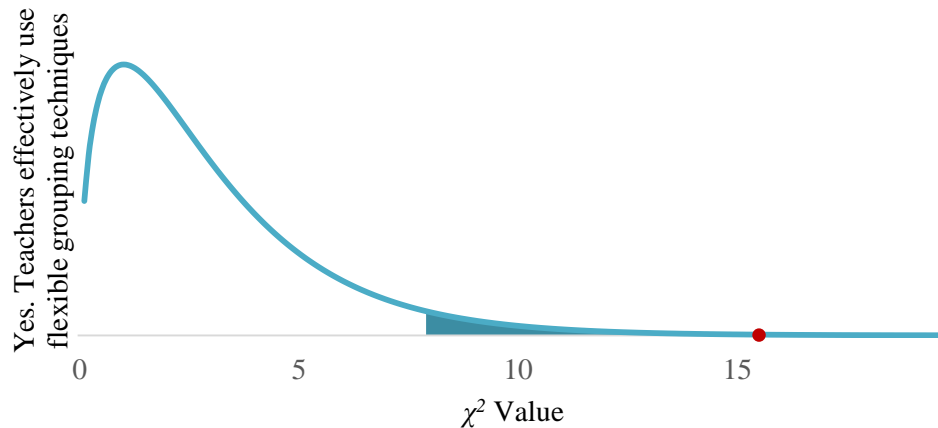
**Fig. 5.** *χ² Value*

The closing question of the survey aimed at eliciting the participants' ideas about the educational potential of mixed-ability classes. The results shown in Table 5 reveal students' perception of the teaching practice under analysis.

**Table 5.** Students' views on mixed-ability classrooms

|  | N (%) |
|---|---|
| Positive views on mixed-ability | 47 (47) |
| Negative views on mixed-ability | 34 (34) |
| Mixed views | 12 (12) |
| No answer | 7 (7) |

The value of the Pearson Chi-Square test statistic for Table 5 is 5.80. The p-value is 0.12. The critical χ2 $_{0.05;3}$ value is 7.81, which indicates that the hypothesis drawn from the authors' theory is not disproved by empirical investigation.

The content analysis of contributions made by 100 B.Ed. students enables us to conclude that in replying to this question, the respondents demonstrated a diverse range of views on the grouping structures leading to greater achievements. In line with research expectations there seems to be some evidence linking students' academic training and format preferences. Admittedly, in some cases positive attitudes were found among low- and middle-achieving students with less previous experience in EFL (5-7 years as ELL, estimated B1-B2). It is notable that these responses speak in favour of the students' awareness of mixed-ability practices and their facilitation of student development and language acquisition, for example:

*Student 2: I very much agree with the statement. Mixed ability classes provide the opportunity to communicate and help each other. Also it makes students more motivated.*

*Student 3: To my mind, it can stimulate other students.*

*Student 4: The difference in abilities help[s] students to improve their skills. For example, weaker students try to catch up with better experienced students. At the same time, more qualified students can practice their teaching or communication skills in explaining some material to weaker students.*

Some students who appreciated mixed-ability learning at the same time felt frustrated by those learners who usually didn't understand the material or didn't complete their homework. That's why it could take teachers longer to explain the material and manage the class. Stronger students also admitted to getting more relaxed in the lesson as a result and distracted by helping weaker ones.

Simultaneously, a number of respondents recognize the educational potential of the mixed-ability classroom which is liable to widen the practical and theoretical perspectives of foreign language aptitude. It appears to be particularly crucial for the students receiving B.Ed. training as it gives them a clear and purposeful direction of the learning process:

*Student 5: The difference in abilities help[s] students to improve their skills. For example, weaker students try to catch up with better experienced students. At the same time, more qualified students can practice their teaching or communication skills in explaining some material to weaker students.*

As stated above, some 12 % of the respondents tend to take a mixed view on mixed-ability grouping. A representative example of such an approach to the notion in question as well as the risks it may involve is given below:

*Student 6: I find this type of studying quite helpful, as weaker students, seeing a 'role model', may be motivated to improve their skills, whereas stronger students have more time to work on the topic. However, it can ruin student's motivation as well: some people among weaker students can become insecure about their abilities while studying in the same group with those who are stronger, and stronger students can become bored to wait for the others to catch up, so they will participate in classes less willingly.*

By contrast, high achievers (10+ years as ELL, estimated C1-C2) mostly expressed negative remarks related to the practical implications of heterogeneous classes. Specifically, a lot of respondents highlighted that mixed-ability classes do not cater for the individual needs of stronger students. Instead, this practice may lead to lower concentration levels and loss of motivation:

*Student 7: I don't think that students who are stronger should be mixed with those who are much weaker as they won't be motivated or interested in such learning.*

*Student 8: I am not really sure that mixed ability class[es] provide good opportunities for learning. While stronger students wait for weaker students to understand the material, weaker students will feel the pressure of being behind.*

*Student 9: In mixed classes I only feel my superiority and I don't think that it is good for weaker students, to see how someone succeeds and they don't.*

*Student 10: I don't think they do. It could seriously harm some students' self-esteem or their interest and they will be likely to lose motivation to study further.*

Even so, we tend to agree that "it is possible, however, that effectively differentiated teaching in heterogeneous classes … could contribute to resolving the tensions between the higher attainers' individualistic orientations and their support for the learning and social benefits, and egalitarian principles of mixed-attainment grouping related to reduction of inequality" (Tereshchenko et al., 2019). Also, it is crucial for teachers to distinguish between 'mixed-ability *classes* and mixed-ability *teaching'* and in doing so to ensure differentiation by outcome with rich tasks and quality feedback – otherwise learners of all attainment levels will be left dissatisfied (Ibid.).

## 4. Discussion

The findings of the research uncovered the attitudes to the use of differentiation strategies in various methodological contexts in both secondary and tertiary school settings. The results indicate that the majority of the teachers apply a variety of management tools in different parts of the lessons and for different purposes in order to achieve elaborate educational results and infuse a growth-oriented mindset in the classroom (66.7 %). As in many works in this field (Kamarulzaman et al., 2017; Antonova, 2017; Tereshchenko et al., 2019), our study reports that the teacher's roles in differentiated classroom include encouraging students' independence, providing freedom of choice in learning, and monitoring.

With regard to the students' views on the notion in question, the research reveals broad patterns in learners' attitudes, including positive and negative reactions characterised by certain correlations between students' academic training and format preferences. 44 % of students find their teachers differentiate by interest. At the same time, a significant group of the respondents (40 %) never indicated differentiated instructions by their teachers, most students were found to be never (37 %) or almost never (24 %) exposed to different tasks.

Echoing Tereshchenko et al. (2019), this can be partially explained by the assumption that while paired learning and peer tutoring seem to be appreciated by many students, these strategies also present strong risks that teachers need to be attuned to, to avoid scenarios where same people always give or receive help. Cliché as it may sound, this stance echoes the 'common sense' view shared by most politicians, parents and teachers that students are best engaged in learning on their level of 'ability' (see Francis et al., 2017).

The comparative analysis of the teachers' and the students' views on the use of differentiation strategies is presented in Figure 5.
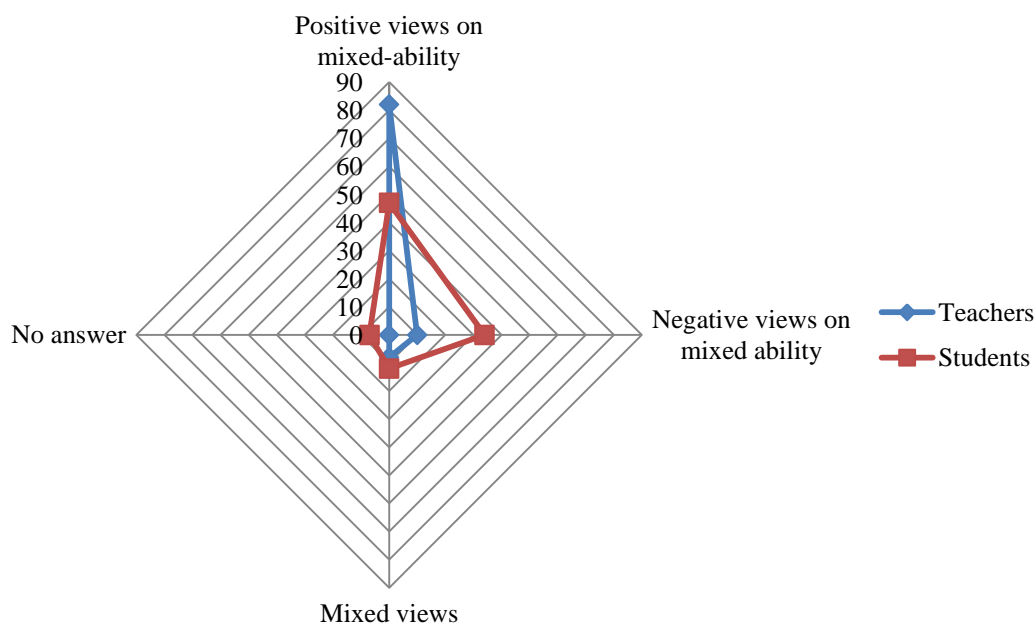


**Fig. 5.** Teachers' and students' attitude to differentiation

The value of the Pearson Chi-Square test statistic for Figure 5 is 30.387. The p-value is 0.01. The critical $\chi 2_{0.05;3}$ value is 11.345, which indicates that the relationship between factorial and performance characteristics is statistically significant.

According to the obtained results we may affirm that the questionnaire responses highlight the need for more information to be available to undergraduate students and language instructors about practicing differentiated instruction and placing learner differences as important. These key issues may need to be further addressed in the process of developing university courses and modules aimed at promoting the co-active and synergistic environment in the EFL classroom.

**5. Conclusion**

The research into various differentiation practices in the EFL mixed-ability classroom has significantly contributed to a better understanding of the issue under analysis in the Russian educational context.

The survey results enable us to conclude that:

1.    Many of the interviewed educators reported to differentiate expertly and efficiently. 66.7 % of teachers differentiate by task in their lessons and the same significant percentage of educator 66.7 % differentiate by method. Most of the language instructors found differentiation effective for boosting students' motivation and indispensable for the students to feel supported during the lesson. The major role of differentiation techniques in the facilitation of language acquisition and the infusion a growth-oriented mindset in the classroom was recognized by the majority of the survey participants (80 %). Significantly, the diverse range of the reportedly used differentiation techniques has been proven to be in line with the widely used worlds' practices.

2.    The analysis of the learners' voices with regard to student grouping by attainment provided a better insight into students' views on differentiated tasks and to some extent challenged the expectations of the research. Although the majority of the respondents tend to appreciate this teaching practice, this majority is rather narrow (47 %). While a relatively large number of the learners spoke positively about mixed-ability grouping due to its co-active and synergistic environment, some high achievers were frustrated by the preferential treatment of low-achieving students by teachers. The majority of the students, however, described mixed-ability grouping as limiting their individual academic progress.

3.    Despite the aforementioned limitations of the study, the obtained results apparently show a necessity for bringing students' awareness of differentiation strategies into focus and enabling educators to challenge more advanced learners and support struggling ones. By way of implications for mixed-ability practice, the findings suggest that it is essential for language instructors to ensure differentiation by outcome with diverse activity types as well regular quality feedback, otherwise students of different attainment levels may be left dissatisfied. This leads us to combine the present findings with the scrutiny of the teaching B.Ed. students encounter in their major subjects in our forthcoming analysis.

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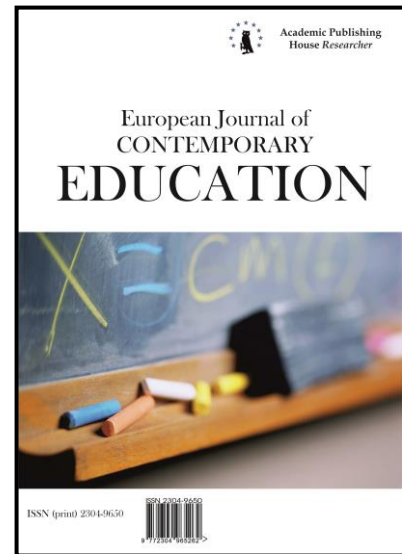
## Personal Agency and Social Creativity of Modern Adolescents: Opportunities for the Development in a Socially Enriched Environment

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**Abstract**

The article reveals the theoretical and practical aspects of the interrelation of social creativity, the demonstration of leadership skills and personal agency of adolescents included in a socially enriched environment of additional education.

The methods of studying the development of adolescents' personal agency are described, which make it possible to identify the level of social creativity of an individual and the aptitude of adolescents for leadership.

The article presents the results of an experimental study of the dynamics of adolescents' personal agency in connection with the changes in the indicators of their social creativity and leadership potential after the implementation of a specially developed additional educational program "Social testing ground". The obtained results are compared to five stages of the development of personal agency such as "observer", "learner", "apprentice", "master", "creator".

A positive growth of the studied parameters among adolescents, the participants of the experiment, has been noted, which allows confirming the conclusion about the systemic nature of personal agency and its interrelation with the creative skills of an individual when interacting with the social environment.

**Keywords:** personal agency, adolescent, socially enriched environment, additional education of children, social creativity, leadership potential.

### 1. Introduction

To designate a person's ability to be an active transformer of the reality, the concept of "personal agency" is used. It keeps focus on the important characteristics of a person's identity such as motivation, initiative, self-discipline, reflexivity and realization through interaction with others. Researchers define personal agency as a construct of psychological content that integrally describes the ability of an individual to consciously and voluntarily change himself and the external

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reality (Gorynina, Yusupov, 2020: 39). Personal agency manifests itself most vividly in the moments of crisis in life and is present during most age stages of the development. Although the changes in its specificity occur more easily in adolescence and youth, when the most active formation of a person's identity takes place.

In adolescence, the development of personal agency is mediated by the contradictions of the age, the desire to be an adult, the intention to find significant adults and peers for communication and to socialize actively. At the same time, the accumulation of personal experience by a teenager on the basis of mastering personal positions through the inclusion in a variety of educational activities acts as an internal factor that determines the development of personal agency. In this case, this process is considered as the highest form of the realization of mental activity, and an adolescent being an agent of spontaneous activity masters a new level, the level of an agent of activity (Panov, 2018). External factors are the requirements of the external environment (inner circle, family, educational institutions, informal peer groups) that create the opportunities for the implementation of this agent's experience (Mudrik, 2016). There is an interdependence and interrelation between the external and internal factors, since the implemented agent's experience cannot be realized outside the environment (Vygotsky, 1996), and the environment created with the help of a teacher contributes to the adolescent's acquisition of personal activity experience.

A number of researchers note that a clear indicator of the adolescent's personal agency and the accumulation of agent's experience by him is his ability for social creativity. The phenomenon of "social creativity" in many respects intersects with such psychological phenomena as "social intelligence" and "social giftedness". It gives a teenager an opportunity to form new, non-standard ways of knowing others and creating a system of interpersonal relations. The ability for social creativity is one of the most significant factors in the effectiveness of an adolescent's interaction with people both in interpersonal and intragroup and mass communication (Romanov, Tyurmina, 2003). At the same time, it is quite important that positive environmental conditions are able to unblock the creative abilities of adolescents and make the necessary motivation for their joint creative activity (PeIz, Andrews, 1966).

G. Fischer and his colleagues believe that the main foundation for the manifestation of social creativity is the presence of a difference in the views of the participants of the interaction. In the process of searching for a common position, new ideas, views and communities emerge. A scientist concludes that it is vital to maintain and develop the processes of social creativity for well-being in modern society (Fischer et al., 2005).

A teenager who is able to communicate effectively, adapt to changing conditions of interaction and generate new ideas, may act as a leader of creative interaction in a small group, thereby significantly increasing the effectiveness of its work (Golovanova, 2013).

Not without reason, even in the works of Russian teachers and psychologists of the 1920s such as E.M. Arkin, A.S. Zaluzhny, A.S. Makarenko – the development of the adolescent's leadership qualities, the creation of conditions in which he may show his leadership potential, was considered as one of the important tasks of education. Self-realization in the system of interpersonal interaction is one of the manifestations of personal agency, but the question arises whether those who are able to successfully make joint creative activity must have more or less pronounced leadership qualities or not? There is no definite answer to it.

If we consider personal agency in its internal manifestation, as the ability of a person to form his own system of views, assessments, values and focus on it during his life, realizing himself without the need to control others, then leadership qualities in this case may be absent. According to A.V. Morov, this option allows a person to resist unwanted attempts of the social environment to influence him, thereby letting him remain himself regardless of the external environment. On the contrary, if the full realization of one's own activity is impossible without interaction with other people, then leadership becomes a necessary component of personal agency (Morov, 2014).

The presence of a certain leadership potential in an adolescent may set the diverse realization of his personal agency. Accordingly, this characteristic, as well as the degree of its manifestation, should be taken into account while working with them, since it provides the ability to purposefully influence people and a chance to have a high social status (Krichevsky, 2007).

From our point of view, the personal agency of an adolescent is an integrated characteristic of his personality, manifested in his ability for self-organization and self-realization, creation of effective social communications, social interaction and moral value relationships with others,

aimed at satisfying his activity-related need for peace-building. To a greater extent, personal agency of adolescents develops in a socially enriched environment, an environment of the "social oasis" type, which is present in development centers, children's art houses, summer educational centers, etc. Chernyshev and his students designate the most essential characteristics of such an environment (Chernyshev i dr., 2007). First of all, it is a high level of intensity of joint activity and communication, a positive psychological atmosphere of cooperation and creation, opportunities for participation in various types of activities, a special intensification of communicative, intellectual and behavioral components of life.

We believe that the process of the development of personal agency of modern adolescents will be more efficient, taking into account the development of their various abilities and four components of personal agency:
- socially individual (development of the ability for self-organization, self-knowledge, self-realization and self-determination);
- socio-communicative (development of the ability for social communications, solving intragroup and external socio-communicative situations, etc.);
- socially interactive (development of the ability for social creativity, for leadership in a group);
- socio-moral (development of the ability for social responsibility, for moral and value relationships with subjects of the social environment) (Antopolskaya i dr., 2021).

In this article, we present the results of an experimental study and discuss the development of personal agency of an adolescent at a socially interactive level. So, as, in our opinion, it is in the process of social creativity that the personal agency of an adolescent is most clearly manifested.

### 2. Materials and methods

Below are the empirical data of the ascertaining and control stage of the experiment, in which the social-interactive level of development of adolescents' personal agency was evaluated. The examinees in the experiment were 54 teenagers aged 13 to 15 years old, attending classes at the development center of additional education "Dialog", Kursk, which implements innovative programs of additional education for children and adults.

It was assumed that as a result of the participation of adolescents in the additional educational program "Social training ground") (2019–2021), both the general level of their personal agency and such social-interactive indicators, such as social creativity and inclination to leadership, would increase.

The study was conducted with the use of these three methods:
- The questionnaire "Evaluation of the stages of personal agency formation" (V.I. Panov et al., modified by T.A. Antopolskaya), allows to identify the degree of personal agency of an adolescent included in the education system and it takes into account five stages of the development of personal agency – "Observer", "Student", "Apprentice", "Master" and "Creator". Each subsequent stage is characterized by an increase in the adolescent's personal experience, while personal agency manifests itself as the possibility of independent planning, design and organization of activities, setting goals and assessing their correctness and effectiveness (Antopolskaya i dr., 2020).
- The methodology "Determination of the social creativity of an individual" (Fetiskin i dr., 2002), allows to assess the adolescent's ability to navigate in interpersonal and group interaction, find non-standard solutions to emerging problems, and implement subject-subject communication with others. The authors distinguish nine levels of the development of this quality, which can be reduced to three main ones: low, medium and high;
- The methodology "Determination of the level of leadership potential" (Fetiskin i dr., 2002), reveals the tendencies of adolescents to leadership. Three degrees of leadership expression within the framework of the norm are diagnosed: weak, medium, strong and the fourth, destructive, as a tendency to dictate.

To assess the degree of reliability of differences between the studied indicators in the ascertaining and control phases of the experiment, we used such a method of mathematical statistics as $\chi^2$ – Pearson's criterion.

In the course of the implementation of the additional educational program "Social training ground", the adolescents took active part in social and creative activities (volunteering, mentoring,

etc.) and mastered its "socially interactive" module. The main topics of the module are: "I can interact", "I can work in a team", "I can resolve conflicts", "I have leadership potential". The adolescents participated in the trainings to meet their need for leadership and the development of social creativity. The content of the trainings included the following topics: "Creativity: pros and cons", "Self-confidence is real", "How to manage your emotions and cope with stress", "I am a leader", etc. The technology of the development of personal agency in socially creative activity was applied to the adolescents of the experimental group (Antopolskaya et al., 2020).

### 3. Results

The questionnaire "Assessment of the stages of personal agency formation" has made it possible to assess the dynamics of its development in the experimental group at the ascertaining and control stages. Table 1 shows the proportion of the occurrence of each stage among the adolescents in the experimental group.

At the control stage, half of the group (27 people) demonstrated the dominance of the third stage of personal agency: "Apprentice", which is characterized by the ability to full social interaction, but insufficient skills to assess their activity. Thus, recognizing their insufficient independence in terms of assessing the results of social and creative activities.

14 of adolescents have reached the fourth stage of personal agency, which corresponds to a fairly high degree of independence in setting goals for future activities and their planning.

In third place, we mark the stage "Student", which is possessed 8 adolescents. They are most successful in their activities if they are offered a certain standard in advance, on which they can be guided.

The highest stage, "Creator", is observed in only 4 of adolescents. It is characterized by the fact that it makes it possible not only to effectively act on your own, but also to successfully influence others.

The initial stage of personal agency, the "Observer" (1 adolescent), was noted least of all. Here the adolescents experience difficulties with the manifestation of their independent activity, for this they need sufficiently significant external support such as the help of a peer or an adult. A marked tendency towards the manifestation of higher stages of personal agency in our sample is explained by the fact that all adolescents, participating in the research, have been studying in a socially enriched environment of additional education for more than a year.

After the completion of the formative stage, at which the adolescents took part in in the implementation of the "Social testing ground" program, a repeated study of the stages of their personal agency was carried out. As it can be seen from Table 1, there is a noticeable increase in the ability of adolescents to be active on their own. Although some of the tendencies observed earlier remained, the majority of adolescents have the "Apprentice" stage, and the second most common stage is the "Master" stage, the "Creator" stage comes in third place, and then the "Student" stage comes. The "Observer" stage is not marked by anyone at this point.

**Table 1.** Frequency of occurrence of developmental stages of personal agency among adolescents

| Stages | Ascertaining stage | Control stage | $\chi^2$ | df |
|---|---|---|---|---|
| Observer | 1 | 0 | 1,2 | 1 |
| Student | 8 | 4 | 1,41 | 1 |
| Apprentice | 27 | 24 | 0.35 | 1 |
| Master | 14 | 21 | 2.07 | 1 |
| Creator | 4 | 5 | 0.12 | 1 |
| $\chi^2=7,08$ df=4 | | | | |

The frequency of occurrence of the first three stages decreases, while the higher, fourth and fifth stages, on the contrary, increase. All this allows us to speak about the positive effect of experimental influence on the development of personal agency of adolescents. The comparison of the data of the control and ascertaining stages using the Pearson $\chi^2$ test confirmed that the most

noticeable changes at the control stage are associated with an increase in the number of adolescents who have reached the "master" stage, from 14 to 21. Although the comparison of individual stages did not show statistically significant differences, in general, we can talk about a pronounced positive dynamics of the studied trait.

When the level of development of social creativity among adolescents had been initially diagnosed, it turned out that they did not have a low level; an average level had 31 of respondents, a high level 23 adolescents. At the control stage, these indicators changed – the number of adolescents with an average level fell to 19 people, and with a high one rose to 35. Social creativity is an important characteristic of the socially interactive levels of personal agency, it affects the effectiveness of communication and interaction with peers and adults, which can explain the high level of its manifestation at the ascertaining stage of the study.

Comparing the frequency of manifestation of different levels of social creativity among adolescents at different stages of development of personal agency, the following data were obtained (Table 2, there is no low level).

**Table 2.** Dynamics of the level of development of adolescents' social creativity at different stages of personal agency

| Stages | medium level | | | high level | | |
|---|---|---|---|---|---|---|
| | stages | | $\chi^2$ df=1 | stages | | $\chi^2$ df=1 |
| | Ascertaining | Control | | Ascertaining | Control | |
| Observer | 1 | 0 | 0,61 | 0 | 0 | |
| Student | 7 | 3 | 0,18 | 1 | 1 | |
| Apprentice | 14 | 11 | 1,03 | 12 | 13 | 0,01 |
| Master | 8 | 3 | 0,3 | 7 | 18 | 2,17 |
| Creator | 1 | 2 | 0,01 | 3 | 3 | |

At the ascertaining stage of the study, the average level of social creativity is dominated among the adolescents at the "Observer" and "Student" stages; at the stages of "Apprentice" and "Master", the ratio of its medium and high levels is almost equalized, but the average results predominate somewhat; at the "Creator" stage, most adolescents show a high level of social creativity. In general, with the growth of personal agency, the frequency of occurrence of a high level of social creativity also grows.

At the control stage, the level of personal agency increases and the "Observer" stage does not occur. The average level of social creativity predominates at the "Student" and "Apprentice" stages; at the "Master" and "Creator" stages, most adolescents have a high level of social creativity, and this tendency is most pronounced at the "Master" stage.

On the one hand, we observe a clear interrelation between the development of adolescents' personal agency in general and such an indicator of its socially interactive component as social creativity. On the other hand, even at the maximum stages of personal agency, the presence of not only high, but also medium levels of its development is noted. It is obvious that social creativity is a necessary element of the socially interactive component of personal agency (as evidenced by the complete absence of its low levels in the sample); for the effective implementation of interaction with others, an average level may be sufficient.

**Table 3.** Dynamics of the leadership potential of adolescents at different stages of personal agency

| Stages | weak level | | | medium level | | | high level | | |
|---|---|---|---|---|---|---|---|---|---|
| | stages | | $\chi^2$ df=1 | stages | | $\chi^2$ df=1 | stages | | $\chi^2$ df=1 |
| | Ascertaining | Control | | Ascertaining | Control | | Ascertaining | Control | |
| Observer | 1 | 0 | 0,88 | 0 | 0 | | 0 | 0 | |
| Student | 4 | 1 | 1,44 | 3 | 2 | 0,61 | 0 | 1 | 2,53 |
| Apprentice | 18 | 17 | 0,11 | 9 | 5 | 0.81 | 1 | 2 | 0,01 |

| Master | 8 | 9 | 0,31 | 5 | 10 | 3,61 | 1 | 2 | 0,01 |
|---|---|---|---|---|---|---|---|---|---|
| Creator | 0 | 0 | | 3 | 4 | 0,03 | 1 | 1 | |
| | χ2=2,23 df=3 | | | χ2=7,45 df=3 | | | χ2=3,0 df=3 | | |

Then we compared the degree of leadership potential manifestation among adolescents at different stages of personal agency. Since none of them had a "dictate" level, only weak, medium and high levels were taken into account.

At the ascertaining stage, weak levels of leadership potential are dominated among the adolescents at the "Observer" and "Student" stages. At the stages of "Apprentice" and "Master", this tendency remains, but some adolescents also have a high level. The highest stage, the "Creator," is the only one where the weak level is absent.

At the control stage, the changes in this indicator have been found, but it is rather difficult to consider them unambiguous. On the one hand, the adolescents at the "Student" stage now have an average level of leadership potential, and in addition to a weak one, now there is also a high one. At the "Apprentice" stage, 17 out of 24 schoolchildren retain a weak level, while the average and high level slightly increases. At the "Master" stage, the frequency of the weak level increases slightly, but the number of adolescents with an average level of leadership potential and up to 2 with a high level increased from 5 to 10. At the "Creator" stage, there is still no weak level and the medium level prevails.

If we compare the representation of each of these levels at both stages of the experiment, it turns out that the representation of the weak level has decreased from 31 to 28 people; middle – from 20 rose to 21; high – from three to six teenagers. This allows us to conclude that there is a positive dynamics of this indicator, but its intensity is insignificant, mainly affecting the polar (opposing) levels. Obviously, in the manifestation of the social-interactive level of personal agency, the leadership potential can be considered as a secondary characteristic, whose significance may increase depending on the specific communicative situation.

We have also compared the dynamics of changes in the levels of leadership potential of adolescents and their social creativity during the experiment.

It can be concluded that there is an interrelation between the social creativity of an individual and his propensity for leadership, but at the same time the average level of development of social creativity is noticeably higher than that of leadership potential. Thus, a low level of development of the first indicator in the studied group is generally absent, while a weak leadership potential has been shown by 31 of the adolescents at the ascertaining stage of the study and 27 at the control stage. The average level of social creativity in the course of the experiment began to be recorded less often, from 31 to 19 people, the leadership potential slightly increased, from 20 to 21. The high level of development in the first case was noted initially in 23 schoolchildren and as a result in 35, in the second – initially in three, and after – in six adolescents.

Thus, a similar trend in the dynamics of both qualities is observed, but the initial and final indicators of social creativity are much more pronounced. This may indicate that it manifests itself as a more significant component of personal agency, while leadership potential is a possible, but not an obligatory characteristic of it.

In general, the results indicate that the inclusion of adolescents in the socially enriched environment of additional education contributes to the development of their personal agency and its socially interactive component.

**4. Discussion**

Discussions of the scientists related to the search for "reference" points in the effective development of personal agency of modern adolescents continue. As our research has shown, the development of social creativity and leadership potential of adolescents is one of their most important areas that ensure the success of this process.

In order for an adolescent to show personal agency in a socio-creative activity, it is necessary at least to have the following conditions: an increased motivation for the implementation of his plan ("I want to do it!"); the possession of the means and methods of this activity for the

implementation of one's plan ("I can do it!"); the mobilization of one's own resources (intellectual, creative and emotional) to achieve the set goal ("I will do it!") (Clarina, 2009).

There is also a rather controversial aspect of the implementation of the process of social creativity, which R. Florida points out. On the one hand, any interaction between people requires a certain level of its organization and the more complex the structure of a particular group, the higher the requirements for organizational issues are. On the other hand, for creativity, excess of regulation and control is often fatal (Florida, 2005). Therefore, when it comes to social creativity that goes beyond interpersonal informal relations, it is necessary to look for a balance that will allow the realization of such social community leaving enough opportunities for joint creativity. As applied to the socially enriched environment of additional education, this conclusion has long been confirmed by pedagogical practice itself – the higher the formalization of the educational process is, the less is the share of creative activity of its participants.

The specificity of additional education lies in its ability to provide an adolescent with a voluntary choice not only of the direction and types of activity, but also the time and pace of mastering educational programs, as well as a teacher as their main initiator. The basic technology in the development of social creativity and leadership potential of adolescents is the creative cooperation of a teacher and an adolescent, where the teacher provides support for independent productive creative activities of students, taking into account the expectations of his family members (Dolgusheva, Mavrina, 2015). At the same time, the success of interaction largely depends on the professional and personal qualities of the teacher. M. Orlando identifies the following characteristics of a teacher that need to be shown in working with adolescents:

- respects the adolescent (everyone's ideas and opinions are valued, adolescents feel safe in expressing their feelings, and learn to respect and listen to others);
- creates in the group a sense of community and belonging, makes adolescents understand that they can rely not only on the teacher, but also on the whole group;
- friendly, approachable, caring. Good educators have good listening skills and find time in their busy schedules for those who need them;
- has high hopes for all adolescents, understands that they usually give teachers much less than expected of them;
- constantly renewed as a professional in its quest to provide adolescents with the highest quality education;
- an experienced leader, conveys this sense of leadership to adolescents, giving each of them an opportunity to take on leadership roles;
- constantly collaborates with colleagues, considers cooperation as a way to learn from professional colleagues;
- maintains professionalism in all areas – from appearance to organizational skills and readiness for each day (Orlando, 2013).

For the development of the leadership potential of adolescents, researchers suggest using a set of pedagogical forms: research and creative projects in the mode of mentoring; communication trainings; a system of creative competitions, exhibitions, festivals; master classes, workshops, creative laboratories; scientific and practical conferences. All this, according to M.I. Rozhkov, contributes to the disclosure of the totality of all inclinations and abilities of the individual (communicative, organizational, intellectual and creative), manifested in a situation of interaction in a group and allowing an individual to self-actualize as a leader (Rozhkov, 2015).

Having tested the additional educational program "Social testing ground", our research team has found only insignificant changes in the leadership potential of the adolescents, accompanying the positive dynamics of growth in the level of their personal agency. We assume that this can be explained by the fact that in this variant of joint activity, no emphasis was placed on teamwork. At the same time, it is important for adolescents to gain not only theoretical knowledge about the basics of leadership, but also in practice to demonstrate and work out their abilities in social and creative activities, to accumulate personal experience.

**Methodological limitations**

The limitations of the sample size do not allow extrapolating the research data to the general population of students in additional education institutions, but apply only to the adolescent schoolchildren of Kursk. In addition, the reliability of the results obtained is somewhat reduced

due to the absence of a control group in this study, which is associated with the objective conditions of the natural experiment being conducted.

## 5. Conclusion

1. A theoretical review of studies of human personal agency has shown that adolescence is the most susceptible to its development and the development of the ability for social creativity and leadership potential in an adolescent can set the multidimensional realization of his personal agency.

2. The results of the experimental study have confirmed that there is a direct interrelation between the transition of an adolescent to a higher stage of personal agency and the improvement of such indicators of its socially interactive level as social creativity and leadership potential. Consequently, the leader is the actor of activity and communication, but the actor is not necessarily the leader. Nevertheless, the presence of leadership qualities, while not being obligatory for the manifestation of personal agency, provides the possibility of a greater number of ways of its implementation.

3. The use of a set of pedagogical forms and technologies of pedagogical influence allows to achieve a positive growth in the manifestation of adolescents' personal agency both in general and at its socially interactive level.

4. An important condition for the development of personal agency of an adolescent is a teacher's professional position, which ensures creative cooperation between a teacher and an adolescent, where the teacher accompanies his independent productive creative activity.

## 6. Acknowledgments

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# Cognitive and Affective Empathy and Its Relationship to Proactive and Reactive Aggression in Vietnamese Adolescents

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**Abstract**
While aggression is considered as one of the most common behavior problems among adolescents, empathy can be a predictor of prosocial behaviors and underlines different implications for aggression in children. Empirical studies had proved that there was a negative correlation between empathy and aggression in children and adolescents. Nevertheless, the vast majority of studies on the relationship between aggression and empathy has been well documented in the literature with Western samples. The current study aims to examine the aggression-empathy association in Vietnamese adolescents and to explore whether or not aggression can be predicted by empathy and self-control. A total of 1,236 adolescents aged 12-13 years from 3 regions of Vietnam were asked to answer the survey package including the Reactive and Proactive Aggression Questionnaire, the Basic Empathy Scale and the Self-Control Questionnaire. Findings revealed that there was a statistically significant difference in aggression and empathy scores for gender, in which female adolescents showed a higher level of aggression and empathy than that of male ones. There was a strong negative relationship between aggression and empathy. Aggression can be predicted by empathy and self-control. Of the two variables, empathy was a better predictor of aggression (beta = -.42) than self-control (beta = -.37). The results add more valuable evidence to the existing literature on the relationship between aggression and empathy in a diverse population, and proved the role of education in enhancing empathy for adolescents in general and those with high levels of aggression in particular in school settings.

**Keywords**: aggression, empathy, self-control, Vietnamese adolescents, aggression-empathy relationship.

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## 1. Introduction

Empathy has been viewed as an emotional response related to other people's emotions and situations that is consistent with other individuals' emotional states (Eisenberg et al., 1991). Researchers acknowledged that empathy is a multidimensional concept that is comprised of both cognitive and affective components (Batanova, Loukas, 2014; Zych et al., 2020). The former refers to the capability of understanding emotions in other people and the latter refers to the capability of experiencing their emotions (Blake, Gannon, 2008; Jolliffe, Farrington, 2006). Empathy, therefore, not only underlies different implications for aggression (Caravita, et al., 2010; Batanova, Loukas, 2014) but is also an important predictor of prosocial behaviors (Zych et al., 2020). Marshall et al. (1995) proposed a model of empathy that consisted of 4 sequent stages: stage 1 – recognition of other's emotional states; stage 2 – perspective taking or ability to see things from the other's perspectives; stage 3 – compassionate response and stage 4 – take steps to help other's distress. It can be interpreted from the Marshall et al.,' model of empathy that the nature of empathy involving concerns for other emotional states can help in building a warm and close relationship with others. From our perspective, the ability to comprehend the emotions of others and the ability to experience the emotions of others can be viewed as the primary components of empathy construct. Empirical studies have found that a lack of empathy would lead to a tendency of aggression and disregard for other people's rights and pain (Marshall, Marshall, 2011; Miller, Eisenberg, 1988). Also, both empathy and self-esteem have been found to be a crucial element in the treatment of antisocial behaviors like aggression (Pechorro et al., 2015). As a result, the exploration of the relationship between empathy and oppositional behaviour in general and aggression in particular within adolescents has received much interest and priority in theoretical and empirical research (Marshall, Marshall, 2011).

There have been various studies on the association between empathy and aggression. McGee et al. (2021) highlighted that the relationship between low empathy and aggression had been studied for the past 50 years. Although the characteristics and level of this relationship caused different conflicts, most researchers have agreed that enhancing empathy might help reduce aggression. Aggression, one of the most common behaviour problems among adolescents, has been defined as behavior deliberately aiming to harm and hurt others physically or psychologically (Euler et al., 2017; Dodge, 1991). Aggression might be categorized based on its forms or function. Concerning the former criterion, aggression should be divided into direct and indirect aggression (including relational aggression and social aggression) or physical and relational aggression. With regards to the latter criterion, aggression can be classified into proactive aggression and reactive aggression. Following this dichotomy, reactive aggression, often called hostile or affective aggression, is anger driven, defensive in nature and in response to real or perceived provocation. Conversely, proactive aggression was described as a deliberate, instrumental and goal-oriented form of aggression (Hubbard, Swift, 2014; Seah, Ang, 2008).

Miller and Eisenberg were the first two authors carrying out systematic reviews on the relationship between empathy and aggression in 1988 with students and figured out the relationship between empathy and aggression from small to moderate. In particular, a negative correlation was recognized in studies on empathy when it was integrated into survey questionnaires (r = -.18), whereas when empathy was assessed by other methods, that correlation was identified at a lower level. For example, the empathy-aggression association was examined by facial and gesture methods (r = -.06) or pictures/story methods (r = -.11). Similar results were also discovered by Vachon, Lynam and Johnson (2014) through their meta-analysis into the relationship between empathy and two kinds of traditional aggression, namely verbal aggression and physical aggression. A growing body of literature showing negative correlation between empathy and kinds of aggression like physical and indirect ones among American students (Warren et al., 2011; Loudin et al., 2003), and in Australian ones (McGee et al., 2021). Studies on the association between empathy and other kinds of aggression like relational/indirect aggression, and social aggression has been limited. Recently, McGee et al. (2021) conducted a research on a sample of Australian students and discovered that low empathy should be the predictor of different kinds of aggression such as relational, online and physical aggression. However, regarding more modern aggression like online aggression and cyberbullying, empathy (cognitive empathy) would not be the predictor of aggression rather than other variables like gender and social skills (Kokkinos et al., 2014). From another perspective, factors related to family (such as a warm

connection and positively interactive relationship among family members) would make children less aggressive than those not living in a happy family atmosphere (Batanova, Loukas, 2014; Arim et al., 2011). In addition, positive family relations might also help adolescents improve their cognitive and affective empathy (Soenens et al., 2007; Carlo et al., 2007; Eisenberg et al., 2006). Similarly, children with good school relationships were reported to have less aggression like school bullying (Loukas, Murphy, 2007) and showed more empathic concern to others. Studies on predictive factors for aggression among adolescents found that females with low empathy would have potential to show overt aggression rather than relational aggression; at the same time, male adolescents with a high level of empathy and positive school connection would have less overt aggression (Batanova, Loukas, 2014). It is, therefore, advised that building more connection within family and school as well as empathic concern would significantly contribute to the prevention of aggression in the early adolescent stage. Thus, the two components of empathy play a key role in reducing both overt aggression and relational aggression within adolescents (Endresen, Olweus, 2011; Jolliffe, Farrington, 2011; De Kemp et al., 2007).

In addition to empathy, predictability of the above kinds of aggression would be stronger if low empathy is associated with other predicted variables like low self-control (McGee et al., 2021), social intelligence (Kaukiainen et al., 1999) or social skills (Kokkinos et al., 2014). Nevertheless, the vast majority of studies has focused on the relationship between empathy and different kinds of aggression based on its forms or in-person aggression such as physical aggression and online aggression. In fact, aggression can also be classified based on its function like proactive aggression and reactive aggression. Studies on the association between empathy and those two kinds of function-based aggression have been limited. More specifically, there have been few works on the significance and predictability of potential variables including self-control and empathy for proactive and reactive aggression among adolescents in Vietnam.

Consequently, the current study differs from others in two points: Firstly, this is one of the first studies in a Vietnamese context to explore the relationship between empathy and proactive and reactive aggression as well as the difference between genders with regard to this relationship. Secondly, this study also places emphasis on the predictability of self-control and empathy with regard to proactive and reactive aggression. In order to achieve these objectives, the following research questions would be answered:

Research questions:

1. Whether or not there is any difference between genders in relation to empathy (cognitive empathy and affective empathy), aggression (proactive aggression and reactive aggression) and self-control?

2. Whether or not there is correlation between cognitive and affective empathy and proactive and reactive aggression? How is that correlation different between genders?

3. How much predictability do empathy and self-control have in relation with aggression? And which of these two factors is the best predictor?

## 2. Materials and methods
### Participant characteristics

The research sample included 1,236 students at the age of 12-13 in 3 regions of Vietnam: The North (Hanoi City), the Central (Nghe An), the South (Ho Chi Minh City). The sample size was calculated based on guidance by Iarossi (2006), with a tolerance of 0.5 and reliability of 95 %. For the total number of 750 students aging 12-13 per school, the researchers needed 203 students per school. In each region, there were 2 secondary schools selected, then, the required number of students was 203*8 = 1,218. However, the sample size of the actual study was a little bigger than the proposed sample, which included 1,236 students.

Among the 1,236 students, the percentage of female individuals was higher than that of males with 51.9 % and 48.1 % respectively. Characteristics of the research sample were described in Table 1.

**Table 1.** Demographic characteristics of samples

| Sociodemographic characteristics | Vietnamese adolescents (N=1,236) | |
|---|---|---|
| | **N** | **%** |
| **Gender** | | |
| Male | 595 | 48.1 |
| Female | 641 | 51.9 |
| **Academic Performance** | | |
| Excellent | 675 | 54.6 |
| Good | 461 | 37.3 |
| Average | 100 | 8.1 |
| **Location** | | |
| North | 405 | 32.80 |
| Central | 427 | 34.50 |
| South | 403 | 32.60 |

**Procedure**

The research data was collected in 2020. The participants were selected with the consent of the local Districts Office of Education and Training, the principal, parents and students. After the research group received the principals' approval, a classroom-based survey was carried out. Prior to collecting data, the consent form was sent to the students' parents/caregivers by the form teacher. Students were also introduced to the study, rights and confidentiality in the case of participating in the research. Next, they signed in the assent form for adolescents. Based on the agreement of adolescents and their parents, the research team went to each class to provide instructions about answering the questionnaire and collecting those responses.

**Measures**

Empathy was measured by the Basic Empathy Scale (BES, Jolliffe, Farrington, 2006). The BES consists of 20 items and is comprised of two subscales 'cognitive empathy' (9 items) and 'affective empathy' (11 items). The BES uses a 5-point Likert scale from 1 – strongly disagree to 5 – strongly agree. Some converted items helped to assess levels of empathy in children as well as cognitive and affective subscales. Within the current study the value of Cronbach's alpha reliability for cognitive empathy $\alpha = .76$, for affective empathy $\alpha = .74$, and for the total BES $\alpha = .75$, which showed good internal consistencies.

Aggression was measured by The Reactive and Proactive Aggression Questionnaire (RPQ, Raine et al., 2006). The RPQ is a 23-item self-report questionnaire to assess reactive and proactive aggression in children aged from 6-16 years. It uses a 3-point Likert scale from 0 – never; 1 – sometimes and 2 – often. Among 23 items, there are 12 items for a reactive subscale and a proactive subscale comprised of 11 items. With regard the current study, the reliability (Cronbach's $\alpha$) of reactive aggression ($\alpha = .80$), proactive aggression ($\alpha = .79$), and the total RPQ scale ($\alpha = .81$) were sufficient.

Self-control was evaluated with the Self-Control Questionnaire (SCQ). This questionnaire was designed by the research team based on different sources such as The Emotion Regulation Questionnaire by Gross and John (2003), or the 10-Item Self-scoring Self-control Scale (Tangney et al., 2004). The SCQ consisted of 21 items based on a 5 – point Likert scale ranging from 1 – completely untrue for me; 2 – true for me to some extent; 3 – quite true; 4 – mostly true for me; 5 – completely true for me. The total score for the 21 items would provide the level of self-control of students. The minimum score was 21 and the maximum score was 105. This SCQ questionnaire had a good internal consistency with Cronbach's Alpha of .87.

It should be noted that both the BES and the RPQ were allowed by the above authors to be used in the current study, which were also culturally and language-adapted based on the following steps. Step 1: Having the questionnaires translated from English into Vietnamese by a

psychological PhD candidate who mastered both languages of English and Vietnamese. Step 2: Having the BES and the RPQ questionnaires back translated from Vietnamese into English by a linguist. After that, the back-translated version in English was examined by the two authors of the scale to check linguistic and grammatical accuracy. Step 3: A pilot survey was conducted to ensure the appropriateness of linguistics and grammar. The pilot study was undertaken with 50 students, which showed that all of them could understand and give answers to the translated questionnaires. Then, the survey was implemented with a larger size of 1,236 students.

**Data analytic plan**

Responses were analysed using SPSS version 22. Reliability was evaluated using Cronbach's Alpha; Pearson correlation coefficients followed the criteria proposed by Cohen (1988) (.10 ≤ r < .30: small; .30 ≤ r < .50: medium; r ≥ .50: large). The eta squared statistic to measure the effect size of the correlation using the formula suggested by Palland (2016) and the guidelines proposed by Cohen (1988) for this value are: .01 = small effect; .06 = moderate effect; .14 = large effect. Other statistical parameters such as mean and deviation, *t*-test were employed to illustrate the current status of aggression, empathy, self-control in Vietnamese adolescents and the differences in scores between genders respectively. A one-way between groups analysis of variance (ANOVA) was also applied to find out if aggression and empathy differed by adolescents' academic performance.

**3. Results**

**Gender difference in regard of aggression, self-control and empathy**

In order to answer the first research question, an independent sample *t*-test was performed to find out the difference between male and female adolescents in terms of their aggression, empathy and self-control (Table 2).

**Table 2**. Mean and standard deviation of aggression, empathy and self-control by gender

| | Males (N=595) | | Females (N=641) | | Range | | t | p |
|---|---|---|---|---|---|---|---|---|
| | **M** | **SD** | **M** | **SD** | **Min** | **Max** | | |
| **Aggression** | 9.31 | 5.08 | 9.60 | 4.73 | 0 | 46 | -1.03 | .03 |
| Proactive aggression | 1.91 | 2.36 | 1.65 | 1.94 | 0 | 24 | 2.06 | .04 |
| Reactive aggression | 7.40 | 3.43 | 7.95 | 3.38 | 0 | 22 | -2.81 | .004 |
| **Empathy** | 66.52 | 8.20 | 70.73 | 8.35 | 37 | 98 | -8.93 | .000 |
| Cognitive empathy | 31.53 | 4.66 | 33.17 | 4.47 | 12 | 45 | -6.27 | .000 |
| Affective empathy | 34.98 | 5.74 | 37.56 | 5.67 | 14 | 55 | -7.92 | .000 |
| **Self -control** | 56.22 | 10.86 | 56.18 | 9.46 | 21 | 105 | 0.07 | .93 (n.s) |

Table 2 illustrated that there was a statistically significant difference in aggression between male and female adolescents with p < .05. The mean and standard deviation of aggression for females (M = 9.60, SD = 4.73) was higher than that of males (M = 9.31, SD = 5.08). The statistical difference between male and female adolescents was also found with both proactive aggression and reactive aggression (p < .05). Concerning proactive aggression, the mean score of male adolescents (M = 1.91, SD = 2.36) was higher than that of female ones (M = 1.65, SD = 1.94). In contrast, regarding reactive aggression the mean score of female adolescents (M = 7.95, SD = 3.38) was higher than that of males (M = 7.40, SD = 3.43).

Statistically significant differences were found between males and females regarding empathy and the two components of empathy (p = .000). Particularly, female adolescents had

higher scores for empathy than the males in terms of both cognitive empathy (M = 33.13, SD = 4.66 vs. M = 31.53, SD = 4.47) and affective empathy (M = 37.56, SD = 5.74 vs. M = 34.98, SD = 5.67).

Regarding self-control, there was no statistical difference between male and female adolescents ($p > 0.05$).

**Correlation between empathy and aggression among Vietnamese adolescents**

To address our second research question, a test of Pearson (r) correlation was performed between the main study variables including cognitive, affective subscales and total empathy scale; reactive, proactive subscales and total aggression scale (Figure 1). As can be seen from Figure 1, there was a significant negative correlation between reactive, proactive, total aggression and affective, total empathy scores. Aggression subcomponents and empathy subtypes correlated significantly with each other. Aggression had quite a strong negative correlation with empathy ($r = -0.53$, $p < .01$). When adolescents displayed aggression, they would not be empathetic with the victims of their behavior. Aggressive adolescents would neither understand the victims' emotions nor share with them an appreciation of their painful experiences.
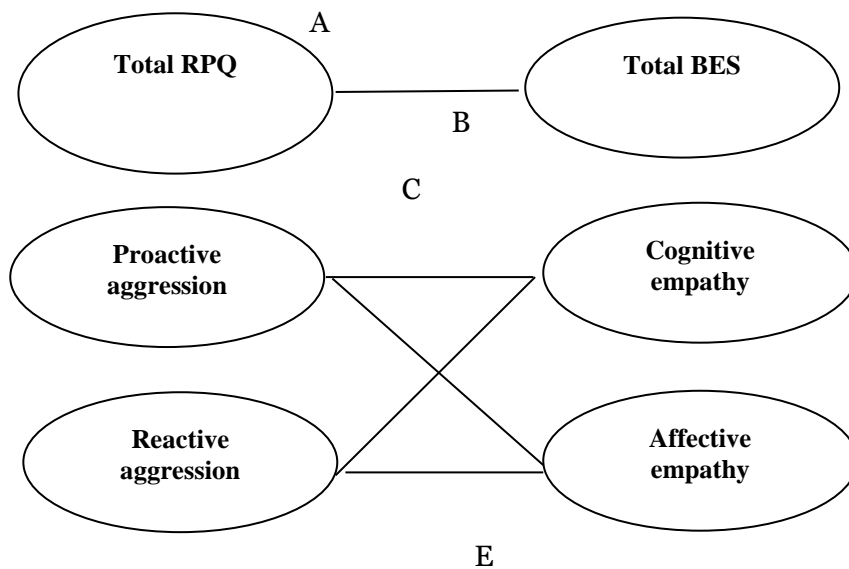


**Fig. 1.** The correlation between aggression and empathy in Vietnamese adolescents

A: Total: -0.53***; Male: -0.22**; Female: -0.32***
B: Total: -0.17**; Male: -0.57**; Female: -0.14***
C:  Total: -0.45***; Male: -0.40**; Female: -0.25***
D: Total: -0.18***; Male: -0.22**; Female: -0.32***
E: Total: -0.46***; Male: -0.18**; Female: -0.30***
A: Correlation between aggression and empathy.
B: Correlation between proactive aggression and cognitive empathy.
C: Correlation between proactive aggression and affective empathy.
D: Correlation between reactive aggression and cognitive empathy.
E: Correlation between reactive aggression and affective empathy
 (**): $p < 0.01$; (***): $p < 0.05$.

The negative correlation was also pointed out in relation to cognitive empathy, affective empathy and proactive aggression and reactive aggression. However, there was a difference between males and females in this relationship. Diagram 1 showed that the empathy-aggression association among females was higher than that of males in most relationships related to reactive aggression (D, E). The biggest correlation among female adolescents was between reactive aggression and cognitive empathy ($r = -.32$), the lowest correlation among them was between proactive aggression and cognitive empathy ($r = -.14$). On the contrary, regarding male adolescents, the correlation between aggression and empathy was higher than that of females in relationships related to proactive aggression (B, C). The biggest correlation among male adolescents was

between proactive aggression and cognitive empathy (r = -.57), the lowest correlation among them was between reactive aggression and affective empathy (r = -.18). This was consistent with results in Table 2 as male adolescents exhibited proactive aggression more frequently than female ones, while female adolescents showed reactive aggression more commonly than the opposite gender. Whether in proactive or reactive aggression, when adolescents displayed either type of aggression, they were not empathetic with the victims of their behavior in both cognitive and affective aspects.

**Predictability of empathy and self-control over aggression**

In order to find out the answer to the third research question, standard multiple regression was employed, which would help in clarifying the predictability of empathy and self-control over aggression among Vietnamese adolescents (Table 3).

**Table 3.** Results of standard multiple regression analyses

| | Adjusted R Square | Beta | sig | VIF |
|---|---|---|---|---|
| **Model** | .472 | | 0.000 | |
| **Empathy** (BES) | | -.42 | 0.000 | 1.37 |
| **Self-control** (SCQ) | | -.37 | 0.000 | 1.37 |

Results of the standard multiple regression analyses (Table 3) revealed that our model, which included control of empathy (BES) and control of self-control (SCQ), explains 47.2 % of the variance in aggression. Of these two variables, empathy made the largest contribution or a better predictor of aggression (beta = -.42), although self-control also made a statistically significant contribution (beta = -.37). Thus, it can be seen that aggression among adolescents in Vietnam could be predicted through empathy and self-control.

In addition, this study also explored the impact of adolescents' academic performance on aggression and empathy. A one-way between groups analysis of variance (ANOVA) was performed to explore the impact of academic performance on levels of aggression and empathy, as measured by the RPQ and the BES. Participants were divided into three groups according to their academic achievement ('excellence', 'good' and 'average'). There was a significant statistical difference in scores at $p <. 05$ for level of reactive, proactive and total aggression for the three academic achievement groups: $F (2, 1,233) = 1.12; p = .03$. Despite reaching a statistical significance, the actual difference in the mean scores between the groups was quite small. The effect size, calculated using eta square, was .01. According to Cohen's (1988, p. 284) guidance, this was a small effect. Post-hoc comparison using the Turkey HSD test showed that the mean score for 'good' students (M = 9.35; SD = 5.10) and 'excellent' students (M = 9.03; SD = 4.58) were significantly different from 'average' students (M = 9.70; SD = 4.67), p<.05. 'Excellent' students did not differ from 'good' students.

The same results were also found for empathy. There was a significant difference at $p < .001$ level of empathy as well as two components of empathy for the three academic groups: $F (2, 1,233) = 9.86, p = .00$. Post-hoc comparison using the Turkey HSD test revealed that the mean score for 'excellent' students (M = 69.56; SD = 8.52) and 'good' students (M = 68.02; SD = 8.37) was significantly different from 'average' students (M = 66.03; SD = 8.69), p = .00. The effect size, calculated using eta square, was quite small at .02 (Cohen's, 1988: 284).

**4. Discussion**

This study aimed to investigate the relationship between cognitive and affective empathy and proactive and reactive aggression, as well as the predictability of empathy and self-control over aggression among adolescents in Vietnam. Research findings helped in answering the research questions.

First, there was a difference between male and female adolescents in terms of aggression in general and proactive and reactive aggression, in particular. It was noticeable that the male adolescents showed a higher level of proactive aggression than the females, whereas female adolescents exhibited a

higher level of reactive aggression than males. This is consistent with previous studies' results, which were related to gender differences in terms of proactive aggression among adolescents. For example, in Fung, Raine, Gao' (2009) study, using a large sample of youth, found that proactive aggression increased for boys across adolescence but is more likely to remain stable for girls. However, what made this study different from others was that with Vietnamese adolescents, female adolescents displayed higher levels of aggression than male ones, specifically in regard to reactive aggression. This can be partly explained by the culture, which would have an impact on different aggression levels among male and female adolescents in different countries (Bergeron, Schneider, 2005; Anderson et al., 2010). Vietnam is situated in South East Asia, which has been largely influenced by Confucianism. The belief holds high regards for girly features and females' traditions. That the girls have always been expected to be discreet and soft made it inappropriate to show their aggression. Consequently, in the case of uncomfortable situations or provoking aggression, the girls would express their emotions rather than through overt behaviors. This is true to the extent that aggression was believed to be driven by emotional causes and the expression of aggression would be the way to release the emotions (Dogde, 1991). Those differences between male and female adolescents were also evident in relation to their empathy. To be more specific, female adolescents expressed empathy, including both cognitive and affective empathy, at a higher level than the males. This was in line with previous studies (Baez et al., 2017; McGee et al., 2021). However, neither male nor female adolescents showed their differences in terms of self-control.

Second, the findings in this research supported those in previous studies with respect to the relationship between empathy and aggression (Miller, Eisenberg, 1988; Mehrabian, 1997; Salas-Wright et al., 2012). Accordingly, empathy had a negative correlation with aggression. A body of empirical studies proved that aggression might be inhibited by empathy (Batanova, Loukas, 2016; Gni et al., 2008; Tangney et al., 2002). This is because the nature of empathy was linked to the care of other people in terms of cognitive and affective aspects. Researchers indicated that both cognitive and affective empathy play a crucial role in the inhibition of overt and relational aggression in early adolescents (Batanova, Loukas, 2014). Then, therefore, a higher level of empathy was connected with appropriate behaviour and contributed to personal relationships in a close and warm manner (Eisenberg et al., 2010). Cognitive empathy was also known as the capability of understanding other people's emotional states so the higher the cognitive empathy was, the higher the possibility of an aggression explosion would be (Warren et al., 2011). Despite different findings about aggression and empathy in different cultures (Anderson, 2010), the association between them seems to be universal. While the empathy-aggression association was based on its forms (physical aggression, verbal aggression) explored through questionnaires was not strong (Miller, Eisenberg, 1988), the association between empathy and aggression based on functional criteria (proactive and reactive aggression) within the current study was very strong. This result is valuable, which adds more evidence to the existing literature on the relationship between empathy and aggression, and proved that during adolescence empathy can buffer against aggression (Castillo et al., 2013).

A pivotal point of this study was the different correlation between empathy and aggression among male and female adolescents. While males exhibited proactive aggression more often than females, showing higher correlation between empathy and proactive aggression; females displayed higher reactive aggression, leading to a higher correlation between empathy and reactive aggression. This finding supported recommendations for different interventions within children showing different aggression. For example, the interventions for reactive aggression would focus more on self-control or anger regulation training and problem-solving skills. In contrast, those for proactive aggression would acknowledge the improvement of empathy and consciousness about negative effects of aggression (Hubbard, Swift, 2014). The association between empathy and proactive, reactive aggression among adolescents in Asian countries like Vietnam within the current study would provide more evidence on the empathy-aggression relationship, which has been researched for a long time.

Third, proactive and reactive aggression in this study was predicted by two variables, self-control and empathy. Yeo et al. (2011) highlighted that the aggression-empathy relationship may be different in different types of aggression. There have been numerous studies about the relationship between empathy and different kinds of aggression, ranging from traditional ones like physical and relational aggression (Eisenberg et al., 2010; Yeo et al., 2011), to criminal offenders

(Jolliffe, Farrington, 2004), cyberbullying (Lee, Shin, 2017) or bullying (Kokkinos, Kipritsi, 2012; Jolliffe, Farrington, 2006). Also, self-control was proved to have a relationship with aggression: higher self-control would illustrate a lower level of relational aggression, physical aggression and online aggression (McGee, 2021). Within the current study, empathy was more capable of predicting proactive aggression and reactive aggression than self-control. This result supported the conclusion by L.E. Marshall and W.L. Marshall (2011), which stated that humans' lack of empathy would tend to lead to more aggression or behaviors that ignore the rights or suffering of others. Research showed that there would be various elements to moderate the relationship between empathy and aggression like empathy level, aggression level, and demographic features of the participants, such as age, gender, ethnic group (Vachon et al., 2014). In addition to the self-control and empathy as stated above, this study also demonstrated that academic competency of adolescents would impact their aggression and empathy level. This might be due to education playing an important role in the relationship between empathy and aggression as the empathy-aggression connection (physical and verbal) would not exist among participants with a low academic background (MacGee et al., 2021).

Although this study provided clear answers to the research questions, it still had certain limitations. First, the study focused on early adolescents, in this case, the relationship between empathy and aggression would be not the same as that among those at a later adolescent period. This can be explained by the cognitive empathy in a more mature period, which might influence the possibility of aggression. Therefore, future studies can expand participants to the whole adolescent period to demonstrate clear differences. Second, this was a cross-sectional study, hence, it could not reflect the development of aggression and empathy among adolescents on a complete basis. Third, although this research demonstrated that self-control and empathy were predictors for aggression, it could have been more valuable with regard to proactive and reactive aggression, if it had discovered whether there would be any differences between adolescents with low and high self-control, as well as those with high and low empathy. Finally, this study was solely based on self-report, which was not compared with evaluations from friends, parents, and teachers, therefore, in the future, there would be a more complete reflection if different kinds of methods and participants were incorporated.

### 5. Conclusion

This study was carried out among Vietnamese adolescents in 3 regions including the North, South and the Central. It focused on investigating the relationship between empathy and aggression, the difference between male and female participants in this aspect as well as the predictive role of empathy and self-control towards proactive and reactive aggression. The results demonstrated that adolescents with good empathy would express lower aggression and vice versa. The empathy-aggression connection was different between male and female adolescents. More specifically, empathy was a better predictor than self-control for aggression among adolescents. Results emphasized the role of education in improving empathy to mitigate aggression and reducing school bullying, which has been at an alarming level in Vietnam. In fact, empathy is a kind of competence that can be improved thanks to the educational process (Marshall, Marshall, 2011).

### 6. Acknowledgements

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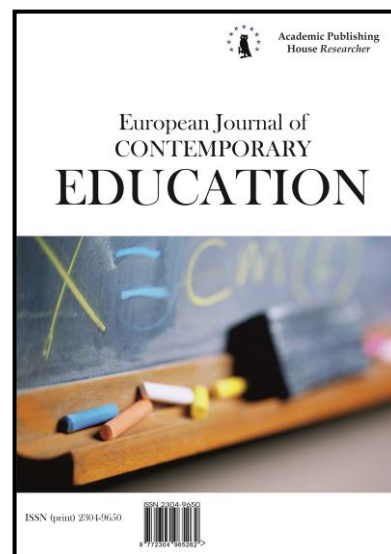
# An Examination of Perceived Reading Strategy Use Among University Level Students

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**Abstract**

As a core language skill, reading has always occupied a prominent role in the process of language acquisition, with a strategic approach to its development contributing to greater reading competences and better learning outcomes. The present paper, thus, aims to explore variation in strategy use by study field, year of study and university type among 228 university-level students in Bosnia and Herzegovina employing the Survey of Reading Strategies (SORS). A one-way MANCOVA revealed a significant effect of the study field on the overall use of reading strategies with the age factor being controlled and a univariate ANOVA indicated that the study field significantly affected all strategy subtypes. More specifically, students in the field of psychology seem to be the most frequent users of reading strategies and their two subtypes, namely global and support strategies, whereas the students in the field of English language and literature most frequently use problem-solving strategies. Moreover, a two-way MANOVA showed a significant interaction effect of the university status and the year of study on the metacognitive reading strategy use, even though their main effects were insignificant. The current study findings may contribute to broader understanding of the overall as well as type-specific use of reading strategies by EFL learners of different backgrounds, thus setting out guidelines for the development of corresponding curricula and instructional design.

**Keywords:** metacognitive awareness, reading strategies, study field, grade, university status.

## 1. Introduction

Reading, as one of the key language skills (Maasum, Maarof, 2012), and, besides listening, an alternative means for gaining access to language input, occupies a prominent place in the process of second language acquisition. However, it has not always been approached the same way. Initially, it presented the medium for familiarizing with literature, served as a material for pronunciation practice and grammar-based analyses, or a means for transmitting messages from

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one code to another (Carrell et al., 1988; Richards, Rodgers, 2001). Later, gaining mastery of this skill was recognized as one of the prerequisites for successful language attainment (Krashen, 1999). It transpired that through reading learners receive native-like expression, whose interpretation involves the application of linguistic as well as extralinguistic knowledge. In addition to this, highly developed reading skills significantly improve general content understanding (Yang, 2004) and contribute to a higher overall academic achievement (Anderson, 1999; Day, Bamford, 1998). Thus, full potential of reading should be extensively explored and a strategic approach to its development adopted (Hamzić, Bećirović, 2021).

Bearing this in mind, we attempted to investigate the use of metacognitive reading strategies, i.e. "intentional, carefully planned techniques by which learners monitor or manage their reading" (Sheorey, Mokhtari, 2001: 436). Such an active learners' involvement in the whole reading process, from planning, over monitoring to evaluating, has been shown to significantly contribute to successful reading and higher proficiency attainment (Carter, Nunan, 2001; Carrel, 1991; Chamot, 2005; Griffith, Ruan, 2005; Iwai, 2011; Oxford, 1990; Pressley, Afflerbach, 1995; Sheorey, Mokhtari, 2001; Sinanović, Bećirović, 2016; Taraban et al., 2000; Zare, 2013). Moreover, an effective use of metacognitive reading strategies generally leads to better self-regulation (Nash-Ditzel, 2010), better information comprehension and more effective application of newly acquired knowledge (Gourgey, 2003), which present necessary communication and practical skills needed in everyday life (Bećirović, Polz, 2021). Therefore, following strategic steps while performing a reading task should be promoted in teaching practice whenever possible and at all educational stages, including a university level (Stahl, Armstrong, 2018)

The current study is placed in the tertiary-education context of Bosnia and Herzegovina, the country where English seems to permeate all spheres of life (Delić et al., 2018; Dubravac, 2016; Dubravac et al., 2018; Dubravac, Skopljak, 2020; Kajtazović, 2012; Skopljak, Dubravac, 2020) and where English proficiency appears to be highly required (Kovačević et al., 2018). Despite such a strong and permanent presence of English in this context, either through formal instruction in the educational milieu or informal acquisition via the Internet, TV etc., Bosnian students still struggle to achieve the required competences, including reading competences (Dubravac, 2018; Kovačević et al., 2018). This might be at least partly changed by effective strategic behavior in various aspects of language use, including reading. Taking all the aforementioned into account, the present study aims to explore Bosnian EFL learners' perceived use of reading strategies by measuring whether the year of study, study field and university status, individually or in interaction, affect the level of metacognitive awareness of reading strategy application. These research findings may aid both teachers and students in selecting appropriate teaching methodology and reading strategies on the way of achieving desired learning outcomes.

**Literature review**

Owing to immense benefits metacognitive strategies yield, they have sparked a great research interest (Carrel, 1998; Carter, Nunan, 2001; Cohen, 1998; Griffiths, 2013; Griffiths, Oxford, 2014) resulting in numerous classifications and the development of various instruments (e.g. Oxford, 1990; Sheorey, Mokhtari, 2001). One of such instruments, frequently employed in the context of second and foreign language acquisition, is the Survey of Reading Strategies (SORS) (Mokhtari, Sheorey, 2002; Sheorey, Mokhtari, 2001), which explores students' awareness of the use of three subtypes of reading strategies, namely global (GLOB), problem-solving (PROB) and support (SUP) strategies. Global strategies include preparatory activities, problem-solving comprise actions performed during a reading task, whereas support strategies refer to additional activities such as paraphrasing, summarizing, and using dictionaries (Mokhtari, Reichard, 2002: 259).

The studies seeking to systematically explore the use of metacognitive strategies by EFL learners in diverse learning contexts, such as Costa Rica, Bahrain, Croatia, Turkey, Japan, Iran (Anderson, 2003; Malcolm, 2009; Mikulec, 2016; Shikano, 2013; Solak, Altay, 2014; Yuksel, Yuksel, 2012; Zare, Maftoon, 2014) have reported a moderate to high students' awareness of reading strategies. Problem-solving strategies appear to be the most frequently and support strategies the least frequently employed in a large number of EFL contexts (Anderson, 2003; Malcolm, 2009; Meniado, 2016; Mokhtari, Reichard, 2004; Solak, Altay, 2015; Yuksel, Yuksel, 2012; Zare, Maftoon, 2014). On the other hand, only a few studies have indicated the prevalence of global (Chen, Chen, 2015) or support reading strategies (Jafari, Shokkrpour, 2012; Sheorey, Babocky,

2008; Sheorey, Mokhtari, 2001; Tavakoli, 2014). The most frequent use of problem-solving strategies suggests that EFL learners take an active role in the process of reading and vigorously try to surmount reading difficulties as they arise by using tactics such as rereading, closer inspection, focusing, and similar. Such conscious awareness and ability to monitor the cognitive processes that they are involved in allow for their classification into skilled and efficient readers (Sheorey, Mokhtari, 2001). Conversely, a lower use of support strategies in different EFL contexts points to the users' non-reliance on some support reference material and dictionaries (Mokhtari, Reichard, 2002).

However, in many instances, it has been shown that the type and the extent to which specific strategies tend to be employed is affected by different variables, such as age (e.g. Alhaqbani, Riazi, 2012, Malcolm, 2009), gender (e.g. Bećirović et al., 2018), study field (e.g. Jafari, Shokrpour, 2012; Mochizuki, 1999; Peacock, 2001; Wu, 2005) and others.

Oxford and Nyikos (1989) analysed the use of strategies by 1200 foreign language students, and found that the students majoring in humanities/social sciences/education used functional practice strategies and resourceful independent strategies more than the technical majors. The same group of participants also showed greater awareness of metacognitive strategies, which might be attributed to a greater need for independent language development outside of the educational milieu. Likewise, Mochizuki (1999) conducted a study in the Japanese context, and indicated that the students of English used compensation, social and metacognitive strategies more frequently than the students of science and agriculture. Furthermore, Peacock (2001) compared the students of physics, mathematics and engineering. The findings revealed that the science students employed fewer cognitive strategies than the other two groups, while the students of mathematics were the least frequent users of metacognitive strategies.

However, the studies employing SORS as an instrument for gathering data (Jafari, Shokrpour, 2012; Park, 2010; Shikano, 2013; Tabtabaei, Assari, 2011; Wu, 2005; Zare, Maftoon, 2014) have revealed conflicting results. Jafari and Shokrpour (2012) compared the use of metacognitive strategies by 81 Iranian students majoring in environmental health, occupational health, safety and midwifery, and their findings showed that the first group of participants surpassed all the others in terms of the frequency of strategy use. Similarly, Wu (2005) suggested that the Taiwanese college students in applied foreign language and education used more metacognitive reading strategies than those of food beverage management and applied math. The same conclusions were reported in Park (2010). Park (2010) showed that the education/social science/humanities students employed metacognitive strategies most frequently, followed by the business students and the least active users proved to be the students of science and engineering. Conversely, Shikano (2013) and Tabatabaei and Assari (2011) showed that no such differences existed between the students of social studies and engineering in Japan, as well as between the medical students, computer engineering and law students in Iran, respectively. Interestingly, when students of different foreign languages, namely Arabic, Russian, and English were compared in terms of reading strategy awareness (Talebi et al., 2020), the last group of learners showed supremacy over the first two.

On the other hand, the findings pertaining to the relationship between the awareness of strategy use and year of study appear to be less conflicting. Higher-level students generally tend to demonstrate a more extensive use of strategies than lower-level students, as reported by Alhaqbani and Riazi (2012), who explored the metacognitive reading strategy use by 122 L2 Arabic students, then by Cogmen and Saracaloglu (2009), whose participants were 230 college students at Pamukkale University in Turkey and Malcolm (2009), who investigated strategy use among 160 students at a school of medicine in Bahrain.

In line with previous research, the studies exploring metacognitive strategy use in the context of Bosnia and Herzegovina (Bećirović et al., 2017; Bećirović et al., 2018) have indicated that Bosnian students are moderate to high strategy users, their strategy utilization being affected by different socio demographic factors. Distributing the Metacognitive Reading Strategies Questionnaire (Taraban et al., 2004) among 140 English and Management students, Bećirović et al. (2017) came to the conclusion that variables such as gender, year of study and study field significantly contribute to a higher strategy use, whereas nationality was shown to be an insignificant factor in this research context. Thus, the female students were shown to foster a higher metacognitive awareness than the male students and the students at the higher year of study proved to be more strategic readers than the lower grade students, with the English language students surpassing the management students in terms of the frequency of metacognitive strategy

use. Likewise, using SORS, Bećirović et al. (2018) identified gender as a significant factor contributing to a higher strategy use as the female students were shown to be better strategic readers than the male counterparts. Besides gender, the impact of some other factors, namely grade point average and nationality, on the use of reading strategies was measured and proved insignificant despite some minor differences existing between the groups. The current study will contribute to broader understanding of the overall as well as type-specific use of metacognitive reading strategies among Bosnian university level students. In fact, its purpose is to investigate the relationship between the year of study, study field and university status and students' metacognitive reading strategies. Taking into consideration that the year of study, study field and university status have not been researched by means of using SORS in the Bosnian university educational milieu, the current study provides novel findings particularly since their main and interaction effects on the use of metacognitive reading strategies are being measured. Thus, the research will test the following hypotheses:

H1 Perceived reading strategy use, including the strategy subtypes, namely global, problem solving and support, will differ by study field when the factor of age is controlled.

H2 Year of study and university status will interact in the effect on the perceived reading strategy use, including the strategy subtypes, namely global, problem solving and support.

H3 Perceived reading strategy use, including the strategy subtypes, namely global, problem solving and support, will differ by university status.

H4 Perceived reading strategy use, including the strategy subtypes, namely global, problem solving and support, will differ by the year of study.

## 2. Method
### *Participants*

The research sample encompassed 228 university-level students, who were selected by applying a convenience sampling method. The participants were studying at three different universities in Bosnia and Herzegovina, one public university situated in Zenica and two private universities in Sarajevo Canton. The number of public-university students was 53, whereas the number of the students studying at two private universities was 115 and 60, respectively. While private universities foster an international spirit and thus host students not only from the Balkan region but also from other world countries, the students studying at the public university come from Bosnia and Herzegovina only. Thus, the sample consisted of 131 students of Bosnian origin, 65 Turkish students and 32 students from other world countries. 149 participants were female and 79 participants were male students, with their age spanning from 18 to 35 ($M$ = 21.4, $SD$ = 2.43). The participants were either freshmen, sophomore, junior or senior level students studying at three different departments, namely the Department of English Language and Literature (ELL), the Department of Psychology and the Department of Genetics and Bioengineering. A detailed description of the participants is provided in Table 1. All the participants were minimally at B2 level of proficiency in English since they had all passed the English proficiency test before starting their tertiary education.

**Table 1.** The participants

| | | N | Percent |
|---|---|---|---|
| University Status | Private 1 | 115 | 50.4 |
| | Public | 53 | 23.02 |
| | Private 2 | 60 | 26.3 |
| Study field | ELL | 120 | 52.6 |
| | Psychology | 60 | 26.3 |
| | Genetics and bioengineering | 48 | 21.1 |
| Year of study | First study year | 66 | 28.9 |
| | Second study year | 54 | 23.7 |
| | Third study year | 27 | 11.8 |
| | Fourth study year | 81 | 35.5 |
| Total | | 228 | 100 |

**Measures**

To measure the frequency of students' perceived use of different reading strategies, the Survey of Reading Strategies (SORS), developed and validated by Mokhtari and Sheorey (2002), was employed. The instrument comprises 30 statements using a five-point Likert scale ranging from 1 ("I never or almost never do this") to 5 ("I always or almost always do this") with a higher number selected by respondents indicating a more frequent use of the specific strategy. The three subtypes of reading strategies compose three subscales, namely global reading strategy (GLOB) (13 items), support reading strategy (SUP) (8 items), and problem solving strategy subscale (PROB) (9 items). The global strategy subscale item example is "I take an overall view of the text to see what it is about before reading it", the support strategy subscale's item example is "I take notes while reading to help me understand what I read", whereas the problem solving strategy subscale item example is "when text becomes difficult, I re-read it to increase my understanding". Cronbach Alpha was also used to determine the internal consistency reliability coefficients. The data showed an acceptable level of reliability scores for the overall scale of reading strategies α = 0.89 as well as for all three reading strategy subtypes, namely global reading strategies α = 0.79, support reading strategies α = 0.69 and problem solving strategies α = 0.74. Internal consistency reliability coefficients were slightly lower than the reliability scores of the original scale which were as follows: global reading strategy α = 0.92, support reading strategy α = 0.87, problem solving strategy α = 0.79 and the overall scale α = 0.93 (Mokhtari, Sheorey, 2002: 3).

The instrument was composed of two distinct sections: (1) a demographic survey and (2) SORS containing items indicating the reading strategy type.

**Procedures**

After the researchers gained a formal consent from the universities' administration, they distributed the instrument to the students in the respective universities' classrooms and provided an adequate explanation on how it ought to be filled in. The average time spent on completing the instrument was 20 minutes. The original English version of SORS was administered to the participants due to the fact that the participants from the public university are English Language Department students and English is the medium of instruction at all departments at the two private universities. Thus, the translation of the instrument was not a necessary requirement.

**Data Analysis**

Prior to the analysis, screening the data for missing cases and outliers was performed. Normality, linearity, homoscedasticity and homogeneity of variance-covariance matrices were examined to ensure that the underlying assumptions for performing multivariate analysis were met (Mertler, Reinhart, 2016). To determine the type and frequency of specific strategy usage, frequencies and means for SORS and its subscales were computed. The guidelines offered by the authors of SORS were applied in the process and the interpretation of the scores on the scales was based on the key provided by the authors (Mokhtari, Sheorey, 2002). Thus, three levels of reading strategy usage were valued as high (M = 3.50 or higher), moderate (M = 2.5 to M = 3.49), and low (M = 2.49 and below). In order to assess how well the model fits the data Confirmatory Factor Analysis (CFA) was performed by using AMOS 23 with the same number of participants (N = 228).

A one-way MANCOVA was employed to determine the effect of the study field on reading strategies with age being controlled. Since the participants' age ranged from 18 to 35 and the standard deviation was 2.43, controlling the influence of students' age on measuring the influence of three different study fields produced more accurate results. This assumption is based on the fact that various factors acting and interacting together simultaneously affect dependent variables (Gravetter, Wallnau, 2008).

In order to examine the effects of the university status and year of study on GLOB, SUP, and PROB a two-way MANOVA was employed and the follow-up comparison procedures were conducted to determine interaction effects. According to Stevens (2001), independent variables affect participants in more than one way and a multivariate analysis thus provides a more holistic picture.

**3. Results**
**Preliminary Analyses**

Descriptive results in terms of means and standard deviations (SD) are presented in Table 2 showing that the participants achieved the highest score on the problem solving strategies subscale.

The normality distribution of dependent variables, namely global reading strategies, support reading strategies, and problem solving strategies, was tested by examining skewness and kurtosis. The results of the normality test are also presented in Table 2 showing that the skewness and kurtosis scores are within the acceptable range from -1 to +1 (Hair et al., 2010), indicating that there are no significant deviations of all dependent variables from the normal distribution. The scores of Pearson correlations among the dependent variables are presented in Table 2. The outcomes of a correlation analysis show strong and significant correlations between all dependent variables.

**Table 2.** Descriptive analysis, normality and reliability

| Variables | Mean | SD | Skewness | Kurtosis | α | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|
| 1. Global reading strategies | 3.47 | .61 | .127 | -.090 | 0.79 | 1 | | |
| 2. Support reading strategies | 3.47 | .67 | .144 | -.428 | 0.69 | .705[**] | 1 | |
| 3. Problem solving strategies | 3.78 | .62 | -.221 | -.323 | 0.74 | .701[**] | .627[**] | 1 |

[**] Correlation is significant at the 0.01 level (2-tailed)

**Factor Analysis**

A factor analysis is a multivariate technique (Sawaki, 2012) used for examining the relationships among variables (Ockey, Choi, 2015). In our study a Confirmatory Factor Analysis (CFA) was conducted on the original 30 items of the Reading Strategy Questionnaire using AMOS 23. The analysis resulted in relatively unsatisfactory model fits with $\chi^2$ (402) = 832.7 (p < .001), root mean square error of approximation (RMSEA) = .07, comparative fit index (CFI) = .73, Tucker–Lewis index (TLI) = .71, and adjusted goodness of fit index (AGFI) = .77. Since the analysis resulted in a relatively unsatisfactory model fit, the factor loadings for 30 items were inspected and two items, one from the global reading subscale and one from the problem-solving reading subscale, were removed because of weak factor loadings (i.e., less than .60). A Confirmatory Factor Analysis (CFA) was conducted again and showed a relatively improved model. The modification index was examined with few co-variances suggested to be freely estimated and these suggestions were adopted and the model was modified. A Confirmatory Factor Analysis (CFA) was run again with the remaining 28 items and modifications, and the model fit improved to $\chi^2$ (280) = 500.2 (p < .001), RMSEA= .06, CFI = .84, AGFI = .83, TLI = .813, which can be considered acceptable model fits.

**The Effects of the year of study, study field and university status on the Reading Strategy Use**

A one-way MANCOVA was employed to determine the effect of the study field on reading strategies with age being controlled. The main effect of the study field Pillais' Trace = .114, F (8, 444) = 3.37, p = .001 indicated a significant effect on the combined dependent variable of reading strategies. The multivariate effect size was estimated at $\eta p^2$ = .057. The covariate of age insignificantly influenced the combined dependent variables Pillais' Trace = .034, F (8, 221) = 1.92, p = .109, multivariate $\eta p^2$ = .034. The univariate ANOVA results indicated that the study field significantly affected all strategies together F(2, 224) = 5.79, p = .004, $\eta p^2$ = .049, and individually global reading strategies F(2, 224) = 4.23, p = .016, $\eta p^2$ = .036, problem solving strategies F(2, 224) = 4.54, p = .012, $\eta p^2$ = .039 and support reading strategies F(2, 224) = 7.26, p = .001, $\eta p^2$ = .061, while the covariate of age did not significantly affect the overall or individual reading strategy usage. Table 3 displays group means and standard deviations for SORS and its subscales. A comparison of means indicated that the students who studied psychology used reading strategies more frequently, overall, as well as global and support reading strategies, whereas the students who studied at the Department of English Language and Literature used problem solving strategies most frequently. The students studying at the Department of Genetics and Bioengineering employed reading strategies least frequently, overall as well as their subtypes, namely global, support and problem solving reading strategies.

**Table 3.** Multivariate ANOVA on reading strategies between groups based on study field

|  | English LL | | Psychology | | Genetics and Bioengineering | | | |
|---|---|---|---|---|---|---|---|---|
| Strategy | *M* | *SD* | *M* | *SD* | *M* | *SD* | *p* | ηp² |
| Global reading strategies | 3.46 | .61 | 3.62 | .58 | 3.27 | .58 | .016 | .036 |
| Support reading strategies | 3.50 | .68 | 3.61 | .64 | 3.18 | .61 | .001 | .061 |
| Problem solving strategies | 3.88 | .59 | 3.75 | .64 | 3.32 | .60 | .012 | .039 |
| All Strategies | 3.58 | .55 | 3.65 | .56 | 3.32 | .52 | .004 | .049 |

A two-way MANOVA was conducted to determine the effects of the university status and year of study on the use of reading strategies, including the three subscales. A factor interaction between the year of study and university status was examined and it revealed a significant effect Wilks' λ = .906, F (9, 530.70) = 2.40, p =. 010, ηp² = .032. Even though there was a significant interaction effect of the year of study and university status on the combined variables of reading strategies, the main effects were also determined as well as their strength. The main effect of the university status was insignificant Wilks' λ = .995, F (3, 218) = .339, p =. 797, ηp² = .005 as was the main effect of the year of study Wilks' λ = .932, F (9, 530.70) = 1.74, p =. 078, ηp² = .023.
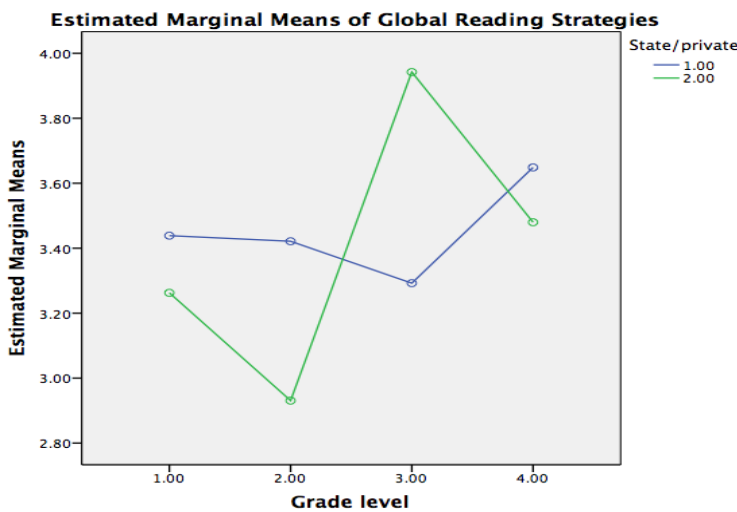


**Fig. 1.** University Status Differences between Year of study Groups in Global Reading Strategies

A univariate ANOVA showed that the year of study had a significant effect on the overall use of reading strategies $F(3, 220) = 3.31, p = .021, ηp² = .043$ and global reading strategies individually $F(3, 220) = 4.50, p = .004, ηp² = .058$, while it had an insignificant effect on problem solving $F(3, 220) = 1.79, p = .151, ηp² = .024$ and support reading strategies $F(3, 220) = 1.64, p = .179, ηp² = .022$ (Table 4). The effect of the university status on any of the reading strategies was insignificant (Table 5).

**Table 4.** Multivariate ANOVA on reading strategies between groups based on grade level

|  | 1st grade | | 2nd grade | | 3rd grade | | 4th grade | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Strategy | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *p* | ηp² |
| Global reading strategies | 3.36 | .60 | 3.33 | .59 | 3.58 | .70 | 3.60 | .57 | .004 | .058 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Support reading strategies | 3.37 | .75 | 3.41 | .66 | 3.55 | .79 | 3.55 | .60 | .179 | .022 |
| Problem solving strategies | 3.66 | .64 | 3.74 | .64 | 3.77 | .67 | 3.92 | .55 | .151 | .024 |
| All Strategies | 3.44 | .59 | 3.46 | .54 | 3.62 | .70 | 3.67 | .49 | .21 | .043 |

The year of study and university status significantly interacted on reading strategies overall $F(3, 220) = 3.39$, $p = .019$, $\eta p^2 = .044$, as well as on global $F(3, 220) = 5.07$, $p = .002$, $\eta p^2 = .065$ (Figure 1), and problem solving reading strategies $F(3, 220) = 2.94$, $p = .034$, $\eta p^2 = .039$ (Figure 2) whereas they did not interact on support reading strategies $F(3, 220) = .94$, $p = .423$, $\eta p^2 = .013$.

**Table 5.** Multivariate ANOVA on reading strategies between groups based on the type of university

| | Private University | | State University | | | |
|---|---|---|---|---|---|---|
| Strategy | *M* | *SD* | *M* | *SD* | *p* | $\eta p^2$ |
| Global reading strategies | 3.39 | .59 | 3.55 | .61 | .614 | .001 |
| Support reading strategies | 3.45 | .70 | 3.47 | .66 | .996 | .000 |
| Problem solving strategies | 3.68 | .61 | 3.83 | .62 | .458 | .003 |
| All Strategies | 3.49 | .56 | 3.57 | .56 | .653 | .001 |
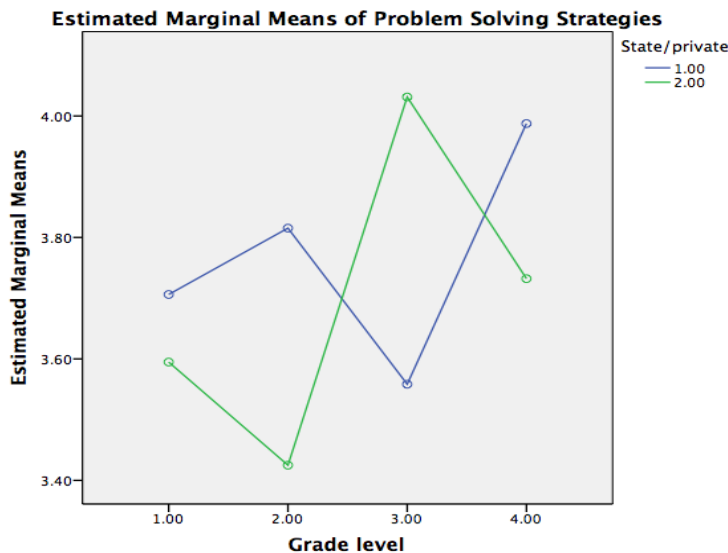


**Fig. 2.** University Status Differences between year of Study Groups in Problem Solving Strategies

### 4. Discussion
The present study was designed to investigate the main effect of the participants' study field as well as the main and interaction effects of university status and year of study on their perceived use of reading strategies and their three subtypes, namely problem solving, global and support reading strategies. Thus, the first hypothesis stating that the use of reading strategies, including the three subscales, will differ based on the participants' study field when the age factor is controlled was supported, as the difference in the use of reading strategies, overall and different subtypes,

among the students studying at different departments was significant. Based on the SORS key provided by Mokhtari and Sheorey (2002), the overall usage of reading strategies by the participants majoring in the field of psychology and those majoring in English language and literature was measured high, whereas the usage of strategies by the students majoring in the field of genetics and bioengineering was moderate. Furthermore, the students majoring in the field of psychology achieved a high score on all three subscales, and their use of reading strategies, overall as well as global and support reading strategies, was at the highest level in comparison to the use of the same strategies by the students majoring in two other study fields. On the other hand, the students majoring in English achieved a high score on problem solving and support reading strategy subscales and a moderate score on the global reading strategy subscale, and their use of problem solving strategies was the highest in comparison to all the other students. The students majoring in the field of genetics and bioengineering reported a moderate use of global and support reading strategies as well as a high use of problem solving strategies. Still, they achieved the lowest score overall and on all the subscales. Such results showing that the participants majoring in the field of psychology and English language showed greater metacognitive awareness and a more extensive perceived use of reading strategies than the participants majoring in the field of genetics and bioengineering confirm some of the previous findings which indicated that students majoring in the field of humanities, social sciences and education foster deeper awareness of reading strategies and use them more extensively than the students majoring in the field of natural and technical sciences (Mochizuki, 1999; Oxford, Nyikos, 1989; Peacock, Ho, 2003; Rong, 1999).

In addition to this, it is important to mention that all the present study participants reported the most frequent use of problem solving reading strategies, the findings which converge with those of other studies, including the studies conducted in the neighbouring countries (Karbalaei, 2010; Mikulec, 2016; Mokhtari, Reichard, 2004; Zare, Maftoon, 2014, etc.). This indicates that the current study participants are actively involved in the reading process and use different tactics, such as close reading, sharp focus and rereading for complete understanding of the reading material. The fact that the students majoring in English language and literature reported a more extensive usage of problem solving strategies than the students majoring in psychology and genetics and bioengineering might be explained by the fact that during their studies these students focus on language a lot and constantly try to acquire deep understanding of the text, by working directly with it, eliciting word meaning, analyzing sentence structure and discussing the issues that arise. They are often required to write reading and writing journals in which they reflect on how they understand a wide range of texts, which entails the application of general knowledge in addition to English language knowledge.

On the other side, the most conspicuous observation to emerge from the data comparison is the one indicating that the students majoring in psychology surpassed the students majoring in English language and literature in the use of reading strategies overall and two subtypes, namely global and support reading strategies, which seems to be in sharp contrast with the results of a number of studies singling out foreign language students as more regular strategy users than the students majoring in other fields (Mochizuki, 1999; Peacock, Ho, 2003; Rong, 1999).

Such high scores achieved by the psychology students included in the current research might be due to the fact that the means of instruction at that department is English and the curriculum is designed in such a way that it incorporates some courses related to developing reading skills. Thus, the psychology students' frequent exposure to English requires them to have good English language skills as well as to allocate some extra time to independent language learning outside the formal learning environment. Still, the fact that they use reading strategies overall as well as global and support reading strategies more frequently than language students indicates that they approach the text with more preparation, spend more time previewing it, use more support mechanisms such as dictionaries and underline and highlight textual information, whereas language students try to understand the meaning of words on their own and reread the text to improve comprehension.

Furthermore, the current findings indicating a significant difference in the use of reading strategies among the students studying at different departments, share some similarities with Park's (2010) findings, which revealed a significant difference in the overall use of reading strategies among the students majoring in humanities, social sciences, business, education and science and engineering, as well as with the Tabatabaei and Assari's findings (2011) showing a few significant differences only in the individual use of strategies across different disciplines, namely

medicine, computer engineering and law. However, these findings are not fully aligned as Park (2010) measured an insignificant difference in the use of all strategy subtypes whereas Tabatabaei and Assari (2011) pointed to an insignificant difference in the overall use of reading strategies. Likewise, the current findings diverge from the findings of Zare and Maftoon (2014), which revealed that MA students of engineering, physics and communication did not significantly differ in their overall use of metacognitive reading strategies as well as in their use of problem solving, global and support reading strategies respectively. Moreover, the current study findings do not confirm the findings presented in Shikano (2013), which indicated that the use of metacognitive reading strategies does not depend on the academic field, as no significant difference was found in their use between the humanities/social science students, on the one hand, and the science and engineering students, on the other hand.

The second hypothesis stating that there will be a significant interaction effects of the year of study X university status on SORS and three reading strategy subscales was supported, as the interaction effects of these two factors on SORS were significant despite the fact that their individual main effects on SORS were insignificant. Furthermore, the interaction effect of the year of study X university status on the participants' use of problem solving and global reading strategies was also significant. Such results indicate that the effect of the year of study on the overall as well as individual use of some strategy subtypes largely depends on the university status. Though both private and public university students follow curricula which bear close similarity and are approved by the same institution, namely the Ministry of Education, still these curricula differ both contentually and structurally and the courses are spread differently across study years, which might corroborate the current findings about the interrelatedness between the year of study and the university status. The first possible explanation that emerges for the analysis of the curricula applied at these different institutions is that the specific courses focusing on the development of students' reading skills and their reading comprehension are spread differently across study years at private and public universities. At private universities, such courses mainly span across the first two study years, while at the same time at the public university, at the ELL department specifically, such courses are incorporated into a broader course striving to develop all skills and they span across all four study years. This might be corroborated by the current study findings which reveal that the first- and second-year students at two private universities use metacognitive reading strategies more frequently than the first- and second-year students at the public university. Though this trend does not continue in the third study year and the third-year students at private universities use strategies less frequently than the third-year students at the public university, this changes in the final study year and the fourth-year students at private universities show greater metacognitive awareness than the same group of students at the public university. Such results suggest that it might be more beneficial and effective to incorporate the courses focusing on the development of language skills in the first two study years as this practice leads to a higher strategy usage in the first study years but also ahead.

Moreover, we hypothesized that the university status will have a significant effect on SORS and three reading strategy subscales. The findings of the current study did not support the posed hypothesis, as they indicated no significant difference between the public university students, on the one hand, and the private university students, on the other hand, in their overall and individual strategy usage. Both private and public university students reported a high overall usage of reading strategies as well as a high usage of problem solving and a moderate usage of global and support reading strategy respectively, with the former using metacognitive reading strategies a bit more frequently than the latter. Still, the differences between the private and public university students are insignificant, which is not unexpected, as the curricula applied at both private and public universities in the country are approved by the same institution, namely the Ministry of Education, and are similar. Moreover, as stated earlier, the state university students encompassed only students studying at the Department of English language and literature, who, as suggested in some previous research (Mochizuki, 1999; Wu, 2005), commonly foster greater strategy awareness than the students majoring in other fields, which might have contributed to such research results and should be taken into consideration in future research studies. As indicated earlier, the curricula followed at these two universities are rather similar and they are approved by the same institution and there are only a few differences related to how the courses are spread across study years. Though the difference in the structure of curricula and the order of courses developing reading skills and improving reading comprehension might be claimed to lead to a larger usage of strategies by private university students,

still these results are insignificant and point to the fact that metacognition is developed in a different way and at different stages at these two types of universities and departments.

The hypothesis stating that the use of reading strategies will differ based on the students' year of study was supported as it was shown that the year of study had a significant impact on the overall reading strategy use (SORS) and on the use of global reading strategies. The third-year and fourth-year students tend to use reading strategies very frequently and their usage of reading strategies overall and their three subtypes was measured high. On the contrary, the first-year and second-year students obtained a moderate score overall and on the global and support reading strategy subscales and a high score on the problem solving subscale. Such findings indicate that the use of strategies overall increases with the study progress and that the students who have spent more time in the academic educational environment exhibit greater awareness of reading strategies. It is peculiarly interesting to notice that, despite a significant difference existing in the reading strategy usage among students at different years of study, still in some aspects students of senior years exhibited either the same or even lower metacognitive awareness. For example, the third-year and fourth-year students achieved exactly the same score on SORS and on the support reading strategy subscale, while the third-year students achieved a slightly higher score on the global reading strategy subscale. Likewise, the first-year students achieved higher scores than the second-year students both on SORS and on all reading strategy subscales, which might be attributed to individual participants' characteristics and their proficiency level that has not always been shown to correspond with the study year progress (Brdarević-Čeljo et al., 2018). Such findings are closely related to the results of some previous studies (Cogmen, Saracaloglu, 2009; Malcolm, 2009; Oxford, 1994), which also pointed to an increased use of strategies by higher-level students and are fully in line with the findings presented in Alhaqbani and Riazi (2012), which likewise indicated much greater usage of reading strategies, overall and individually, by the fourth-year and third-year students than by lower-level students. Academic and field expertise development is believed to improve students' reading competency which, in turn, enhances their metacognitive awareness (Alhaqbani, Riazi, 2012; Baker, 2008; Malcolm, 2009; Pressley, Afflerbach, 1995). Thus, students with more academic experience and more knowledge in their respective fields seem to be more competent strategic readers able to manage and direct the use of reading strategies in the most useful way.

The evidence from this study implies that teaching reading strategies ought to be included into the curricula designed for all study fields, particularly so for the field of natural science and engineering, as the reading strategy usage improves reading comprehension and consequently contributes to establishing a more effective learning pattern (Alexander, Jetton, 2010). Accordingly, various workshops and seminars should be organized to train the teaching staff how to teach reading strategies effectively. The existence of a significant difference in the use of reading strategies based on the students' study field implicates that a more structured and field-specific approach to teaching reading strategies needs to be adopted. Likewise, the differences in the use of strategies by students of different study years and an occasional lower usage of strategies by students of higher study years imply that curriculum revision ought to be made and care should be taken that the courses implementing reading strategy instruction are incorporated within the curricula applied at different departments and should be also taught from the outset of university education.

## 4. Conclusion
The current study has some limitations, which could serve as suggestions for further research. Firstly, the students' proficiency levels were not measured by means of a proficiency test. The proficiency exam test results would have given us a better insight into their real proficiency level and we would have been able to determine whether there exists a clear relationship between students' proficiency and their study field. Still, we need to emphasize that all the private university students need to pass the proficiency exam before starting the study program and need to achieve the B2 proficiency level so that they can attend the classes held in English. Secondly, students' reading ability could have been measured and its relationship with the use of reading strategies established, which might be taken into account in future enquiries.

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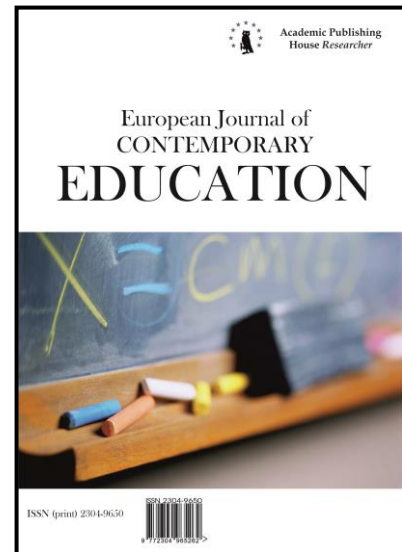
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## Victims or Criminals? Knowledge, Perceptions, and Attitudes of Ghanaian University Students on Illicit Drugs and Substance Users

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### Abstract

Illicit drugs and other substances are serious threats to global health and security. Thus, there have been several global efforts to enact and enforce strict humane drug laws and adequate interventions to curb the trade and use of drugs. Nevertheless, there is a dearth of research in the area of knowledge, perception, and attitude of high-risk populations, like West African university students, to guide interventions and the implementation of drug laws. In this study, we explored the knowledge, perception, and attitude of university students regarding available illicit drugs and drug users in Ghana. Adopting a cross-sectional correlational design, our results from 562 students showed that a large proportion of Ghanaian students were aware of the widely used drugs. The majority of our participants reported having heard of alcohol, cocaine, and heroin. However, fewer people reported knowing drugs such as lysergic acid diethylamide (LSD). We observed that university students in Ghana shared positive attitudes towards drug users. Participants in our study viewed drug users and problem drug users as victims who needed support rather than criminals needing punishment. Future research is required among mental health service providers and law enforcement agencies to explore their knowledge, attitude, and perception of drug users and other related issues.

**Keywords:** attitude, drug users, Ghana, illicit drugs, knowledge, perception, university students.

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## 1. Introduction

The illegal use of narcotic drugs is a major global health problem that requires a multiplicity of efforts and interventions (Babor, 2010; Sobko, 2020). Evidence shows significant worldwide epidemiological data regarding the high youth risk of drug use over the years (DuPont et al., 2018; Frisher et al., 2007). In 2012, a 5.3 % past-month cannabis use and 7.1 % lifetime amphetamine use were indicated among Ghanaian high school students (Oppong Asante, 2019). His study identified school-going problems like truancy, bullying, and physical attack experiences significantly correlated with drug use. According to Kabore et al. (2019), drug abuse in West African countries, like in Ghana, is affected by multisystemic dimensions at the individual, community, and policy levels.

In 2014, an urgent need for policy structures that focus on human rights and public health values was initiated by the disproportionate effect of draconian drug laws across West Africa. The reasoning is that most of the laws in the African sub-region regarded drug use or abuse as a criminal offense punishable with imprisonment up to 25 years in Nigeria, 20 years in Togo, and 5 years in Ghana (Bridge, Loglo, 2017). Notwithstanding these punitive measures, West Africa has seen a spike in drug trafficking, development, and use (United Nations Office of Drugs and Crime, 2017).

Although the damage caused by the growing use of drugs in the area is worrying, the effects of applying a punitive approach to coping with the drug issue have been more troubling. The West Africa Commission on Drugs [WACD] (2014), for example, called for the decriminalization of marijuana possession for personal use. According to the commission, evidence demonstrates that drug (ab)use criminalization exacerbates health and social issues, places excessive pressure on the criminal justice system, and encourages corruption in West Africa. Consequently, a Model Drug Law was formulated to guide countries in West Africa in considering illicit drug policy reforms. As a result, the reconsideration of drug policies in Ghana is in line with WACD's 'decriminalisation' pattern enshrined in the 2017 Ghana Narcotic Control Commission Bill (Shaw, Bird, 2017).

Besides the extant drug policy and drug issues in Ghana, there is a need to explore the knowledge, perception, and attitude of young people, especially those in the universities. Arguing from the findings of Kabore et al. (2019), university students in Ghana are relevant in aiding the successful implementation of drug laws and policies. Also, they have vital roles as the younger population to fight against illicit drug use, provide accurate drug-related information, and help transform the attitudes towards drug users. Consequently, the accuracy of the awareness and attitude of society related to drugs among students of higher learning institutions are critical to Ghana's success in this current humane drug fight (Aboagye et al., 2020; Brown et al., 2013). Therefore, our present study seeks to investigate the knowledge, perceptions, and attitudes of Ghanaian university students towards illicit drugs and substance users.

## 2. Materials and methods

### Design

A cross-sectional correlational design was used to investigate the knowledge, perception, and attitude of university students regarding illicit drugs and their users in Ghana. The cross-sectional correlational design has been adopted and used in a similar context by scholars such as Fendrich and Mackesy-Amiti (2000), Valdebenito et al. (2015), and Windarwati et al. (2021).

### Ethical approval

The University of Cape Coast Institutional Review Board granted ethical approval (UCCIRB/CHAS/2020/38). Formal consent was received from all participants before the inception of the data collection via email. We followed all requisite ethical considerations required for human studies.

### Sample

Overall, 562 were sampled for the study. Among them, 59 % were males while 40 % were females. An additional 1 % preferred not to state their gender. Regarding their marital status, 76.7 % were single while 21.7 % reported being married. Furthermore, participants reported a mean age and the standard deviation of 26 and 5.84 years respectively. The early adult group (18-27) was represented 61 % while the adult group (28-37) represented 34 % of the total sample. The educational background of participants showed that most respondents were at level 400 (52.7%) followed by level 300 (16.5 %). The rest included 14.8 % of postgraduate students (levels 500, 600, 700, 800, and 900), 8.2% level 200 and 7.8 % level 100. According to the participants, 61.6 % were residents while the rest (38.4 %) were nonresidents. Concerning their

region of residence, the majority 46.9 % of the students originated from the southern sector of Ghana (Accra, Ashanti, and Central Regions) with an additional 8 % from Western and Western North Regions. Further, the eastern sector of Ghana (Eastern, Oti, and Volta Regions) and northern sector (Ahafo, Bono, Bono East, North East, Northern, Savanna, Upper East, and Upper West Regions) represented 30.5 % and 14.6 % respectively.

**Measures**

Participants completed a 19-item Knowledge on Illicit Drug Issues Scale that was adopted from the study of Bryan et al. (2000). The tool is comprised of two major sections; Sections A (12 items on drug-related knowledge and behaviours) and B (8 items on demographic characteristics like sex, age, level of education, etc.). Most of the items in section A were measured on a 5-point Likert scale from: "strongly disagree", "disagree", "not sure", "agree", and "strongly agree" while few of them offered only two or three options: "yes", "no" and/or "maybe". Participants were allowed to select suitable options in Section B to answer demographic questions on age, sex, educational level, etc.

As our survey tool was adapted from the survey questionnaire of Bryan et al. (2000) without a report on internal consistency and reliability, a pilot study was conducted within two weeks before the data collection and 10 students from the Cape Coast Technical University were sampled. The pilot study indicated an acceptable Cronbach alpha reliability value of 0.74 (George, Mallery, 2003). Additional validity testing was conducted to further enhanced the adapted scale.

**Procedure**

Formal permissions were sought from appropriate authorities in selected universities following ethical approval. Voluntary calls were made for student participation through their emails and willing students who signed formal consents were included in the study. Interested participants who met the inclusion criterion of being valid students were recruited. Due to the heightened COVID-19 infections in Ghana during the data collection period, we used an online survey approach. The entire data collection process lasted between May and July 2020.

**Data analysis**

Analysis of survey responses was conducted after data cleaning and transformation were completed. Descriptive analysis of frequency distribution with percentage responses was assessed for specific questions concerning knowledge regarding drugs and drug user issues. To analyse bivariate relationships for ordinal variables, Chi-square contingency tables were examined with commensurating probability values less than 0.05 deemed to be statistically significant. All analyses were done using the Stata Statistical Software 14.2 (StataCorp, 2015).

### 3. Results

**Level of drug awareness among Ghanaian students**

As can be seen from Table 1, the students appear to have a generally good level of awareness about drugs. Over 80 % of respondents reported that they had heard of cannabis. Interestingly, the majority of participants reported having heard of alcohol (95.7 %), cocaine (95.2 %), and heroin (80.2 %). However, fewer people reported having heard of drugs such as lysergic acid diethylamide [LSD] (28.7 %).

**Table 1.** Awareness of Illicit Drugs among Ghanaian Students

| Types of Drugs | Frequency | Percentage (%) | |
|---|---|---|---|
| | | Yes | No |
| Alcohol | 537 | 95.7* | 4.3 |
| Amphetamines | 255 | 45.5 | 54.5 |
| Caffeine | 489 | 87.2* | 12.8 |
| Cannabis, Marijuana, or Hashish | 478 | 85.2* | 14.8 |
| Cocaine | 534 | 95.2* | 4.8 |
| Heroin | 450 | 80.2* | 19.8 |
| LSD | 161 | 28.7 | 71.3 |

| Nicotine | 399 | 71.1* | 28.9 |
| Valium 5/10 | 279 | 50.3* | 49.7 |

Notes: n=561. *More represented by over 50%

### Students experience with cannabis use and knowledge of drug users

Responses in Table 2 indicate that most of the participants knew someone who smoke cannabis (61 %), as well as someone with a drug use problem (65 %). However, only a few (13 %) reported ever smoking cannabis personally.

**Table 2.** Students experiential knowledge of drugs and drug users

| Variable | Level | Frequency | Percentage (%) |
|---|---|---|---|
| I know someone who smokes cannabis | No | 219 | 39 |
| | Yes | 342* | 61 |
| | Maybe | 6 | 10 |
| I have ever taken cannabis | No | 488 | 87 |
| | Yes | 67 | 13 |
| I know someone with a drug use problem | No | 195 | 35 |
| | Yes | 366* | 65 |

Notes: n=561. *More represented by over 50 %

### Experiential knowledge of drug users, perceptions, and attitudes

Chi-square tests of independence were conducted to determine the associations between participants' sociodemographic variables and personal knowledge of cannabis users (see Table 3 for details). Generally, more participants felt that drug addicts are not given a fair chance to get along in society, especially cannabis smokers (66 %), an idea also held by non-smokers too (44 %). Another favourable attitude is shown by more participants disproval of the perception that drug addicts were criminals instead of victims. Even participants who don't know someone with problem drug use (59 %) tended to see drug addicts more as victims rather than criminals and more of them (59 %) will not avoid those who abuse drugs. However, this view was strangely contrasted by cannabis smokers (34 %), even though 42 % of them were not sure whether they tend to avoid drug addicts.

**Table 3.** Experiential knowledge of drug users, perceptions, and attitudes

| Drug addicts are not given a fair chance to get along in the society | | | | | | |
|---|---|---|---|---|---|---|
| Have you ever taken cannabis? | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |
| Maybe | 2 (33 %) | 3 (50 %) | 1 (17 %) | 6 | 16.578 | .035 |
| No | 163 (33 %) | 111 (23 %) | 214 (44 %) | 488 | | |
| Yes | 12 (18 %) | 11 (16 %) | 44 (66 %) | 67 | | |
| Total | 177 | 125 | 259 | 561 | | |
| I would see drug addicts more as criminals than victims | | | | | | |
| I know someone with a drug use problem | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |
| No | 115 (59 %) | 20 (10 %) | 60 (31 %) | 195 | 16.793 | .002 |
| Yes | 186 (51 %) | 64 (17 %) | 116 (32 %) | 366 | | |
| Total | 301 | 84 | 176 | 561 | | |
| I would tend to avoid someone who abuses drugs | | | | | | |
| I know someone with a drug use problem | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |

| No | 84 (43 %) | 26 (13 %) | 85 (44 %) | 195 | 29.043 | <.001 |
|---|---|---|---|---|---|---|
| Yes | 217 (59 %) | 56 (15 %) | 93 (26 %) | 366 | | |
| Total | 301 | 82 | 178 | 561 | | |
| *I would tend to avoid someone who abuses drugs* | | | | | | |
| Have you ever taken cannabis? | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |
| Maybe | 1 (17 %) | 2 (33 %) | 3 (50 %) | 6 | 27.493 | <.001 |
| No | 108 (22 %) | 146 (30 %) | 63 (48 %) | 488 | | |
| Yes | 16 (24 %) | 28 (42 %) | 16 (34 %) | 67 | | |
| Total | 125 | 176 | 82 | 561 | | |
| *Almost all drug addicts are dangerous* | | | | | | |
| Have you ever taken cannabis? | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |
| Maybe | 4 (66 %) | 1 (17 %) | 1 (17 %) | 6 | 32.867 | <.001 |
| No | 195 (40 %) | 92 (19 %) | 201 (41 %) | 488 | | |
| Yes | 40 (60 %) | 8 (12 %) | 19 (28 %) | 67 | | |
| Total | 239 | 101 | 221 | 561 | | |
| *It would bother me to live near a drug addict* | | | | | | |
| Have you ever taken cannabis? | Disagree | Not sure | Agree | Total | $X^2$ | $\rho$ |
| Maybe | 1 (17 %) | 3 (50 %) | 2 (33 %) | 6 | 31.005 | <.001 |
| No | 132 (27 %) | 75 (15 %) | 281 (58 %) | 488 | | |
| Yes | 37 (55 %) | 9 (13 %) | 21 (32 %) | 67 | | |
| Total | 170 | 87 | 304 | 561 | | |

Notes: n=561. $X^2$=Chi-Square

## 4. Discussion

The results from our survey complement the existing data on students' knowledge, perceptions, and attitudes toward drug users. Our findings show that university students in Ghana had a generally good level of awareness of commonly used drugs. The majority of respondents reported having heard of alcohol, cocaine, and heroin. However, fewer people reported a fair awareness of drugs such as LSD. This may be attributable, at least in part, to the lower profile which these drugs have in the local media compared with alcohol, cannabis, and cocaine. For example, cannabis is known to be the most widely used illegal drug in Africa (Degenhardt et al, 2008). Also, alcohol advertisement has been shown to affect the consumption habits of university students in Ghana (Bremini, 2019). Another aspect of awareness of illicit drugs is participants' personal history of drug use, as well as personal knowledge of a drug user and problem drug user. In general, almost 13 % smoked cannabis while 61 % and 65 % were acquainted with cannabis users and problem drug users respectively. This finding supported the report by the United Nations Office of Drug and Crime (2017) that high drug use and related-health cost were highly associated with young people. This is also supported by the findings of Oppong Asante (2019) who observed drug use history even among high school students in Ghana.

Additionally, our findings indicated that the pattern of responses to questions about the perception and attitude of students toward drug users were positive. Largely, drug addicts were not necessarily characterised by seeing them as criminals or people to be avoided. However, there was an appreciable number of individuals that expressed fear towards drug addicts or users, and as such, would not like to live near them. Comparing this with findings in India, 59 % of the participants had a neutral attitude while 41 % of them had a positive attitude regarding drug addicts (Treveli, Devi, 2016). Consequently, our study showed that most participants were sympathetic, in the sense that they felt drug users and addicts were not given a fair chance to get along in society. Thus, society also has to take the blame for discriminating against such vulnerable individuals who rather need help than punishing them. Unfortunately, the United Nations Office of Drugs and Crime (2017) observed that stigma and discrimination were commonly applied to drug-dependent individuals. Also, their report noted that professionals working with them usually compromise the implementation of quality treatment interventions, development of treatment

facilities, training of health professionals, and investment in recovery programmes (United Nations Office of Drugs and Crime, 2017).

## 5. Conclusion

This study has contributed to a better understanding of students' knowledge, perception, and attitudes regarding illicit drugs and their users in Ghana. Based on the research findings, it can be stated that:

• University students had generally good knowledge about most illicit drugs and harmful substances.

• They largely showed sympathy and positive attitudes towards problem drug users and felt that society should be more supportive than before.

Further studies on perceptions and attitudes of other stakeholders such as the community leaders like chiefs, religious leaders, police, prison officers, mental health service providers, and judiciary service workers are needed to understand to provide a holistic picture of current drug perceptions and attitudes in Ghana. Additional studies on drug policy reform acceptance by Ghanaians and state agencies could shape the debate along evidential lines to break the current stalemate between international best practices and domestic norms.

## 6. Acknowledgements

## 7. Conflict of interest

We hereby declare that we have no conflict of interest in the conduct of this study or declaration of results

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## Digitalization of Higher Education: Advantages and Disadvantages in Student Assessments

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### Abstract

The authors analyze the assessments of Russian students in terms of digitalization of higher education, their attitude to the introduction of digital technologies in the educational process. The study was conducted in two stages. At the first stage (February-April 2020), a questionnaire survey of students of Russian universities was conducted (N = 1553). At the second stage (January-February 2021), two focus groups (N = 24) were conducted, which allowed us to refine the previously obtained data. The authors conclude that the attitude of students to the digitalization of education is determined by the experience of distance learning during the pandemic. According to the research, students' expectations are related to the content aspect of using digital technologies in the educational process: developing practical skills and maintaining interest in learning. However, young people are not fully focused on the consumption of educational content for the development of their competencies in the chosen field of study. The availability of educational materials, video recordings of lectures in the virtual educational space does not serve as a compensator for key dysfunctions: a decrease in the share of live communication, narrowing of communication channels, lack of motivation to learn, etc. This educational requirement determined the prospects for the transformation of the professional role of the teacher: from the "translator of knowledge" to the "moderator of the creative space".

**Keywords:** higher school, online education, digital technologies, digital literacy, pandemic.

### 1. Introduction

Digitalization of business, economy and society actualizes the issue of effective response of higher education institutions to new challenges and opportunities (Saeedi, Visvizi, 2021; Savina, 2020). To meet the new requirements, higher education institutions are devoting considerable attention to digitizing their services, including teaching services (Alhubaishy, Aljuhani, 2021). Digital technologies are becoming more popular in education due to the profitability they gain

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through scalability (Sprenger, Schwaninger, 2021). These advantages are particularly relevant in the context of reduced funding for the education system, the need to ensure the economic efficiency of universities.

In the modern scientific discourse about the trajectories of education development, there are such concepts as "digital natives", "digital skills of the 21st century", "digital trust". However, in recent years, scientists have expressed doubts about the prevailing digital optimism, and practitioners have put on the agenda the question of the limits of the use of digital technologies in the educational process (Herrmann et al., 2021).

The increased use of digital technologies in education, the replacement of face-to-face meetings with digital interactions, is leading to radical changes in the educational space (Marquez-Ramos, 2021). A number of scientists believe that "digital capitalism", which is supported by the power of digital indicators and academic networks, is making significant changes in the production of academic knowledge and the professional life of teachers (Saura, Caballero, 2021). The social roles of all participants in the educational process are changing. Digitalization is modernizing both the information and social constructs of learning activities (Hult, Bystrom, 2021; Bahaj, 2021). Particular risks are associated with the transformation of social interactions, educational experiences, and forms of communication (Kroner, 2021). A number of scientists consider new technological solutions as an opportunity to compensate and/or supplement the narrowed communication channels between participants in the educational space (Ibrahim et al., 2021a).

Thus, universities use digital technologies to assess students' knowledge acquired in various informal and informational learning environments. According to experts, the introduction of electronic exams provides students and staff with more flexibility and convenience (Heinonen, Tuomainen, 2020).

The analysis of international experience shows that the digitalization of education includes the expansion of learning means (the creation and use of electronic campuses) and the modernization of teaching practices and digital innovations in learning (Xiao, 2019).

The introduction of the quarantine measures has accelerated the digitalization of education. The COVID-19 pandemic has forced educational organizations to look for urgent solutions to reconfigure traditional curricula (Secundo, 2021). Digital technologies have made it possible to provide distance learning in conditions of social isolation. However, as the research results showed, this experience was not always successful. The problem was the desire to realize the formal goals of the educational process, while pedagogical considerations were on the periphery of attention. In particular, the main factors of increasing the effectiveness of distance learning were not always taken into account: individualization, joint discussion, evaluation procedures (Medves, 2020). The results of a number of studies show a decrease in the quality of education in the context of the pandemic, the following destructive trends are highlighted: a significant increase in the load on teachers, a decrease in the control of the implementation of educational tasks (Vinichenko, 2021). The active digitalization of higher education sometimes comes into conflict with the need to develop students' creative abilities (Matraeva, 2020).

An important role in overcoming the negative consequences of a sharp transformation of the educational process was played by an active position of a teacher, their planning skills, the ability to adapt quickly, and, most importantly, the willingness to interact with their students (Marek et al., 2021).

Additional factors are the digital competence of the teacher (Börnert-Ringleb et al., 2021), the formation of norms of "cyberethics" (McGarr, McDonagh, 2021), the consideration of situational factors and socio-cultural conditions (Melikov, Skorodumova, 2020).

Given the uncertainty of the epidemiological situation, the prospects for combining distance and traditional learning formats, the introduction of hybrid forms, as well as the strengthening of the digitalization of universities are considered as the most likely scenario for the development of education. In these conditions, the analysis of the prospects for the introduction of digital technologies in the educational process is both scientific and practical significance. Of particular interest is the study of students ' assessments as the main consumers of educational services, the study of their expectations and needs, and the understanding of the distance learning experience in a period of social isolation.

## 2. Methods

The purpose of the article is to analyze the Russian students' assessments of the processes of digitalization of higher education and the attitude to the introduction of digital technologies in the educational process.

To achieve this goal, the authors relied on a set of analytical procedures and research methods. They include general scientific methods (induction, generalization, systematization, comparison, unstructured observation, etc.), as well as methods of factor analysis and analysis of scientific sources, the questionnaire method, and the focus group method.

The authors conducted the study in two stages. At the first stage, a questionnaire survey of Russian university students (N = 1553) was chosen as the leading research method that provides the necessary empirical data. The survey was conducted in the period from February to April 2020, which coincided with the beginning of the mass transition of Russian universities to a remote work format. The choice of this method is due to both the possibility of mass coverage of respondents from different regions of the Russian Federation, and the objective limitations caused by the COVID-19 pandemic. In view of the latter circumstance, the questionnaire was conducted in an online format using the Google platform, the link to which was distributed through the student virtual communities. This approach assumes a spontaneous selection, due to the lack of necessary control over the selection of respondents, which can be considered as a certain limitation of the study. However, the spontaneous nature of the selection of respondents provided only an insignificant shift in the representation of individual socio-demographic groups of students, which suggests that the sample is representative.

The questionnaire consisted of several blocks: self-assessment of the level of digital literacy of students; attitude to the digitalization of higher education, its negative and positive consequences; assessment of the specifics of the introduction of digital technologies in the educational process. In this article, the authors focus on analyzing students' responses to questions about the impact of digital technologies on the quality of educational process.

The second stage of the study took place in early 2021 (January-February). The task of this stage was to clarify the previously obtained data, both in view of the adaptation of students to the remote format of work, and the accumulation by universities of certain experience in organizing online learning, digitalization of the educational process. The focus group method was chosen as the leading research method. In particular, the authors organized and conducted 2 focus groups, each of which was attended by 12 people (full-time and part-time students). Due to the continued quarantine restrictions, the focus groups were conducted online on the Skype platform. Most of the questions of the focus group guide were discussed during an open discussion, and some of the participants were asked to write their answers in the chat.

The selection of participants for the focus groups was based on invitations, which were sent out to randomly selected e-mails of the students from the first stage of the study. One hundred students who had previously participated in the questionnaire were randomly selected. Those who were the first to confirm their participation were included in the focus groups (N = 24). Another 10 students made up the reserve group, but their participation was not required in the future. A brief conversation was held with them in order to maintain the interest of the participants and reflect on the answers received earlier in the course of the questionnaire. The results of the conversation were not taken into account when compiling the report on the second stage of the study and are not reflected in this article.

To determine the key patterns and trends in the transformation of students' attitudes towards digitalization of education, the authors used the methods of statistical analysis (the Pearson's chi-square, The critical value of $\chi 2$). In the course of the analysis, the presence or absence of a relationship between factorial and resultant features was revealed.

## 3. Results

The majority of the surveyed students are optimistic about the processes of digitalization of higher education. The majority of the respondents agreed with the statements that digitalization is one of the priority areas for improving the quality of education (Table 1)

**Table 1.** Distribution of the answers to the question: "Do you agree
with the following statements?"

|  | **yes** | **no** | **I find it difficult to answer** |
|---|---|---|---|
| Digitalization is an important condition for improving the quality of education | 67,4 | 17,9 | 14,7 |
| The use of digital technologies is a competitive advantage of the educational institution | 67,4 | 18,9 | 13,7 |
| Lectures via Skype, online teaching, communication via networks will become a new format of teaching in educational institutions | 58,9 | 23,8 | 17,3 |
| Digital technologies increase motivation, interest in learning | 54,9 | 25,9 | 19,2 |

It is interesting that more than half of the respondents see the prospects for the development of higher education in the formation of remote learning formats.

A third of the respondents (36.3 %) when answering the question: "Do you think the digitalization of education in general is…" chose the answer "positive phenomenon", almost half (47.5 %) – "rather positive". Similar results were obtained among the focus group participants: 18 out of 24 participants gave positive responses. Negative assessments of the digitalization of higher education are due to the experience of remote training of the informants during the introduction of quarantine measures. For a number of students, this format of lectures and seminars initiated the formation of negative stereotypes regarding the digitalization of the educational process.

**Table 2.** Dependence of students' attitude to the experience of remote learning during the quarantine measures and assessments of the process of digitalization of education (based on the results of the focus group), N = 24

| **Assessment of the process of digitalization of education** | **Relation to the experience of remote learning during the quarantine period** | | | **Sum** |
|---|---|---|---|---|
|  | negative | neutral | positive |  |
| positive | 0 | 6 | 12 | *18* |
| negative | 4 | 1 | 0 | *5* |
| I find it difficult to answer | 0 | 0 | 1 | *1* |
| *Total* | *4* | *7* | *13* | *24* |

The value of the Pearson's chi-square test is 19.358. The critical value of χ2 at the significance level p = 0.01 is 13.277. The relationship between factorial and resultant features is statistically significant at the significance level p < 0.01. The significance level is p < 0.001. Based on the data obtained, it can be concluded that the experience of remote learning has determined the attitude of the students to the digitalization of education.

The following statements of the focus group participants illustrate the negative experience of distance learning of the students:

Anastasia N.: "*This is an imitation of education… I might as well watch lectures on YouTube.*"

Katya P.: "*There is no motivation to write something down, to strain to remember something….I notice that there is less knowledge left in my head.*"

Anna M.: "*It was difficult in these conditions... It is difficult for me to communicate through the computer screen, it is impossible for me to ask the teacher something in case I need to.*"

The students see the advantages of digitalization in the expansion of information boundaries in the process of acquiring knowledge (availability of the best educational materials), as well as in the possibility of building individual learning trajectories (Table 2).

**Table 3.** Distribution of answers to the question: "The positive consequences of the development of digitalization can be.... (multiple choice)"

| Answer variants | % |
|---|---|
| no such answers | 6,1 |
| the availability of the best materials in the information space | 64 |
| the increase in the level of students' knowledge, including a more accessible presentation of material, use of advanced technologies to search for information and its illustration | 46,1 |
| the possibility of building an individual learning paths (to get education at a convenient time, regardless of the territorial availability) | 56,9 |
| increases the interest in learning | 32,4 |
| reduces the level of social inequality (opens equal opportunities to an accessible educational environment) | 26,3 |
| reduces the level of stress due to the transfer of communication to a virtual environment | 30 |
| expands the opportunities for exchange of experience, cooperation in the information environment | 43,7 |
| other | 1,2 |

Taking into account the fact that the answer "availability of the best educational materials in the information space" received the greatest weight in the students' assessments, the focus group clarified the actual practices of consumption and use of educational information. Despite the wide opportunities for obtaining additional knowledge, the students rarely realize this advantage of digitalization of the educational space in practice. Students' interest is centered in the field of entertainment content. Analyzing the topics of training podcasts, we can conclude that the request of young people is not related to the chosen training profile. For the most part, we are talking about an interest in a particular field: psychology, a foreign language, business, politics. Listening to lectures by teachers of leading universities is also not among the educational priorities of young people. The search for educational information is related to completing tasks received from the teacher.

**Table 4.** Dependence of assessments of the process of digitalization of education and the use of training podcasts (based on the results of the focus group), N = 24

| Evaluation of the process of digitalization of education | Frequency of use of training podcasts | | | Amount |
|---|---|---|---|---|
| | often | rarely | never | |
| positive | 8 | 4 | 6 | *18* |
| negative | 3 | 1 | 1 | *5* |
| I find it difficult to answer | 0 | 1 | 0 | 1 |
| *Total* | *11* | *6* | *7* | *24* |

The value of the Pearson's chi-square test is 3.583. The critical value of $\chi 2$ at a significance level of $p < 0.05$ is 9.488. The relationship between factorial and resultant features is not statistically significant, the significance level is $p > 0.05$. Significance level is $p = 0.466$. Based on the data obtained, it can be concluded that, in general, the use of training podcasts is not a determinant factor defining the attitude to the digitalization of education.

The negative consequences of digitalization are mostly associated with the deterioration of interpersonal communication skills (58.3 %) and a decrease in the time of classroom work, live communication with the teacher (49.3 %). Interestingly, with the dominant position in the responses about the availability of educational materials in the information space as a positive consequence of digitalization, some students see negative trends in this aspect. So more than a third of the respondents (37.3 %) believe: this (the confidence that all information can be found online) leads to a decrease in the level of knowledge of the students. In addition, 33.4 % of the respondents attributed the negative consequences of digitalization to a decrease in concentration, distraction from educational goals. It should also be noted that in the answer to this question, there was a significantly greater number of choices of the "other" option with the clarification of their personal position than when assessing the positive consequences of digitalization. In particular, such responses as "problems with speech", "addiction", various variations of wording related to poor health and reduced intelligence were recorded.

To analyze the specifics of the impact of digital technologies on the quality of the educational process, students were asked to evaluate a number of characteristics of the educational process in the context of digitalization by personal example. The respondents' concern is associated with a decrease in the level of accessibility of communication with the teacher and information overload of students. The vast majority of the respondents (86.6 %) agreed with the statement that the search for materials has become easier. Three-quarters of the respondents agree that in the conditions of digitalization, the requirements for the quantity and quality of work are clear (74.1 %), and the tasks are interesting (74.2 %). The students' ratings in terms of clear presentation of the material are slightly lower (61.6 %).

The participants of the focus group shared the positive assessments of the respondents, but in this case, the optimism was more concerned with the forecast characteristics of the development of higher education in the future than with personal experience. Despite the fact that the majority of the focus group participants (20 out of 24) assess the level of digitalization in their educational institution as high or quite high, during the conversation the impact of digital technologies on improving the quality of education was revealed as insignificant. Therefore, only some participants of the focus group were able to describe the real practices of implementing digital technologies in the educational process. The following was mentioned: the experience of using digital tools to engage the group in work (Mentometer, Kahoot, Quizizz, Socrative and Padlet); platforms for organizing and conducting online training: Webinar.ru, Discord. The students who noted the high level of digitalization of education in their universities were asked clarifying questions with a request to more fully disclose their answer. The results of the focus group showed that in this case we are talking about the elements of informatization of the educational process.

Anastasia N.: *"We have a distance learning system at the university, there is a personal account of the student, there you can see the tasks, attach the answers, which the teacher checks"*

Valeria M.: *"There is an electronic educational portal at the university, there is different information available. For example, videos of interesting lectures of invited speakers"*

The students positively assess high level of digitalization of the university at the admission stage.

Olga B.: *"As an applicant, I really liked the electronic document submission system. Everything is clear and transparent. You can view all the documents"*

It should be noted that students' expectations for the results of digitalization of the educational space are quite high. The consumption of entertainment content based on digital technologies forms the demand of young people for similar practices in the educational sphere.

Olga B.: *"I would like more variety, maybe game methods in a virtual environment"*

Nikita T.: *"There are many opportunities that modern digital technologies provide, but we do not use that enough..... Ideally, I would like not just to prepare a report with a presentation, but with the help of, I don't know, virtual simulators or something to work out the necessary skills"*

Anna M.: *"I think in the future it will become more interesting to learn. Some elements of a video game, for example, will be used"*

The students' demand for the professional qualities of the teacher is also changing in the context of digitalization. The unsatisfactory assessments are of those teachers who focus their

attention on theoretical concepts. The students' request is concentrated in two planes: "interest" and "practical skills".

Olga B.: "*Too much theory. What for? We can find all this in the Internet. I want to get practical skills. Again, if all the information is online, then I want to get more in the auditorium. I want it to be interesting.*"

Nikolai P.: "*In the context of digitalization, education must change. And teachers have to change. Less theory, more practice, more discussion.*"

In the course of the questionnaire survey, 67.1 % of the surveyed students expressed the opinion that the success of learning in the conditions of digitalization depends on the competence of the teacher.

## 4. Discussion

The majority of students positively assess the processes of digitalization of education, believe that the introduction of digital technologies in the educational process provides a competitive advantage of higher education institutions (67, 4 %), improves the quality of education (67,4 %). The analysis of the responses of the focus group participants showed that negative assessments of the digitalization of education are due to the problematic experience of remote learning during the pandemic.

The results of the study demonstrate a high level of concern among Russian students about the decrease of communicative interaction with the teacher (49,3 %). These findings are similar to other studies that note the "marginalization" or exclusion of the human factor from educational practices in the context of digitalization (Fenwick, Edwards, 2016). What consequences can this lead to? Experts identify such negative trends as dehumanization, formalization of the educational process (Manikovskaya, 2019), loss of the fundamental nature of education (Strekalova, 2019), reduced effectiveness in the formation of creative competencies of the individual, interpersonal communication skills (Cladis, 2018).

For the new generation of "digital natives", traditional forms of knowledge translation are losing their relevance. Today's young people have formed a steady demand for entertainment content, the introduction of interactive, game methods that will increase their interest in learning. It is obvious that, in one way or another, the modern educational system should take into account these needs of young people. However, at this stage, the digitalization process has largely affected the system of monitoring and evaluating knowledge, provided access to full-text educational content, and facilitated the system of requesting and processing documentation (virtual personal account of the student, electronic educational portals, distance learning system, etc.). Informatization of the educational process in this aspect shows good results, first of all, at the stages of admission of applicants, document processing, ensuring information openness of training areas (Chernikova, 2020), optimizing the management activities of universities, their business processes, quality management (Ibrahim et al., 2021).

It should be noted that digital technologies in modern higher education act as a basis for independent work of students. Thus, more than half of the respondents (64 %) believe that the availability of the best educational materials in the information space is the most positive consequence of digitalization. However, the research results have shown that the presence of potential digital opportunities does not guarantee their implementation and realization in the students' real experience. Young people primarily focus on the consumption of entertainment content. The request for educational podcasts is not related to obtaining additional knowledge on the main program of study of a student. In foreign studies, similar conclusions were obtained. Most students reject the mobile potential of podcasting in favor of a traditional learning space (Sutton-Brady et al., 2009). Motivation to use educational podcasts is provided by the control system, the integration of these materials into the learning process (Moss et al., 2015).

The results of the research showed the transformation of students' expectations to the personal and professional qualities of the teacher. According to the students, sharing theoretical knowledge cannot relate to the priority tasks of the teacher in the conditions of digitalization. The key demand of students is centered on the formation of practical skills and interest in learning. The data obtained is confirmed by international studies. In the work of M. Ideland based on empirical data, the portrait of the "desired teacher" is compiled. Such a teacher teaches, not lectures, and is flexible and ready to work at any time and in any place. He/she adapts his/her

work to the individual student and their needs for knowledge, location, and timing. "The teacher must promise fun and creativity" to educate a new generation of students (Ideland, 2021). Thus, in the conditions of digitalization, maximum availability of educational materials on the Internet, the student's view of the role of the teacher is changing. The teacher today cannot be limited to the function of knowledge transfer; largely it should serve as a "moderator of the creative space" for the formation and development of practical skills of students, maintaining educational motivation and interest. In these conditions, digital technologies are an integral attribute of the educational process, tools that allow students to form practical skills in an interactive form. International studies confirm these findings. The use of mobile games as an additional tool in the educational process shows statistically significantly higher learning outcomes (Saraubon, 2021).

The level of competence of the teacher, his/her motivation and readiness for the introduction of digital technologies are among the most significant factors for the success of the digitalization of the educational space. However, as the research results show, teachers today face either a lack of motivation to introduce digital technologies in the educational process or dysfunctions of this system (Frolova et al., 2019). One of the possible strategies for overcoming organizational resistances in the field of digitalization of education can be distribution of the digital society values, the support of pedagogical practices based on the recognition of the "usefulness" of digital technologies. We are talking about the formation of socially approved patterns of behavior in the educational environment, the orientation of teachers to find new solutions to optimize the educational process in the context of digitalization (Frolova et al., 2020).

## 5. Conclusion

The analysis of the results of the study, their comparison with the domestic and foreign experience of digitalization of education allowed us to draw the following conclusions:

1. The attitude to the digitalization of education is determined by the experience of distance learning of students during the pandemic. Among the most significant negative consequences of digitalization, the students include the narrowing of communication channels between participants in the educational space. The availability of educational materials and video recordings of lectures in the virtual educational space does not serve as a compensator for these dysfunctions.

2. Despite the fact that the students see the availability of the best educational materials as a positive consequence of the digitalization of education, not everyone takes advantage of this opportunity. Young people do not fully focus on the consumption of educational content for the development of their competencies in the chosen field of study. The search for educational materials is determined either by the need to complete tasks received from the teacher, or by an interest in a particular field of knowledge: politics, psychology, business.

3. The results of the study showed a certain contradiction. On the one hand, students positively assess the information saturation of the educational space. On the other hand, they see new threats in this trend: a drop in motivation to form sustainable knowledge, a decrease in concentration.

4. In modern conditions, the digitalization of education has largely ensured the expansion of students' instrumental capabilities in the learning process: a virtual personal account, access to educational content, and a knowledge assessment system. However, students' expectations are related to the content aspect of using digital technologies in the educational process: developing practical skills and maintaining interest in learning. This educational request determines the transformation of the professional role of the teacher: from the "knowledge translator" to the "moderator of the creative space".

The results obtained can be used to improve the activities of universities in the context of digitalization, to take into account the educational needs of students, and to optimize teacher training programs.

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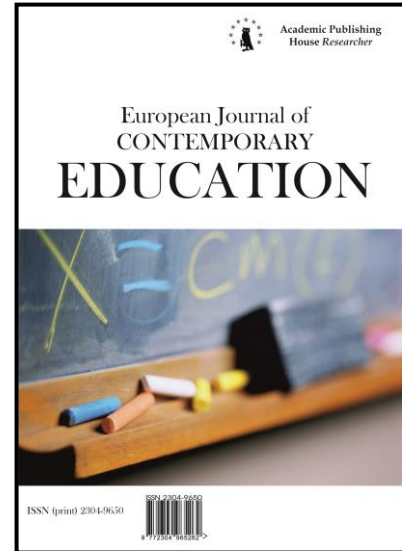
## Money Management, Savings and Investment as Central Topics in Financial Education: How Do High School Students Perceive Them?

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**Abstract**

The purpose of the study focused on analyzing how high school students perceive the topics of money management, savings and investment. For this purpose, it was necessary to use the instrument designed by the National Commission of Retirement Savings Systems (2017) from which the items on money management, savings and investment were taken. The sample was non-probabilistic by self-determination, and the instrument was applied to a total of 207 young people born between 2000 and 2001 in the municipalities of Cosamaloapan and Carlos A. Carrillo belonging to the state of Veracruz. The data were captured in SPSS v23 software for descriptive analysis. The main findings suggest that there are diverse conceptions about the financial terms under study, such is the case of the effect of inflation, likewise the participants had difficulty in performing arithmetic operations that would lead them to answer correctly, they did not know what type of mathematical operation they should do and selected an answer option at random. In selecting the best option for saving money, most participants appropriately chose the financial tool. Regarding the protection of family savings in the face of inflation, four savings possibilities were presented. However, the decision for a specific instrument is not clear. This exposes the lack of knowledge of the operating mechanisms and purpose of each financial tool. The deficiencies identified in making decisions regarding money expose the need to formalize financial education for young people.

**Keywords:** financial education, money management, savings, investment.

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## 1.1. Introduction
**Problem statement**

Financial inclusion has been widely recognized as a critical determinant in poverty reduction and equitable economic growth, as participation in the financial system promotes the initiation and improvement of businesses, investments, risk management and shields against financial crises. Access to formal savings and payment mechanisms actually increases savings, empowers disadvantaged groups such as women, rural communities and youth, increasing consumption, productive investment and employment. Political and regulatory authorities in one hundred and forty-three economies have established dependencies and information management in this important area; currently at least fifty governments have formal financial inclusion goals and objectives (Demirguc-Kunt et al., 2015).

However, a large part of the population does not have access to financial services. Several authors analyze the determinants of financial inclusion in different regions of the world. In the work of Zinz & Weill (2016), various indicators of financial inclusion are considered for some African countries, finding population groups less likely to be included in the financial system: women, youth and the population with lower income and education. In turn, Fungáčová & Weill (2015) also detect similar profiles of population excluded from the financial system for the group of countries with large territory and population called BRICs – Brazil, Russia, India and China. These investigations shed light on the need to implement financial inclusion policies specific to the profiles of excluded individuals in developing countries (Orazi et al., 2019).

Lagarde (2016) reports that, in previous years, financial inclusion was a key point on the planner of politicians and economists, becoming one of reform at international and national level, thus the United Nations and the International Monetary Fund have taken this orientation and where at least sixty governments around the world have set financial inclusion goals.

Macroeconomic effects are reflected through individual welfare, where financial inclusion has a significant impact at a national and international level, intervening in growth and stability. Trends in financial inclusion show that in regions of Africa, money transacted in mobile accounts exceeds that transacted over the counter. In India, commercial bank accounts have increased by more than fifty percent, as well as emerging markets and low-income economies show rapid and marked growth. It is clear that financial inclusion leads to economic growth and income equity and how strengthening the financial sector provides for the disadvantaged sectors of women and low-income people. New technologies, especially digital financial services, will provide enormous opportunities for business and growth (Op. cit).

The development of the financial system guides economic growth, capital accumulation and long-term productive growth. It has been demonstrated that the relationship between financial development and long-term economic growth influences the developing economy to advanced development (Levine, 2005).

On the other hand, the growing consumer credit is a fact, however, the skills required to manage it and the associated risks permeate the importance of financial education every day, which is why efforts to achieve development and income equity need to be transmitted to young people so that their early financial decisions are taken from the perspective of an educated financial inclusion (Lusardi, 2015).

For the specific case of the national context, Mexico being a developing economy, where important lines have been implemented to achieve it, such as competitiveness, SMEs, legal certainty, among others, must develop a current and inclusive financial system that promotes growth and economic equity, through access, use and protection of users.

For this, there must be a level of financial education in terms of spending, saving, financing, investment and asset insurance, which allows for economic progress, thus leading to the growth of individuals. Lusardi (2015) reports that in Mexico the financial education of young people presents a poor performance response and where there are currently important advances such as the Alliance for Education and the Educational Reform.

In Mexico, according to the white book on financial inclusion (CNBV, 2012), a large part of the population lives in rural congregations or municipalities characterized by an uncertain economic and demographic outlook, where financial groups discriminate against them by catering to the concentrated population and with a medium-high or high socioeconomic level, focusing

more on populations with more resources, institutions and large companies, financing and financial services required for development.

For its part, the information provided in the Financial Inclusion Survey (INEGI, 2015), establishes the discrimination or gender gap in terms of four percent in generalized form, seventeen percent in terms of savings accounts and five percent in terms of mobile money, with women representing the market niche that, when included, provide development to the economy and to individuals.

With these arguments, the following question arises: How do students perceive the topic of money management, savings and investment? Hence, the objective is focused on: To analyze how high school students perceive the topics of money management, saving and investment.

### 1.1.1. Justification

Today, Financial Education is one of the driving forces of social development, since it allows the generation of human capital, but especially because it offers better life alternatives by making appropriate financial decisions. Therefore, it is a topic of interest for everyone. The permanent evolution of the financial world means that every day more and more financial products and services are offered for all kinds of needs, taking into account the particular demands of each sector. With an adequate financial education, individuals will have the indispensable knowledge to create their own savings plans, strategic investment decisions for their retirement or their children's education; where technology plays a very essential role in everything related to financial operations.

In the context of Mexican households in terms of financial education, the conclusions of the Banamex-UNAM survey (2008), show that in most cases there is no medium – or long-term vision in matters related to finances, 80 % of households do not have income planning, expenditure or savings records, the budget is oriented to cover the immediate, the priorities are for food, health and education.

Twenty percent of the population allocates income to savings, only fourteen percent does it formally, and only fourteen percent does it informally, in the form of "tandas". There is a higher level of trust in banking institutions when asking for a loan. Among the best investment options is the establishment of a business or the ownership of real estate.

At the international level, current financial experts such as Beck, Demirguk and Levine (2004) have found that half of the world's population suffers the scourge of poverty, living on less than two dollars, that more than one sixth lives on less than one dollar, and that financial development reduces income inequalities and boosts the welfare of the unprotected sector, where countries with better development of their financial intermediaries experience rapid decreases in poverty and inequality, reversing and enhancing this causality. Despite the difficulties in identifying the determinants involved in the case of income equity, the vast majority of empirical research establishes that financial development alleviates poverty and boosts growth.

According to Mejía (2016), the real estate crisis of 2008, due to its effects on the world, even more serious than the Great Depression of 1930, brought with it devastating effects in terms of loss of purchasing power, indebtedness and misuse of financing, which affected many. However, it is the poor and middle classes who are stripped of their few assets to cover basic needs, and it is here where financial inclusion and education could circumvent such effects and cope with their consequences. These arguments are some of the reasons for conducting this study, which seeks to answer the central research question.

### 2. Discussion
### 2.1. Financial Education

While it is recognized that there is no generally accepted definition of the concept of financial inclusion, in Mexico, the National Council for Financial Inclusion (CONAIF, 2015) defines it as follows: "Access to and use of formal financial services under appropriate regulation that guarantees consumer protection schemes and promotes financial education to improve the financial capabilities of all segments of the population" (CONAIF, 2015: 1). Given the purposes of this study and its focus on the Mexican case, this definition is the one used for measurement purposes and statistical estimation.

The Center for Financial Inclusion considers financial inclusion to be the access of all people to a full range of quality financial services, provided at affordable prices, in a convenient and

dignified manner (Global Banking Alliance for Women, Data2X & Multilateral Investment Fund of the Inter-American Development Bank, 2015), the above cited by Girón et al., 2018.

Lusardi (2006, 2008, 2010 cited in García-Santillán et at., 2017) has referred in multiple studies that individuals have little knowledge about financial terms. Therefore, among the actions carried out by the United Nations (UN) to increase financial inclusion, in 2009 the United Nations appointed Queen Máxima of the Netherlands as special advisor on financial inclusion for development. It is from this country that the Child and Youth Finance International (CYFI) movement was created in 2012, supported by the United Nations Children's Fund (UNICEF).

In this regard, Zamora (2016) mentions that there are several arguments that have been put forward on the subject of financial inclusion, and that there have been several proposals that have contributed to the state of knowledge on the subject by different authors, from the proposal for teaching mathematics (García-Santillán et al., 2010; García-Santillán et al., 2014), in empirical studies that have measured the level of financial education in different countries and contexts, to those proposed by international organizations such as UNESCO and the OECD.

Inquiring about previous works carried out for Mexico, regarding these studies, we have the works of Venegas, Tinoco and Torres (2008), Rodríguez and López (2009), Zavaleta and Urbina (2011), Salazar-Cantú, Rodríguez-Guajardo and Jaramillo-Garza, (2017), have studied financial development in Mexico and its effect on the growth of this country. While Venegas et al., (2008), find that financial development has not influenced the growth of Mexican gross domestic product, Rodríguez and López (2009) and Zavaleta and Urbina (2011), employing different ways of measuring the development of the Mexican financial system, obtain a positive effect of this towards the country's economic growth.

An ethnographic study conducted among poor households in Bangladesh, India, Mexico and South Africa, Collins, Morduch, Rutherford and Ruthven (2011), found that credit availability tends to be lower for poor people. In relation to loan schemes in formal institutions, they are less adapted to the volatility characteristic of the income of this group, they observe less flexible terms than those that their exposure to risk would demand, and when it exists, it usually exhibits higher interest rates, compared to those to which the non-poor public has access. Thus, they conclude that financial inclusion requires not only the possibility of access, but also new financing schemes that recognize this profile of agents.

Mandel (2006) made an important finding in his study of high school seniors who have a high level of financial literacy, which found that this level of financial literacy scores made students less likely than others with different levels to manage their checkbooks optimally, i.e., they would be more likely to balance their checkbooks.

In the same vein, in a study of Dutch adults, van Rooij, Lusardi and Alessie (2007) found that those with low financial literacy are more likely than others with higher literacy to base their behavior on financial advice from friends and are less likely to invest in stocks.

The low levels of financial education in the population have already been documented in different studies, such as the work of Lusardi (2006, 2008, 2010), García-Santillán, Contreras-Rodríguez, Moreno-García (2017), who have referred that individuals have little knowledge about financial terms. For this reason, among the actions that the United Nations (UN) carries out to increase financial inclusion, in 2009 it appointed Queen Máxima of the Netherlands as special advisor on financial inclusion for development. It is from this country that the Child and Youth Finance International (CYFI) movement was created in 2012, supported by the United Nations Children's Fund (UNICEF). Its premise is that today's young people will be future economic actors, who will be the decision-makers.

For their part, the OECD and UNESCO (2012) with the Child and youth finance movement have redoubled their efforts on the subject, as they consider that financial education should be an essential topic for the progress of young people, which will result in the immediate future in financially competent adults who make sound financial decisions.

In addition, with all this and increases the probability that they are people who have access to financial services, translating this into people included, which becomes an advance in the issue of Financial Inclusion, as documented by Zamora (2016).

## 2.2. Money management

From his conceptual definition Widener (2017) has referred that money management is the efficient and effective management of money. In terms of personal financial management, this can occur through various behaviors: Common practices that contribute to financial success or struggle include owning a bank account, paying bills on time, using an expense tracking system, saving discipline, diversifying investments, using a retirement plan, owning a home, and understanding financial concepts.

At the time Hilgert, Hogarth and Beverly, (2003) pointed out that because college students do not yet have the responsibility of managing many of these financial issues, such as home ownership, then the scope of financial management is narrowed in the following sections: Budgeting, paying off credit card balances, savings habits, attitudes toward retirement planning, and debt accumulation.

While financial literacy is certainly an influence of financial decisions, the degree to which college students understand money is also a proxy for financial situations. Research indicates that most people agree that financial literacy is a significant determinant of quality of life and future decision making (Brougham et al., 2011). Despite this, college students, along with the general U.S. population, tend to score very low on financial literacy tests (Markovich, DeVaney, 1997, Cude et al., 2011; Beierlein, Neverett, 2013; Goetz et al., 2015).

In a study by Lusardi and Michell (2014) they demonstrated how a life-cycle optimization process can be shaped by consumer preferences (e.g., risk aversion and discount rates), the economic environment (e.g., risky investment returns and liquidity constraints), and social safety net benefits (e.g., the availability and generosity of Social Security welfare and benefit schemes), among other characteristics.

Another important factor influencing the financial situation of college students is their background, or more specifically, the financial situation of their parents. Family income is the starting point for any student, and regardless of current dependence on parental finances, this background affects college students' perspectives and behaviors regarding money (Graves, Savage, 2015).

While financial background certainly has an impact on perceptions and behaviors related to money, it also affects college affordability. Underclass and low-income students are offered need-based financial aid through grants, but these often do not cover the full cost of attending college. This results in the accumulation of student loans to fill the gap (Dwyer et al., 2012).

## 2.3. Savings and investment fund

In the study conducted by Chakraborty, Suman, Digal and Sabat (2011) conclude that the investment purpose can be related to the savings objective. Each individual investor selects the investment option for a given time period taking into account his or her personal financial objectives. The investment behavior of an individual investor reveals how he/she wants to allocate surplus financial resources to the various investment instruments available. Investment behavior consists of why they want to invest, how much of their disposable income they want to invest, for how many years/months they want to invest, and most importantly, the timing of such investment.

Several studies have found that information is an important factor when making the decision to invest, which influences the choice of investment and subsequently how they act after the investment (Kasilingam, Jayabal, 2008). For their part Kahneman and Tversky (1979) found in their paper, "Prospect Theory – An Analysis of Decision under Risk", that individuals make decisions based on the potential value of losses and gains, rather than the final outcome, and people evaluate these losses and gains using the shortcuts proposed by Tversky and Kahneman (1974), i.e., the heuristics of representativeness, accessibility, and fit and anchoring.

In the same idea, in another study conducted by Murithi-Suriya, Narayanan and Arivazhagan (2012), they revealed that women investors dominate the investment market in India. According to their survey, most investors are considering two or more sources of information to make investment decisions. Most investors discuss with their family and friends before making an investment decision.

Of course, the determinants of savings have been analyzed from the macroeconomic point of view, for example, Gupta (1970), using annual time series data in India, analyzed the determinants of savings, in his findings he showed that the permanent income hypothesis fits better in urban

areas of India, while in rural areas savings behavior is more in line with the absolute income hypothesis. He found that the marginal propensity to save is an increasing function of income at lower levels of development.

On the other hand, there is a branch of the theoretical literature that departs from Feldstein Horioka's (1980) approach. These studies describe a strong saving-investment correlation in the presence of high capital mobility. On the other hand, they argue that the savings-investment correlation is due to other macroeconomic factors such as country size (Baxter, Crucini, 1993), non-tradable goods (Murphy, 1986; Wong, 1990), current account solvency Coakley (1996) and financial structure Kasuga (2004). But even here the empirical results from these studies vary considerably.

## 3. Methodology

This study has a non-experimental design, since it does not seek to manipulate the independent variables (X) in order to modify their effects (Y). The type of study is descriptive, cross-sectional, where each of the frequencies obtained from each of the indicators of the instrument used are described. The informants are the young people of generation Z, between 2000 and 2001, whose group is one of those directly benefiting from the pension payment. A percentage of young people will be selected within the municipalities of Cosamaloapan and Carlos A. Carrillo belonging to the state of Veracruz.

For the research, the sample was non-probabilistic by self-determination. For this study, the "Questionnaire" technique was applied, which consisted of sharing the instrument (detailed in the following point) physically with the students so that they could answer it in the different high schools to which access and application of the questionnaire was allowed. The total number of people to whom the instrument was applied was 207.

A questionnaire was used for the study, which was designed by the National Commission of Retirement Savings Systems [CONSAR] (2017) from which the questions that were considered relevant according to the study variables were taken. The questionnaire was divided into two topics which were: money management, savings and investment. Once the questionnaires were applied and the information was collected, the entire database was loaded into an Excel sheet, and then transferred to a SPSS v23 software sheet, to proceed with the analysis.

### Analysis and interpretation of the information

From the analysis of the database obtained from the application of the instrument, the following descriptive results were obtained. In relation to the sociodemographic profile of the participants, Table 1 shows gender, age, marital status, employment status, medical service and relationship.

**Table 1.** Profile of participants

| Genre | | Frequency | Percentage | Cumulative percentage |
|---|---|---|---|---|
| Valid | Male | | 50.2 | 50.2 |
| | Female | 103 | 49.8 | 100.0 |
| | Total | | 100.0 | |
| **Age** | | **Frequency** | **Percentage** | **Cumulative percentage** |
| Valid | 14-15 | 58 | 28.0 | 28.0 |
| | 16-17 | 101 | 48.8 | 76.8 |
| | 18-19 | | 22.7 | 99.5 |
| | >19<21 | 1 | .5 | 100.0 |
| | Total | | 100.0 | |
| **Marital Status** | | **Frequency** | **Percentage** | **Cumulative percentage** |
| Valid | Free Union | | 1.0 | 1.0 |
| | Separated | 1 | .5 | 1.4 |
| | Divorced | | 1.0 | 2.4 |
| | Married | | 2.9 | 5.3 |
| | Single | | 94.7 | 100.0 |
| | Total | | 100.0 | |
| **Employment Status** | | **Frequency** | **Percentage** | **Cumulative percentage** |

| Valid | | | | | |
|---|---|---|---|---|---|
| | No Work | 1 | .5 | | .5 |
| | Just Study | | 76.8 | | 77.3 |
| | Est and Trab | | 22.7 | | 100.0 |
| | Total | | 100.0 | | |
| Medical Service | | Frequency | Percentage | Cumulative percentage | |
| Valid | Seg Popular | | 12.1 | | 12.1 |
| | IMSS | | 75.8 | | 87.9 |
| | ISSSTE | | 4.3 | | 92.3 |
| | Pemex | 1 | .5 | | 92.8 |
| | Defense or Navy | 1 | .5 | | 93.2 |
| | Other Medical Facility | | 1.0 | | 94.2 |
| | No entitlement | 1 | 5 | | 94.7 |
| | Do not know | | 5.3 | | 100.0 |
| | Total | | 100.0 | | |
| Relationship | | Frequency | Percentage | Cumulative percentage | |
| Valid | 1.00 | | 4.3 | | 4.3 |
| | 2.00 | | 1.0 | | 5.3 |
| | 3.00 | | 73.4 | | 78.7 |
| | 4.00 | | 15.9 | | 94.7 |
| | 6.00 | | 5.3 | | 100.0 |
| | Total | | 100.0 | | |

Source: own

As shown in Table 1, the participants are equally distributed in both genders. The predominant ages are in the range of 16 to 17 years (49 %), and the remaining percentage is distributed between the ages of 14 to 15 years and 18 to 19 years. Only one student was in the 19 to 21 age range. With respect to their marital status, 95 % indicated that they were single. However, 5 % said they were in some type of relationship (common-law, separated, divorced or married). On the other hand, regarding employment status, 23 % said they were studying and working and 77 % were only studying.

However, 76 % said that their medical service was provided by the Mexican Social Security Institute (IMSS), 12 % by the Seguro Popular, and 9 % by the Institute of Security and Social Services for State Workers (ISSSTE). Three percent of the participants stated that they had medical services provided by Pemex, Defense, Navy or did not know this information. In relation to the household, 73 % said they lived with their parents, 16 % with their grandparents, 7 % with other relatives and 4 % said they were heads of household.

Regarding the knowledge of Money Management, Table 2 shows the results.

**Table 2.** Frequencies of the variable Money management

| AdMoney1 | Frequency | Percentage | Accumulated |
|---|---|---|---|
| a) Afore | | 12.6 | 12.6 |
| b) Pensions | 163 | 78.7 | 91.3 |
| d) Social Security | | 7.2 | 98.6 |
| 5.00 | | 1.4 | 100.0 |
| Total | | 100.0 | |
| AdMoney2 | Frequency | Percentage | Accumulated |
| a) Working couples with large retirement savings | | 10.6 | 10.6 |
| b) Elderly people living on their retirement. | | 47.3 | 58.0 |
| c) Young couples who both work and have no children. | | 6.3 | 64.3 |
| d) Young couples who both work and have children. | | 32.4 | 96.6 |
| 5.00 | | 3.4 | 100.0 |
| Total | | 100.0 | |
| AdMoney3 | Frequency | Percentage | Accumulated |
| a) Basic policy | | 55.6 | 55.6 |

| | Frequency | Percentage | Accumulated |
|---|---|---|---|
| b) Civil liability. | | 11.6 | 67.1 |
| c) Damage to third parties. | | 11.1 | 78.3 |
| d) Unlimited coverage | | 21.3 | 99.5 |
| 5.00 | 1 | .5 | 100.0 |
| Total | | 100.0 | |
| **AdMoney4** | Frequency | Percentage | Accumulated |
| a) You are covered by your parents' insurance until you get married, regardless of your age. | | 43.5 | 43.5 |
| b) If parents become unemployed, their insurance coverage may stop, regardless of their age. | | 30.0 | 73.4 |
| c) Young people do not need health insurance, since they are so healthy. | | 3.9 | 77.3 |
| d) You can continue to be covered by your parents' insurance, as long as you live in the country. | 45 | 21.7 | 99.0 |
| 5.00 | | 1.0 | 100.0 |
| Total | | 100.0 | |

Source: own

As shown in Table 2, the results of the variable "Money Management", which is composed of four items, indicate the following: In the first of the items the participant is questioned about the denomination of retirement income that is paid by a company. Seventy-nine percent mentioned that it refers to pensions, 13 % indicated that it is called afore, 7 % said that it is social security and 1 % did not answer.

The second item asks who will have the greatest problems during periods of high inflation lasting several years. Forty-seven percent said that older people who live on their retirement are the ones who will have the greatest problems. In contrast, 32 % said that young couples, where both work and have children, will have the most problems. However, 17 % believe that couples who work and have high retirement savings or who do not have children will have the most problems during periods of inflation. The remaining percentage did not respond on this aspect.

Also, as part of the variable "Money Management" we asked about the type of car insurance that would cover the damages to the car itself in case of an accident. In the results it was found that 56 % mentioned that it is the basic policy and 21 % expressed that it would be the unlimited coverage. However, 23 % considered that the type of insurance is the civil liability or third-party damage insurance.

The fourth item refers to the health benefits that many young people receive through their parents. In this item, 44 % believe that they will have their parents' insurance until they get married, regardless of age. Thirty percent express that insurance coverage may end if parents become unemployed. On the other hand, 22 % indicate that as long as they live in the country they will continue to be covered by their parents' insurance and 4 % mention that young people do not require health insurance because they are healthy.

Regarding knowledge of Savings and Investment, Tables 3 and 4 show the results.

**Table 3.** Frequencies of the variable Savings and Investment

| **Savings and Investments1** | Frequency | Percentage | Accumulated |
|---|---|---|---|
| 3 months | | 19.8 | 19.8 |
| 4 months | | 66.7 | 86.5 |
| 1 month | | 4.3 | 90.8 |
| 2 months | | 8.2 | 99.0 |
| 5.00 | | 1.0 | 100.0 |
| Total | | 100.0 | |
| **Savings and Investments2** | Frequency | Percentage | Accumulated |
| a) They each have the same amount because they are exactly the same age. | | 37.2 | 37.2 |
| b) Tito, because he saved more each year | | 13.5 | 50.7 |
| c) Maria, because she has taken away more money | | 9.7 | 60.4 |

| | | | |
|---|---|---|---|
| d) Maria, because her money has grown longer with compound interest. | | 38.6 | 99.0 |
| 5.00 | | 1.0 | 100.0 |
| Total | | 100.0 | |
| **Savings and Investments3** | Frequency | Percentage | Accumulated |
| a) Under the mattress at home. | 5 | 2.4 | 2.4 |
| b) On the stock exchange. | | 11.6 | 14.0 |
| c) With corporate bonds. | | 6.8 | 20.8 |
| d) In bank savings an account. | 162 | 78.3 | 99.0 |
| 5.00 | 1 | .5 | 99.5 |
| 7.00 | 1 | .5 | 100.0 |
| Total | | 100.0 | |
| **Savings and Investments4** | Frequency | Percentage | Accumulated |
| a) A checking account. | | 5.8 | 5.8 |
| b) Checking account. | | 13.5 | 19.3 |
| c) Stock exchange. | | 8.7 | 28.0 |
| d) Savings Account. | | 72.0 | 100.0 |
| Total | | 100.0 | |

Source: own

**Table 4.** Frequencies of the variable Savings and Investment

| **Savings and Investments5** | Frequency | Percentage | Accumulated |
|---|---|---|---|
| a) Down payment for the down payment on the house. | 52 | 25.1 | 25.1 |
| b) Checking account. | | 16.9 | 42.0 |
| c) Stock exchange. | | 25.6 | 67.6 |
| d) Savings Account. | | 31.4 | 99.0 |
| 5.00 | | 1.0 | 100.0 |
| Total | | 100.0 | |
| **Savings and Investments6** | Frequency | Percentage | Accumulated |
| a) A savings bond. | | 27.5 | 27.5 |
| b) A certificate of deposit in the bank. | | 25.6 | 53.1 |
| c) A bond issued by one of the 31 states. | | 25.6 | 78.7 |
| d) A federal treasury bond. | | 19.3 | 98.1 |
| 5.00 | | 1.9 | 100.0 |
| Total | | 100.0 | |
| **Savings and Investment7** | Frequency | Percentage | Accumulated |
| a) A 10-year bond issued by a corporation. | | 14.5 | 14.5 |
| b) A certificate of deposit in a bank. | | 30.9 | 45.4 |
| c) A twenty-five year corporate bond. | | 15.9 | 61.4 |
| d) A home financed with a fixed-rate mortgage. | | 34.8 | 96.1 |
| 5.00 | | 3.9 | 100.0 |
| Total | | 100.0 | |

Source: own

The variable "Savings and Investment" included seven items in which situations involving money are presented. In the first problem situation, a person's income and expenses are detailed, and a question is asked about the time it would take that person to achieve a savings of $600. 67 % stated that the savings would be achieved in 4 months, while 20 % considered that 3 months would be sufficient. Also, there are participants who expressed that the time required would be 2 months (8 %) and 1 month (4 %). One percent did not answer the question.

The second item of the variable "Savings and Investment" presents two savings situations and asks who has more money in their retirement account. Thirty-nine percent say that the person who has saved for more years has more money because of compound interest. However, 37 % say that they both have the same amount of money because they are the same age. On the other hand, 14 % say that the person who saved less years, but a greater amount of money is the one who would have more money in his or her retirement account.

In contrast, there are 10 % who selected an option that describes that one of the people is the one who has the most money because he/she is the one who "has taken away the most money".

Another item asked about the safest place to keep saved money that will be used continuously. Most of the participants mentioned that a bank account would be the safest place (78 %). This was followed by the stock market (12 %), corporate bonds (7 %) and under the mattress at home (2 %).

Now, the fourth item describes a couple who would like to save their baby's money and use it until he or she is 18 years old. Seventy-two percent said they would get the most growth in a savings account. However, the stock market is the best option for 14 %, followed by government bonds (9 %) and a checking account (6 %).

Savings for unexpected expenses or emergencies are considered in one item, asking which option would be the least beneficial to obtain the money immediately. The responses indicate that the least benefit is provided by the savings account (31 %), stock market (26 %), savings for a down payment on a house (25 %) and checking account (17 %).

In the savings programs there are some that are protected by the federal government. In one item of the variable "Savings and Investment", a list of four programs is provided and a request is made to indicate which of them is not protected by the federal government. The number of participants who indicated each option is similar. The highest percentage is savings bond (28 %), bank certificate of deposit and bond issued by one of the 31 states (26 % each) and a federal treasury bond (19 %).

Protecting a family's savings from a sudden increase in inflation requires an investment. Participants indicated that the best option to protect purchasing power would be a home financed with a fixed-rate mortgage (35 %) or a certificate of deposit in a bank (31 %). On the other hand, 16 % considered that a 25-year corporate bond or a 10-year bond issued by a corporation (15 %) would be desirable.

## 5. Conclusion

Four items intervened in the variable "Money management". The first item shows that the participants know what the retirement income paid by a company is called, by pointing out some of the correct names. However, when questioned about the effect of inflation, contradictory results were obtained. The diversity of opinions indicates that they really do not know how inflation impacts the population and, therefore, how it would reflect on themselves.

Now, in a situation closer to their environment and their immediate future, they were asked what type of auto insurance would cover the damage to their car. Although most of the participants answered correctly, more than a fifth of them expressed that liability insurance or third-party damages would be the one that would respond for the damages to their car, however, this situation shows the lack of knowledge of the terms of the policies that will have important consequences in the protection of their patrimony.

On the other hand, misconceptions about the health benefits they receive from their parents were identified. The expectation of having a health service for as long as they live in Mexico or until they get married, or in contrast, of not needing it because they are young, makes this sector of the population vulnerable to a medical situation.

In the "Savings and Investment" variable, savings situations were posed in which participants were asked to indicate when they would reach a certain amount of money or who would have the greatest savings. It was found that the participants had difficulty in performing appropriate arithmetic operations that would lead them to answer correctly or they did not know what type of mathematical operation they should perform and selected an answer option at random.

In the selection of the best option for saving in different circumstances, it was found that most of the participants chose the appropriate financial tool. However, there is a percentage of more than 20 % that indicate savings mechanisms that do not provide the required availability of the money, nor its security.

As for the protection of family savings in the face of inflation, four savings possibilities were presented. However, the decision for a specific instrument is not clear. This exposes the lack of knowledge of the operating mechanisms and purpose of each financial tool. The deficiencies identified in this study for making decisions regarding money demonstrate the need to formalize financial education for young people. Decisions made by young people should be within an educated financial inclusion to achieve development and equity (Lusardi, 2015).

The financial inclusion of young people, in addition to manifesting itself in individual benefits, is reflected in the macroeconomy (Lagarde, 2016). Furthermore, the financial education of young people is what will lead to financially competent adults, so that they can make appropriate decisions (Zamora, 2016).

For future work on the topic of savings in high school students, it would be worthwhile to continue with this study in order to expand the sample to a larger number of young students. In addition, it would be interesting to carry out comparative studies among students in different terms or academic cycles, even among different institutions.

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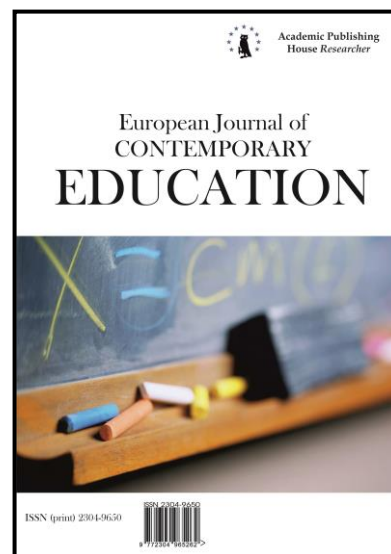
# Practical Activity on Developing a System of Tasks as a Condition for Training A Future Digital School Teacher

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**Abstract**

The problem that the research is aimed at is caused by the need to resolve the contradiction between the public demand for the quality of training the future digital school teacher regarding the formation of information culture, creativity, communication skills, the ability to work in a team, readiness for change, and the insufficiently developed methodological base for training graduates that meet these requirements.

The purpose of the study is to theoretically substantiate and experimentally test the need to involve students of pedagogical specialties in practical activities to design a system of specially selected tasks as an important condition for training future digital school tutors.

The methodology of the research is the analysis and generalization of scientific works on the organization of cognitive activity of students of pedagogical specialties. Learning.apps, interactive worksheets, cloud services, Learnis, etc. are used as software tools for the design of practice results.

The results of the study. The types of tasks (situational and motivational; reference; borderline) are identified. The development in the direction of intensification and extension is proposed for the system of tasks. The features of organizing practice and the methodological component are described on the example of studying topics of the theory and methodology of teaching computer science.

The conclusion gives findings confirming that involving students in practical activities to develop a system of their own tasks really contribute to the formation of professional competencies of future digital school tutors.

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**Keywords:** educational task, system-activity approach, perception, competence, digital environment, quality of training, professional activity.

**1. Introduction**
**1.1. Relevance of the problem**
The context of modern requirements for the quality of higher education, the formation of digital skills brings up to date the issues of additional study of pedagogical conditions that ensure the effective formation of professional competencies and personal qualities of future specialists (Soboleva, Karavaev, 2020). As M.A. Egorova notes, the search for answers to these questions (methodological, software-technical, content-oriented) is of particular importance for training students of pedagogical specialties (Egorova, 2017).

According to the professional standards, a future digital school teacher will be required to possess a high level of skills and abilities that make up the essence of digital literacy, teamwork, project management in the uncertain and contradictory conditions of the future (Soboleva, Perevozchikova, 2019). For a teacher to successfully fulfill his/her duties, it is important to be a creator, a researcher (Khutorskoy, 2017).

In addition, the transition of schools to the new federal state educational standards, according to O.M. Kryvonos, has designated an activity-based approach to learning as a priority (Kryvonos, 2014). The digital school teacher is given the function, without waiting for new textbooks, innovative methods and technologies, to change the traditional content, to transfer it from "knowledge" to "task". The implementation of this function assumes that at the level of training in a higher educational institution, the teachers will study and acquire the following competencies themselves:

- how to relate the task, the means of action (technique, rule, algorithm) and the new knowledge that students will be able to acquire later under the guidance;
- how to formulate a research problem;
- how to turn a specific practical situation into a learning task;
- how to motivate students and guide them along the path of "ignorance-knowledge-understanding".

In practice, as L.M. Kalyanova (Kalyanova, 2019) notes, the formation of the noted competencies and the required personal qualities of a student of a pedagogical specialty takes place mainly due to adaptation of a variety of innovative technologies, tools that intensify knowledge and activity in the digital environment. In other words, the range of possible tools of a professional teacher, the "portfolio", is expanding. However, the question remains open about the feasibility of using these tools, choosing the most effective one, corresponding to both the capabilities of the teacher and the individual needs of the student.

At the same time, there are various studies confirming that it is task-based learning that motivates obtaining new knowledge: to organize various forms of cooperation, resolve conflicts, intensify cognition (Chileva, 2018); to support the individual path of personal development, to promote career guidance and socialization in society (Kazakova, Klyoster, 2018).

Thus, there is an objective problem, which is expressed in the need to improve training of future digital school teachers, taking into account the requirements of professional standards, modern challenges and employers' demands for the quality of higher education.

**1.2. Goals and objectives of the study**
The goal of the study is determined by the need to involve students of pedagogical specialties in practical activities to design a system of specially selected tasks to improve training of future digital school tutors.

Research objectives:
– to specify the terms "educational task", "system of tasks" for the digital environment;
– to describe the types of tasks (situational and motivational; reference; border) for organizing the practice;
– to formulate the features of practical activity in the design of their own tasks on the example of studying topics on theory and methodology of teaching computer science: independent determination of the plot, development options in the direction of intensification and extension;

– to confirm experimentally the effectiveness of the proposed educational and cognitive activities for the formation of qualities and competencies of a teacher that determine his/her future professional activity in the digital environment.

## 2. Relevance

### 2.1. Review of Russian scientific and pedagogical literature

The provisions of the Standard of the teacher's professional activity define the competencies and personal qualities, which formation is most important to the quality of higher education taking into account the challenges of the time and the demands of employers (Prikaz Mintruda…). The corresponding changes in training of future teachers for theie successful performance of professional duties in the digital environment are defined by E.V. Soboleva, N.L. Karavaev, M. S. Perevozchikova (Soboleva et al., 2017). A.V. Khutorskoy justifiably notes that there was no period in the development of modern education comparable to the current changes in pace and quality characteristics (Khutorskoy, 2017).

O.I. Vaganova et al, also basing on the content of the current standards, believe that it is necessary to focus not only on the transfer of knowledge, but also on the acquisition of skills (Vaganova et al., 2020). The most important idea of the modern educational system, according to S. Skvortsova, is the acquisition of new knowledge through a task (Skvortsova, 2018). The solution of a system of educational, specially designed tasks supports the implementation of provisions of the system-activity approach to learning, the main theses of L. S. Vygotsky (Tolstykh, 2020). According to V. Chileva's conclusions, it is most important, within the framework of the system-activity approach demanded by the modern school, to organize practice for active application of knowledge and skills in practice (Chileva, 2018). Appropriate practice-oriented technologies are especially important in training students of pedagogical specialties.

D.B. Elkonin justifies that the activity approach in the digital educational environment is implemented through the task approach (Elkonin, 2020). A.P. Grigoriev, S.G. Burlutskogiy, A.O. Chernelevsky hypothesize that it is the task-based approach, the design of the system of educational author's tasks that will create additional didactic opportunities for the formation of the required competencies (digital literacy, teamwork, project management in uncertain conditions of the future) and personal qualities (creativity, systematic and analytical thinking, curiosity, self-organization, imagination, etc.) (Grigoryev et al., 2018).

The educational task that the teacher offers to the student, and which serves the goals of learning and development, as D.B. Elkonin points out, on the one hand, is focused on the assimilation of a certain way of action (Elkonin, 2020). This is its fundamental difference from the specific production task, aimed at obtaining results. On the other hand, the educational task as a component of cognitive activity allows you to implement the function of controlled influence. The task supports the direction of the subject of knowledge along the path from the zone of actual development to the zone of immediate development. Thus, the task approach starts the process of obtaining qualitatively new knowledge, it is directed by the teacher and is implemented using a system of specially selected tasks.

L.M. Kalyanova concludes that socially demanded specialists should be able to solve non-standard tasks, situational practice-oriented tasks. At the same time, the desire for success (positive goals) is, in her opinion, the driving force in cognition (Kalyanova, 2019).

M.G. Sergeeva et al. believe that the competence-based and practice-oriented approaches have become dominant in organizing independent work (Sergeeva et al., 2019). In order to achieve the necessary/socially demanded competencies, students should be involved in cognitive activities to solve practice-oriented tasks (Shmigirilova, 2018).

G.S. Larina, A.V. Kapuza determine that the main tasks of training a modern graduate should be the development of skills to solve unfamiliar problems, quickly navigate large amounts of information, make decisions in a situation of uncertainty (Larina, Kapuza, 2020). They provide examples of tasks that require analysis or evaluation, and are associated with a large cognitive load. For such tasks, according to G.S. Larina and A.V. Kapuza, students use "high-order cognitive processes". There are also examples of tasks, where you need to apply the mastered algorhythm of actions, solve an equation with two variables. It is experimentally proved that the system of tasks proposed by the teacher is a mechanism that triggers cognitive activity.

M.M. Abdurazakov et al. propose a model for designing a series of training tasks based on the concept of a three-component structure of mental actions (O-orientation, E-execution, C-control) (Abdurazakov et al., 2019). E.A. Vasenina, E.V. Harunzheva, M.V. Petukhova, and E.V. Soboleva (Vasenina et al., 2018) have described in detail the issues of organizing information interaction and working together to discuss the system of tasks. They distinguish the stages of designing a system of their own exercises for educational purposes: from the discussion of a ready-made system of tasks selected by the teacher for the lesson, to the development of author's tasks. However, they also note that the formation of appropriate skills in the framework of university training is complicated by a number of problems of a software-technical and methodological nature: how to choose reference and core tasks; where to start formulating your own author's tasks; how to start the process of their discussion, reflection; how to formalize and effectively present the results of cognitive activity.

## 2.2. Review of foreign studies

From the point of view of innovation in science and industry, the ability to formulate new tasks is no less important than the ability to solve ready-made ones. Moreover, A. Natsis, P. M. Papadopoulos, and N. Obwegeser note that this is a mandatory element in the design of modern vehicles, installations, and cyber-physical systems (Natsis et al., 2018). A. Semple emphasizes that works on the potential of the system of educational tasks in terms of training future socially demanded specialists are becoming relevant (Semple, 2020). The issues of information interaction in solving a system of practice-oriented tasks and non-standard situations are considered in the research of many modern scientists.

G.A. Zuckerman conducted an experimental study of student interaction, its structure and role in shaping the results of developing learning (Zuckerman, 2020). In his work, he adheres the theory and practice of educational activities developed by D.B. Elkonin, V.V. Davydov. He considered the problematic issues: what forms of cooperation and information interaction are most appropriate for the content of cognitive activity to acquire new knowledge; what is the role of cooperation with peers in the formation of the ways of action (i.e., skills and abilities). The author formulates new problems that teachers face when organizing such cognitive activities in a digital environment. According to the results, it is concluded that the provisions of the Elkonin-Davydov concept are effective for improving the quality of learning and cognition.

Using a system of dynamic tasks focused on the management of students' educational and cognitive activities, the paper reveals one of the possible approaches to the joint study of complex scientific material (Zarei et al., 2016). D. Milusheva-Boykina believes that the optimal process of forming elements of research activity is carried out through the methods of joint assimilation of theoretical content by students in the process of its practical application (Milusheva-Boykina, 2020).

A. Natsis, P.M. Papadopoulos, and N. Obwegeser justify the need to use digital technologies to formalize the results of task solving (Natsis et al., 2018). In addition, the research of M. Hamada, M. Hassan suggests that the inclusion of software tools is a support in forming digital literacy, professional competencies of the future specialist. They draw conclusions that information technologies support almost all areas of human activity (Hamada, Hassan, 2017).

P. Sullivan et al. justify the importance of including practical activities with an educational task in training future teachers (Sullivan et al., 2020).

The ability to automate activities, and thus the ability to successfully work and continue learning in a digital society, is determined by the ability of its members to use computers, or more precisely, information technologies, to solve practical problems. However, a person who seems to have mastered some digital technology (or rather, a set of methods and techniques for working with a specific software tool) often finds it difficult to relate the task facing him/her to it (Chen et al., 2018).

C. Roure, D. Pasco emphasize the potential of a system of educational tasks to support cognitive activity, curiosity, and creativity (Roure, Pasco, 2018). In addition, they believe that thinking through the history, content and conditions will contribute to implementing the principles of an interdisciplinary approach to learning, forming communication skills.

Learning in a digital environment should be accompanied by a systematic analysis of the results of students' feedback (completed tasks, responses to questions), recorded in workbooks (electronic or traditional), and take place in the format of an oral discussion (Semple, 2020). Only

this form of activity works as much as possible to improve the quality of training graduates, forming socially demanded professional competencies (Esquicha-Medina, 2018).

Thus, the analysis of the scientific and methodological literature made it possible to justify the need to improve training future digital school teachers, the importance of including the practice of designing a system of specially selected tasks in their educational and cognitive activities.

## 3. Materials and methods
### 3.1. Theoretical and empirical methods

The methodological basis of the research is based on the competence- and activity-based, personality-oriented and communicative approaches to the organization of training at the university. To obtain theoretical generalizations, we use the analysis of theoretical sources and documents from the field of education, generalization of the results of processing an array of empirical data.

The most important idea is acquisition of new knowledge through a task. The solution of the system of educational, specially designed tasks supports the implementation of the system-activity approach. Educational tasks, which are the object of construction, imply the need for a conscious search for an appropriate means to achieve an intuitive, but immediately inaccessible goal. The goal is achieved in the process of construction with the help of acquired methods.

The features of arranging practical activities for the construction of their own tasks are presented on the example of studying topics of theory and methodology of teaching computer science. Learning.apps, interactive work sheets, cloud services, Learnis, etc. are used as software tools for registration of practice results.

When developing specially selected, author's tasks, the following principles of designing a system of educational tasks were taken into account: setting the task; establishing links between the constructed task and the accumulated knowledge reserves; anticipating at least intuitively the result; critical analysis and drawing up a plan; plausible reasoning (the period of inspiration); full understanding of the relationship between the previous stages.

A special group consists of empirical methods (observation, analysis of the results of practice on designing a system of specially selected tasks) to obtain up-to-date information about changes in the level of qualities and competencies of students of pedagogical specialties that determine their future professional activity in the digital environment.

A special incoming and final control events were held, in which students were asked to perform tests on the topics of the school course of computer science (25 questions), on the methodology of teaching informatics (25 questions) and on working with the task condition (25 questions). The materials for the test were developed by the authors in accordance with the Standard of higher education in the field of training (Federal'nyi gosudarstvennyi obra-zovatel'nyi standart...., 2015). There are 75 tasks in testing, mostly of the open type.

Statistical analysis of the results reliability of the pedagogical experiment was evaluated using the Fisher criterion (Fisher angular transformation).

### 3.2. The base of research

The evaluation of the effectiveness of educational and cognitive activities in constructing a system of specially selected tasks for the formation of qualities and competencies of students of pedagogical specialties that determine their future professional activity in the digital environment was carried out in the course of a pedagogical experiment.

The study was carried out on the basis of the Vyatka State University as part of teaching the discipline "Theory and methods of teaching computer science". 120 students of the fourth and fifth years of the training field 44.03.05 Pedagogical education (with two training profiles, the level of bachelor's degree) took part in the practice of developing a system of author's tasks. The sample was not random. The experimental group included 60 % of girls and 40 % of boys, which is due to the specifics of the pedagogical specialty.

To fulfill the rules of probabilistic selection, the same teacher led the practice of all students in designing a system of author's tasks. Practical activities were organized in the same classrooms, on the same hardware and software. To carry out control events, the authors developed test tasks. All questions meet the requirements of the State federal educational standards for the given field of training.

### 3.3. Stages of research

The research was conducted in three stages.

The preparatory stage of the experiment included general assessment of the existing level of theoretical knowledge and scientific terms, skills of working with a ready-made system of tasks, and methods of working on the task.

As part of the control event, students were asked to complete tests on the topics of the school course of computer science (25 questions), on the methods of teaching computer science (25 questions) and on working with the task condition (25 questions). Types of tasks: correlate values, insert a missing word, remove odd ones, select the correct statement.

Thus, it was possible to collect data on 120 students. Further, the participants were divided into groups (60 in the experimental group, and 60 in the control group) to ensure that each group has the same qualities and competencies that determine the future professional activity of graduates in the digital environment. The sample was not random. The experimental group consisted of 60 % of girls and 40 % of boys, which is due to the specifics of the given specialty.

Further, as part of the forming stage of the experiment, the teacher conducted practical classes and seminars with all participants of the experimental group, during which cognitive activities were organized to work with the task plot, analyze its solution options, and develop their own system of tasks based on it. Initially, students could use educational literature, Internet resources, and the help of others to construct a sequence of tasks, namely as a system.

The third stage of the study covers the experimental teaching and organizing practical activities on the design of specially selected tasks for the formation of the qualities and competencies of students of pedagogical specialties that determine their future professional activity in the digital environment.

### 4. Results
### 4.1. Clarification of the essence of the basic concepts

The system-activity approach in the presented information educational environment is implemented through the task approach. It is based on the students' cognitive activity, which can be considered as a system of processes for solving various educational tasks. At the same time, the concept "educational task" can be interpreted quite broadly. For example, this is a task that forces the student to look for a common way to solve all problems of this type. Or "the objective result of the logical-psychological analysis of the content of learning". In general, the idea is that in the course of the work performed to solve the problem, the student receives qualitatively new knowledge. The system of tasks in the presented study is understood as the sequence of tasks, the solution of which accompanies students' activities in working with information resources, highlighting and selecting the main in the resource, team work, arguing the point of view and defending the opinion, beliefs and aspirations for research.

The development of own or the author's system of tasks involves independent determination of the plot (plot basis) of the task, options for modification due to its development, both in the storyline and in the method/methods of solution. At the same time, tasks should be designed so that their presentation directs students to acquire new knowledge. Arranging practical activities for the design of such a system of tasks is an important requirement for the training of a highly qualified teacher of a digital school, as it contributes to the development of qualities and competencies that are most in demand in the modern information society. For example, understanding the fundamental foundations of scientific disciplines, knowledge of digital technologies, readiness for creativity and innovation, ability to self-education, self-organization, multilingualism, communication skills, development of an analytical mind, etc.

The system of tasks in the presented study develops in two directions: extension and intensification.

The first direction involves the gradual development of the plot by connecting a new theoretical fact, condition, and constraint. An example of a system of task built on the principle of "breadth-first" development.

1.1. Depending on the number entered from the keyboard, display the corresponding message.

1.2. Depending on the number entered from the keyboard, perform an action on the data and display the result on the screen.

1.3. Calculate the value of a complex expression.

1.4. Create a program that outputs the following message: "Enter 1 if you want to see a circle, and 2 if you want to see a rectangle". Depending on the number entered, the corresponding figure is displayed.

In the second case, the problem develops due to the fact that a new method/technique of solution appears. At the same time, the very wording and plot basis are not changed.

An example of a system of tasks built on the principle of development "in depth". Let $a$ and $b$ be the values of the original variables. You need to change their values:

– using the additional variable «c»;

– without an additional variable:

– without an additional variable and so that the expression on the right side is the same in all three assignment operators.

**4.2. Practical activity on designing the system of author's tasks**

The practice of developing a system of own tasks was implemented both when studying the sections of algorithmization/programming (I/O commands, branch and loop constructs, strings and arrays), and when working with information technologies, forming the foundations of information security.

The procedure for selecting the first, main task, from the condition of which the students subsequently formulated the further development of the plot, the possible complication, took place in several stages:

Stage 1. The task formulation was suggested by the teacher.

Stage 2. The first task was selected from a textbook, a workbook, and methodological recommendations. A prerequisite was that it was necessary to use the printed version of the publication.

Stage 3. The students were looking for the plot of the task, condition on the Internet, electronic sources of information.

Stage 4. The idea, the plot of the task was suggested by one of the classmates. In the course of reasoning, general discussion, the formulation took on a complete form and was the starting point for further research.

Stage 5. The student was completely independent in formulating the first task for the system of tasks. A prerequisite was the subsequent general discussion of the resulting author's systems, their improvements.

The first recommendation: no plot, no idea, should be discarded, criticized. All the results obtained are the result of the student's creative and intellectual activity. Getting only a negative experience can push him away from further research studies.

The second recommendation. It is mandatory to work with printed copies of educational literature. A future digital school teacher should know, understand, and be able to work with paper publications. A word, a sentence, a text is the basis for the formation of communicative literacy in any society, especially in the information one.

The system of tasks was designed in electronic and printed forms. The results of the paper version were printed twice: before the discussion and after. Each option remained with all participants of the training. Joint practice in the group took place on the electronic version, which could be presented on a cloud service, using virtual sticker boards or special software tools (for example, LearningApps).

The practical activities on the development of a system of own tasks was carried out within the framework of the discipline "Theory and methods of teaching computer science" for the specialty 44.03.05 Pedagogical Education (with two training profiles). Next, we will present the author's systems of tasks compiled by future teachers to study fundamental foundations of algorithmization, formation of information security skills and competencies in the field of project management.

I. The system of tasks for studying basics of algorithmization and programming.

As a basic task, the teacher proposed the following task for students: "To develop a program that asks for the name of the user and greets him."

1. Using the calendar, determine how many days are left until the New Year and develop a program that will display a message with this number on the screen.

2. We have determined how many days are left until the New Year. Develop a program that will help you make a gift purchase plan.

3. Now let's make a program that counts the number of days remaining from the moment you buy a gift for a particular person until the New Year.

4. Imagine that you were asked to buy an avocado for the New Year and were given 150 rubles for the purchase. Upon arrival at the store, you found that the price tag shows the price for 100 grams of the desired product. How many kilograms of avocado can you buy if 100 grams of avocado are sold at 30 rubles?

5. You need to buy lots and lots of avocados and take them away on a sled. Let's use the following program to determine how many kilograms of avocado you can buy if you can only take 10 kilograms of cargo on a sled. Each kilogram of avocado is sold in boxes weighing 300 grams.

II. The system of tasks for the formation of the basics of information security.

Students had to take into account two training options: without a computer and with its help.

The variant where the computer was not used in the solution.

Task 1: correlate the terms with their definitions, filling in the gaps with the following phrases: confidentiality of information, information security, availability of information, threat, integrity of information.

Task 2: Determine which of the following applies to computer viruses, and which to antiviruses. Fill in the table.

Materials for work: Dr. Web, Avast!, Code Red I, Kaspersky Internet Security, Melissa, Nimda, Avira, McAfee, ILOVEYOU, Norton, "Storm", Trojan horse, Network worm.

Task 3. Determining the reliability of information.

Practical situation. In a social network, a good friend of yours, with whom you corresponded not so long ago, started a conversation. He asked how you were doing. He told you that he was doing well, too. After that, your friend said he wanted to make a call to you. But he just ran out of money on the phone. The promised payment has already been used. He asks you to "throw" 50 rubles to his phone.

Questions: How can you check if this is actually written by your friend? What actions should you take?

Task 4. Search for information. Practical situation. You were ill for a whole week and couldn't attend school. When you returned, it turned out that at computer science lessons the mates had already studied the topic "Information and its properties". The teacher recommended that you carefully study this topic in the textbook, for a better understanding, download the presentation from the Internet. You went to the site https://uchitelya.com/informatika/16673-prezentaciya-chto-takoe-informaciya-3-klass.html. What are the criteria for finding the "icon" that you need to click on to download the presentation to your computer? In the drawing, circle the element that you select to start downloading the presentation.

Task 5. Using the available knowledge, the material from the textbook, the Internet, make a memo-table on how to protect yourself from intruders on the network. Columns of the table: "Threat on the Internet", "Where can I deal with this threat?", "How can I protect myself from such a threat?"

The variant in which the computer is actively used to solve a system of tasks.

Task 1. Correlate the terms with their definitions, filling in the gaps with the following phrases (information resource: https://learningapps.org/display?v=pji11go4320).

Task 2. Determine which of the following applies to computer viruses, and which-to antiviruses. Fill in the table (information resource: https://learningapps.org/display?v=ph8o qro6j2o).

III. The system of tasks for the development of competencies in the field of project management

Mind-fitness coach Aurelius, having worked in the profession for 5 years, accumulated a start-up capital and decided to open his own center for providing services. All this time, he rented a small room 30 square meters with a monthly payment of 350 rubles/month per 1 square meter. Since the area of the room was small, the specialist often had to go to the customer's territory. For example, to arrange collective trainings, if large groups were formed.

At the start of the business venture, Aurelius intended to rent a larger finished office. However, after learning more about the state support programs for small businesses, he decided to

build his own premises for the center with an area of 100 square meters from scratch. It is required to evaluate the economic efficiency of the project by performing calculations according to the following scheme:

1. Determine the costs required to start the project.
2. Make a forecast of the economic effect of the project.
3. Calculate the economic efficiency indicators of the project.

The first version of the task development. The project for the construction of the Center has been successfully completed. Further, Aurelius decided that part of the Center's area could be rented out for offices or creative studios. Perform an assessment of the economic efficiency of this project using a similar method: determine the costs for starting the project (for example, the construction of partitions, a separate entrance, etc.); make a forecast of the economic effect (one of its components can be considered rental income or payment of part of utility bills by the tenant); calculate the economic efficiency.

In addition, select the values of the interest rates and the duration of the project in such a way that it is really beneficial to the organizer.

The second variant of the task development. The project for the construction of the Center was successfully completed, Aurelius' business brought a good income and new visitors. There was a situation that he was even forced to refuse some customers. Therefore, the entrepreneur decided to expand his staff and attract another coach. You need to perform an assessment of the economic efficiency of the project using a similar method: determine the costs required at the start of the project (for example, to lay a salary fund for a specialist, organize his workplace, etc.)); make a forecast of the economic effect (for example, an increase in the price of services and the volume of sales of services); calculate the economic efficiency of the project. Also, select the values of the interest rates and the duration of the project to get a real benefit.

Thus, students of pedagogical specialties were actively involved in cognition, experiment and information interaction. They presented some of the constructed systems of tasks at international conferences (for example, the X International Conference-competition "Innovative information and pedagogical technologies in the IT education system») and they were marked by experts.

The results obtained correspond to the conclusions of G.A. Zuckerman on the influence of the choice of a traditional/developmental educational system on the quality of the knowledge received, on the style of thinking (stereotypical or innovative) (Zuckerman, 2020). At the same time, the recommendations formulated enlarge the proposals of E.V. Soboleva, N.L. Karavaev, and M.S. Perevozchikova on improving the training of future digital school teachers (Soboleva et al., 2017).

### 4.3. Experimental assessment
### 4.3.1. The ascertaining stage of the experiment

The preparatory stage of the experiment included a general assessment of the existing level of theoretical knowledge and scientific terms, skills of working with a ready-made system of tasks, and methods of working on the task.

As part of the control event, students were asked to complete tests on the topics of the school course of computer science (25 questions), on the methods of teaching computer science (25 questions) and on working with the task condition (25 questions). The materials for the test were developed by the authors in accordance with the Standard of higher education in the field of training. The test contained 75 tasks. Types of tasks: correlate values, insert a missing word, eliminate odd ones, select the correct statement.

Here is an example of the task on theory and methods of teaching computer science: "Choose the right statement that characterizes the essence of the Atlas of New Professions: a federal innovation platform among institutions of additional education; an almanac of promising industries and professions for the next 15-20 years; career guidance testing; a creative agency specializing in the development of advertising and marketing solutions for business."

The example of the task for a school computer science course: "Set the relationship between the hardware and the definition.

First list: Personal computer; Mobile phone; Smart-TV; PlayStation.

Second list: a device for receiving and displaying graphics, sound; an electronic device designed and created for video games; an electronic device designed for a single user operation; a tool designed to work in the networks of mobile operators".

The example of the task for working with a task condition. There is a formulation "Selection of array elements by criterion (recalculate, derive, add)". You can take from the list of tasks those that do not correspond to this type: find the sum of grades for a term, determine the number of unsatisfactory grades, calculate the arithmetic average for the subject.

Each test question was rated at 2 points. Thus, for completing the control event, students could score 150 points. The mark "credit" corresponded to the situation when the student scored 76 points or more. For all other cases, the mark was "no credit".

Thus, it was possible to collect data on 120 students. The input control event renealed almost the same initial level of readiness of the participants of the pedagogical experiment. We can consider them as a general sample. Then the experimental (60 students) and control (60 students) groups were formed. The sample was not random. The experimental group consists of 60 % of girls and 40 % of boys, which is due to the specifics of the specialty.

### 4.3.2. Forming stage of the experiment

As part of the forming stage of the experiment, the teacher conducted practical classes and seminars with all participants of the experimental group, during which cognitive activities were organized to work with the task plot, analyze its solution options, and develop their own system of tasks based on it. Initially, students could use educational literature, Internet sources, and the help of others to construct a sequence of tasks, namely as a system.

The study of the topics of the course "Theory and methods of teaching computer science", their detailed methodological analysis in the control group took place without a specially organized practice to develop a system of their own tasks. As a material for consolidating knowledge, forming skills and abilities that correspond to their future professional activities students used any ready-made task systems which were also discussed in the group. Based on the results of joint work, students were not required to develop their own/author's system of tasks.

After including in the study of the discipline "Theory and methods of teaching computer science" such cognitive activity, supported by various information sources and digital means, corresponding to all types of professional activity of a graduate of the specialty 44.03.05 Pedagogical Education (with two training profiles), another test was conducted. The questions for the test were developed in accordance with the principles described earlier.

Examples of tasks from the final control test.

The question on the theory and methods of teaching computer science: "From the list of scientists who have contributed to the informatization of education, delete the names of those who are not the authors of school textbooks on computer science and ICT. List: A.P. Yershov, A.G. Gein, V.G. Zhytomyrsky, I.V. Robert, A.G. Asmolov, K.K. Kolin, A.A. Kuznetsov".

The question on the course of school computer science: "Compare the object of the real world with its possible information models.

Object: Construction company, Cat, Saturn, Country house, Polyclinic patient, Flower, Chemical element, Kirov.

Information model: A verbal description of the plant, a house plan, a review on the official website, a photo of the animal, a Periodic Table, a globe, a city map, a patient's file".

The question on working with the task condition. When completing the task, the student received the value 11. From the proposed task formulations, choose the one that can lead to such a result.

1. How much information is contained in the message: "PlayStation".

2. Wanting to help his friends, the student carefully whispers the answer to the neighbor: "Chlorine". The last student wrote "Bor" in the answer. Only the first student received a score for this answer. How and how many times was the information corrupted?

3. Create a program that forms a character string consisting of N asterisks ($5<=N<=25$).

4.3. 3. Control stage of the experiment

The control stage of the experiment carried out recurrent testing which included also 150 questions. The results of testing before and after the experiment in Group 1 (control – C) and Group 2 (experimental – E) are presented in Table 1.

**Table 1.** The results of the test

| | Before the experiment | | After the experiment | |
|---|---|---|---|---|
| | Group 1(C) | Group 2(E) | Group 1(C) | Group 2(E) |
| Number of students with "credit" | 30 (50%) | 31 (51.7%) | 34 (56.7%) | 47 (78.3%) |
| Number of students with "no credit" | 30 (50%) | 29 (48.3%) | 26 (43.3%) | 13 (21.7%) |

Verification of the results reliability is implemented by means of an online calculator for the Fisher criterion (https://www.psychol-ok.ru/statistics/fisher/). The critical value of the Fisher criterion for the significance level of 0.05 ($\varphi_{cri}$) is 1.64. The following hypotheses were accepted:

Hypothesis H0: the level of training of students of pedagogical specialties in Group 2 (experimental – E) statistically is equal to the level in Group 1 (control – C);

Hypothesis H1: the level of training in Group 2 (E) above the level of Group 1 (C). Empirical value of the Fisher criterion before the experiment equals 0,186 ($\varphi_{emp}=0.186<\varphi_{crit}=1.64$).

Therefore, before the experiment begins, the hypothesis H0 is accepted. The value of the Fisher test after the experiment is 2.558 ($\varphi_{emp}=1.64<\varphi_{crit}=2.558$). Hypothesis H0 is rejected and H1 is accepted.

So, the inclusion of students of pedagogical specialties in the practice of designing specially selected tasks really contributed to the formation of qualities and competencies that determine their future professional activities in the digital environment.

### 5. Discussion

The sample of students was not probabilistic, since the experimental and control groups were formed in such a way that it was guaranteed that each group had the same qualities and competencies that determine the future professional activity of students of pedagogical specialties in the digital environment.

For diagnostics, the results of the input control event were taken into account. The selection of participants for the experiment and the sample size are justified by the specifics of the study: the study of the theory and methods of teaching presupposes knowledge of the content of the school course of computer science, general pedagogy and psychology. Throughout the experiment, the work on designing specially selected tasks was carried out by the same teacher, using the same software in special classrooms. Both didactic principles and the specifics of computer science training were taken into account in implementation.

Designing a system of own tasks or selecting ready-made tasks that guide the student in cognition is characterized by: planning the work; flexibility of mind, the ability to look at the object of knowledge from different sides; persistance; open perception to the search for new solutions; the ability to realize, critically evaluate the results obtained.

Generalizing the experience of the participants of the experiment, we will formulate a number of methodological recommendations that should be followed by the teacher when teaching the theory and methodology of the subject:

1. Practical activities to develop a system of own tasks should include as a mandatory element learning through error. Being able to find mistakes, correct them, understand the causes, and predict their occurrence is a highly socially demanded competence in a digital society.

2. The development of a system of tasks will prepare a digital school tutor to predict the results of the behavior of the entire pedagogical system, the stage of his/her professional training includes cognitive activity to analyze possible options and outcomes. In this sense, tasks with the following plots are useful: "determine the result of the algorithm/program if ...", "take such input values for variables so as...", "which technology is optimal for...". Such tasks teach to think in terms of the possible future, i.e., foresight thinking, which is in demand in the digital society, is formed.

3. All participants of the practice should be active subjects of knowledge, which involves inclusion of interactive technologies and implementation of the feedback principle. In the present study, students of pedagogical specialties used LearningApps, interactive worksheets, cloud services, Learnis, etc.

4. In most cases, new knowledge should be obtained in the course of an independent search. "Ready-made" solutions should be avoided. Overcoming difficulties and limitations is an important skill of the user of the digital environment.

5. The work on the construction of a system of tasks and its solution should prepare the student of the pedagogical specialty to accept contradictory information. Such work is necessary in order to be able to draw new knowledge from the contradiction. For example, tasks where the addition of two positive integers results in a negative one will be useful.

6. To provide the ability to work with information sources of different nature, different types (e-learning resources, printed textbooks, scientific, technical and methodological literature, media, society, etc.).

7. Inclusion in the information educational environment of the system of educational tasks constructed in accordance with the above requirements implies the willingness of the teacher to manage multiple concurrent cognitive processes within one lesson.

In general, the dynamics of values by levels indicates a qualitative improvement in learning indicators and formation of the monitored qualities and competencies of the future digital school teacher in the experimental group (see Figure 1).

Performing a quantitative analysis of the above results, we can conclude that after organizing practical activities for designing a system of their own tasks, the share of students in the experimental group who successfully completed the test increased from 51.7 % to 78.3 %. In the control group, the proportion of students who studied the theory and methodology of teaching informatics in the traditional format also increased, but less significantly. Dynamics of positive changes: from 50 % to 56,7 %.
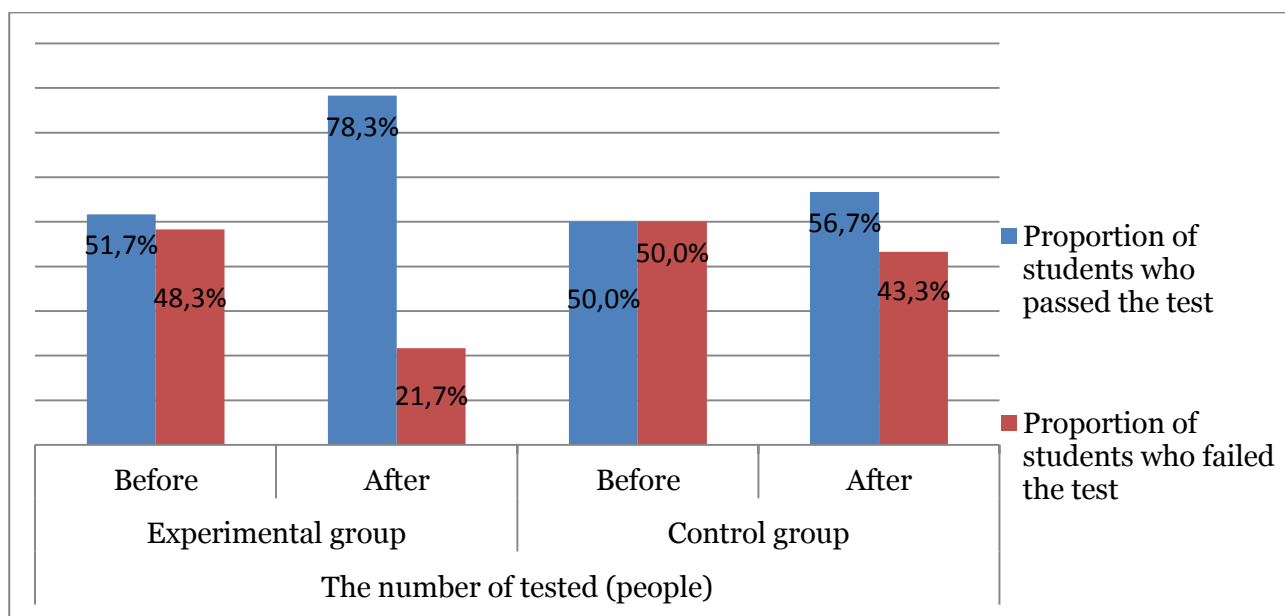


**Fig. 1.** Dynamics of changes in the level

Statistical analysis of the results reliability of the pedagogical experiment was evaluated using the Fisher criterion (Fisher angular transformation). The value of the Fisher test after the experiment is 2.558 ($\varphi_{emp}$ = 1.64<$\varphi_{crit}$ = 2.558).

In the presented study, the following types of tasks were used: situational-motivational (encourage the search for new knowledge); reference tasks (set the direction for the development of the plot, conditions); borderline (serve as a basis for further research, connect the points of the path of the student's development from "existing knowledge to new knowledge"). All tasks

presented are practice-oriented. The developed task systems are the result of creative intellectual activity, so a specific ("excellent"," unsatisfactory") rating scale should be avoided.

Of course, the volume of independent research activities has increased, and the time for home preparation has increased. But the experiment proved that it really contributed to the formation of personal qualities and professional competencies of students.

### 6. Conclusion

The study presents a solution to the problem caused by the need to resolve the contradiction between the social demands for the quality of training of the future digital school teacher and the insufficiently developed methodological base for training graduates that meet these requirements. One of the features of teaching the theory and methodology of teaching the subject (in particular, teaching computer science) is that the applied technologies and teaching tools should be focused on the formation of personal qualities, skills and abilities of the future teacher, which form the basis of his/her professional competence.

The results of the study are both theoretical and practice-oriented. Scientifically significant theoretical achievements include: clarifying the terms "educational task", "system of tasks" in the context of the professional activity of the teacher in the digital educational environment. The definition of the essence of the concept "system of own/author's tasks" as a system of tasks, the construction of which implies an independent definition of the plot, options for its development, is presented. The types of tasks (situational and motivational; reference; borderline) are distinguished.

For the system of tasks, the paper suggests a development in the direction of intensification and extension. For each variant, examples are presented that illustrate the essence of these areas of modification.

As practical results of the research, we consider it important to note the formulated features of the organized practical activities for the development of a system of own tasks for digital school:

– special attention should be paid to the choice of the first, main task, from which the development of the plot will take place;

– when formulating the plot basis (the task plot), use various information sources and digital resources;

– be sure to provide an option for learning without a computer, when tasks are completed in a notebook;

– the system of tasks should guide the learner in cognition: from the actual zone to the zone of immediate development;

– avoid harsh evaluative criticism of the system of tasks designed by students of pedagogical specialties;

– mandatory oral discussion of the constructed task systems in the group;

– gaining experience in developing their own task system should prepare the digital school tutor for predicting the results of the behavior of the entire educational system, taking into account the uncertainty of the future.

The study describes in detail the potential of practical activities for the development of a system of author's tasks and its organization in the course of teaching the discipline "Theory and methodology of teaching computer science" in the direction of training of the specialty 44.03.05 Teacher education (with two training profiles).

The research materials can be used to improve the level of training of students of pedagogical specialties, to form the qualities and competencies that determine the professional activity of a teacher in the digital environment, through specially organized areas of support for students' practice in designing a system of author's tasks.

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# The Assessment of Student Learning Outcomes in Accordance with CDIO Model at the Vietnam National University Ho Chi Minh City

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**Abstract**

Student learning outcomes are a critical indicator of the quality of instruction and the competence of faculty members and students in higher education settings. This research explored the students' perceptions, the relationship of student individual characteristics and how educational environment at university influenced on the assessment of their learning outcomes in accordance with CDIO model. To acquire data, the research used questionnaire surveys and documentation. The data in this research was taken from a random sample of 1,107 students from the three member universities of the Vietnam National University Ho Chi Minh City, Vietnam. It was then analyzed by data processing, displaying to reach a conclusion. To obtain the results, methods such as descriptive analyses, independent *t*-test, the analysis of variance (ANOVA), and multiple regression analyses were used. Three things have come to light as a result of the study. First, the empirical results revealed that the majority of students have a favorable opinion of the assessment of their learning outcomes. In addition, there are variances in the assessment of students' learning results based on their individual characteristics. Finally, the factors associated with the educational environment at the university are significantly linked to the assessment of their learning outcomes under the CDIO model. The results of this study are the basis for stakeholders to develop scientific, accurate and logical sets of criteria for assessing student learning outcomes. The results from this research are to be discussed by managers.

**Keywords:** Vietnam, assessment of learning outcomes, CDIO model, individual characteristics of student, university academic learning, higher education.

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## 1. Introduction

Curriculum, instruction, and assessment are the three basic components of education, the use of assessment to identify a program's strengths and weaknesses allows faculty to work toward continuous improvement based on their articulation of learning and behavioral goals and outcomes for their graduates (Allen, 2004). Assessment is a process that requires principles, methods and tools of measurement to ensure reliability and objectivity, contributing to the improvement of teaching and learning activities for both faculty members and students in the universities. Black and William (1998) showed that the process of assessment improves learning and achievement in learning outcomes, and is an excellent means of improving student achievements; especially, those of students with poor academic results.

Assessment of educational outcomes plays an increasingly important role in higher education; in which accreditation organizations place growing importance on student academic learning (Allen, 2006; Bers, 2008) to prepare students for the labor force through development of relevant skills and competencies which are expected by the accreditors, governments and workforce representatives (Toutkoushian, 2005). Therefore, achievement of student academic learning outcomes needs to be appropriately documented through the process of assessment (Praslova, 2010).

Various previous studies demonstrated that assessment of students in the educational process is necessary to check the level of attaining the goals. According to Madaus (1989), through the results of the assessment of student learning outcomes, faculty members adjust the curriculum content and teaching methods accordingly to ensure teaching and learning effectiveness. The role of assessment of student learning outcomes is an important means, not only for students to avoid forgetting but also to acquire the knowledge more solidly (Savin, 1983). In addition, the study of Ornstein and Lasley (2000) mentioned the skills and techniques of teaching, in which the assessment of learning outcomes contributes to the improvement of teaching effectiveness. It affirmed that the assessment does not have the only purpose of grading students, but many different ones, including encouraging students' progress or helping student adjust their own learning. Furthermore, the study of Bloom, Madaus and Hastings (1971) identified that faculty members applying the right assessment methods help enhance students' learning ability. They aimed at perfecting and using the system of tests and questions properly, rather than focusing on solving problems related by selecting and using competencies and intellectuals in standardized tests.

There are various models to measure student learning outcomes in higher education institutions. The study of Richard and Rodgers (2001) displayed that the CDIO model focuses on learning outcomes (what students are expected to be able to do, rather than what they need to study), and helps develop a common framework that combines teaching, learning, assessment, and feedback mechanisms to address academic disciples' demand for graduates with improved professional competencies (Karpe et al., 2011). Therefore, the assessment of learning outcomes is based on the performance of specific tasks, which helps students attain personal and professional skills. In addition, it also helps create products and processes necessary for good integration into labor activities. Furthermore, CDIO model provides a comprehensive and specific guide on how to develop learning outcomes and curriculum frameworks, how to create a convenient academic environment, how to demonstrate an effective teaching method, and how to assess teaching and learning (Mustapa et al., 2017).

There are many ways to classify forms of assessment in education, but, according to the CDIO model, the assessment of learning outcomes is often classified into two main types: formative assessment and summative assessment, also known as assessment of learning (Shute, Kim, 2014). Stiggins (2004) conducted a study on two forms of assessment, such as: 1) assessment for the progress of students (assessment for learning) and 2) assessment to confirm the results at the end of a studying period or program (assessment of learning). Based on these, faculty members can apply the suitable method of assessing students in a class. Many other studies also agreed that assessment of learning is a tool to help evaluate the effectiveness of a program, the teachers' goals of improvement, the suitability of the curriculum or the students' position in particular programs (Basta, 2013).

In addition, the study of Nitko (2004) also provided the theoretical basis on the content of the assessment of student learning outcomes, including: assessment of goals, effectiveness, designing of teaching plans combined with assessment activities. Furthermore, the standard-11 of

the CDIO model demonstrated that the assessment of students' learning is the measurement of the values of learning outcomes that student achieved in learning activities according to lecturers' requirements (CDIO, 2010). The CDIO model is essentially a solution to improve training quality to meet social requirements, on the basis of determining output standards to design effective training programs and plans. Thus, the approach of assessment of learning and designing of teaching plans chosen in this research is based on the research of Stiggins and Nitko and CDIO model with the purpose of creating assessment items for student learning outcomes that aligns with the CDIO model.

Vietnamese higher education institutions are carrying out the reform requirements of approaching to a modern and internationally integrated education with the trend of innovation in testing and assessment of student learning outcomes. This is to improve training quality and meet the human resource requirements for the national socio-economic development (Vu, 2018). However, evaluation methods implemented are different which resulted in a lack of synchronization. Thus, the effectiveness of testing and assessment of student learning outcomes does not live up to expectations in universities. According to Crawley, Malmqvist, Östlund, and Brodeur (2007), one of the approaches to improve the quality and standardization of the curriculum in the fields of engineering and technology is CDIO model. In this research, the application and implementation of the CDIO model, therefore, used to assess the learning outcomes of students at universities in the fields of science and technology in Vietnam.

Previous studies recognized the relationship between student learning outcomes and gender, race, ethnicity of engineering students (Ro, Loya, 2015; Ro, Knight, 2016); students' learning methods and quantitative learning outcomes (Gijbels et al., 2005); grading, classroom assessment techniques, and institutional assessment (Anderson et al., 2005); learning environment (Kember et al., 2010).

In view of aforesaid points, the purpose of this research is to explore the students' perceptions, and how students' personal characteristics and educational environment at university influenced on the assessment of their learning outcomes in accordance with CDIO model at the Vietnam National University Ho Chi Minh City (VNU-HCM). This research aims to answer the following research questions: 1) What is the general level of the assessment of student learning outcomes in accordance with CDIO model? 2) Are there any significant differences in the assessment of learning outcomes between various relevant personal characteristics and 3) How is the assessment of student learning outcomes affected by educational environment at university?

## 2. Materials and methods
### 2.1. Sample
The data in this research was investigated random sample of 1,200 students who are currently studying full-time from the three member universities of Vietnam National University – Ho Chi Minh City, which were 237 higher education institutes in Vietnam (General statistics office of Vietnam, 2019). Out of the 1,200 students, this research was conducted with 1,107 students whose were self-reported information in higher education research. It was 92.25 % return rate by their email which exceeded the 30 % response rate for analysis purpose (Dillman, 2000).

A multipart questionnaire was used to collect basic information about students and obtain data regarding their educational environment at university as well as the assessment of learning outcomes student perceptions. The demographics for this sample population were as follow female students (15 %) and male students (85 %); 22.1 %, 45.3 % and 32.5 % students of University of Technology, University of Information Technology and University of Science, respectively. Regarding accommodation, interestingly, the percentages of students living on campus (65 %) and off-campus away from their family (22 %) were higher. Of those who responded to the survey, only 16.7 % of graduating students ranked very good, while 62.4 % of students are ranked good and the average remaining.

### 2.2. Variables
The assessment of student learning outcomes in accordance with CDIO model was identified as the dependent variable of this research. As shown in Table 1, it was constructed based on five questionnaire items measuring the content of the assessment are suitable for students' ability. The criteria for assignments are clear, the exercises and tests are clearly commented and commented by the instructors, the instructors combine a variety of testing methods and forms to assess learners'

ability, and the instructors allows students to do a project/essay to evaluate the study plan. Factor loading, total variance explained, and internal consistency analysis (Cronbach's α) were conducted to assess the validity and reliability of this constructed measurement for the assessment of student learning outcomes in accordance with CDIO model factors at the VNU-HCM.

Values of factor loading for items of the assessment of student learning outcomes factor ranged from 0.739 to 0.834, which were higher than the threshold level of 0.6 (Hair et al., 2009). Total variance explained was 61.20 %, which was higher than the threshold level of 60 percent and meeting the requirement of a constructed variable for social science research (Hair et al., 2009). The findings of the internal consistency analysis revealed a Cronbach's α coefficient of 0.839, which was higher than the threshold level of 0.6 (Hair et al., 2006) and 0.7 (Nunnally, Bernstein, 1994), indicating satisfactory reliability. Based on the above findings, hence, five factors were acceptable for establishing the assessment of learning outcomes students in accordance with CDIO model in this research (see Table 1).

Table 1 shows the correlation among five dimensions of the assessment of learning outcomes in accordance with CDIO model at the VNU-HCM students. The value of correlation coefficient ranges from 0.366 to 0.633 was relatively high positive correlation between factors of the assessment of student learning outcomes. The relationship were highest associated between the content of the assessment are suitable for students' ability and the criteria for assignments are clear ($r = .633$). Other significant associations were lowest found between the exercises and tests are clearly commented and commented by the instructors and the instructors allows students to do a project/essay to evaluate the study plan ($r = .366$).

**Table 1.** The results of correlation between five dimensions of the assessment of learning outcomes in accordance with CDIO model at the VNU-HCM students

|  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. The content of the assessment are suitable for students' ability | 1 | | | | |
| 2. The criteria for assignments are clear | .633[**] | 1 | | | |
| 3. The exercises and tests are clearly commented and commented by the instructors | .434[**] | .597[**] | 1 | | |
| 4. The instructors combine a variety of testing methods and forms to assess learners' ability | .487[**] | .516[**] | .551[**] | 1 | |
| 5. The instructors allows students to do a project/essay to evaluate the study plan | .483[**] | .486[**] | .366[**] | .580[**] | 1 |

Note: ** Correlation is significant at the 0.01 level (2-tailed)

The independent variables of this research encompassed 2 categories: student individual characteristics and educational environment at university factors. Firstly, student individual characteristics consisted of gender, university studying, accommodation and grade description. Secondly, educational environment at university contained 4 factors, including evaluation methods, curriculum emphases, teaching approaches, and improvement activities. Table 2 shows the details of operational definitions, means (*M*), and standard deviations (*SD*) of the independent variables.

**Table 2.** Operational definitions, *M*, and *SD* of the independent variables

### *Individual characteristics*

Gender: Female = *0*, Male = *1*

University studying: measured on a 3-point scale, where 1 = *University of Technology*, 2 = *University of Information Technology*, and 3 = *University of Science* (*M* = 2.10, *SD* = 0.73). Accommodation: measured on a 3-point scale, where 1 = *living with family*, 2 = *on campus*, and 3 = *off-campus* (*M* = 2.09, *SD* = 0.59).

Grade description: measured on a 3-point scale, where 1 = *Average*, 2 = *Good*, and 3 = *Very good* (*M* = 1.96, *SD* = 0.61).

### *Educational environment at university*

Evaluation methods: measured on a 5-point scale, where 1 = *never* and 5 = *always* (*M* = 3.73, *SD* = .72).

Curriculum emphasizes: measured on a 5-point scale, where 1 = *strongly disagree* and 5 = *strongly agree* (*M* = 4.01, *SD* = .70).
Teaching approaches: measured on the same scale as that for curriculum emphasizes (*M* = 4.00, *SD* = .64).
Improvement activities: measured on the same scale as that for curriculum emphasizes (*M* = 4.01, *SD* = .76).

Note: Every variable is measured with one question item

### 2.3. Procedure
This research employed the following data analysis procedure: descriptive analyses, independent *t*-test, the analysis of variance (ANOVA), and multiple regression analyses. Descriptive analysis is conducted to understand the general level of the assessment of learning outcomes. The independent *t*-test and ANOVA were performed to see whether significant differences existed between individual characteristics and the assessment of learning outcomes. A series of separate stepwise multiple regression analyses were conducted to investigate the influences of educational environment at university on the assessment of learning outcomes in accordance with CDIO model at the VNU-HCM students.

### 3. Results
### 3.1. Level of the assessment of learning outcomes in accordance with CDIO model at the VNU-HCM students
Table 3 presents the descriptive statistics for the dependent variable – the assessment of student learning outcomes in accordance with CDIO model – based on the results from the five questionnaire items. In this research, the survey used a 5-point scale with responses ranging from 1 = strongly disagree to 5 = strongly agree. With the overall *M* and *SD* for each value, the findings reveal that most students at the VNU-HCM hold fairly high opinion of the assessment of their learning outcomes (*M* = 3.86, *SD* = 0.71).

**Table 3.** Results of *M*, *SD*, factor analysis and reliability of the dependent variable

| Factors | M(SD) | Range of score | Factor loading |
|---|---|---|---|
| The content of the assessment are suitable for students' ability | 3.91(.86) | | .834 |
| The criteria for assignments are clear | 3.92(.91) | | .803 |
| The exercises and tests are clearly commented and commented by the instructors | 3.79(1.02) | 1 - 5 | .778 |
| The instructors combine a variety of testing methods and forms to assess learners' ability | 3.85(.93) | | .752 |
| The instructors allows students to do a project/essay to evaluate the study plan | 3.85(.85) | | .739 |
| **Total variance explained (%)** | | 61.20 | |
| **Cronbach's α** | | .839 | |
| **Total *M(SD)*** | | 3.86 (.71) | |

Note: Data were analyzed with principle component analysis

For the five dimensions of the assessment of learning outcomes in accordance with CDIO model at the VNU-HCM students, the findings of Table 1 also show that students were agreed with the criteria for assignments are clear ($M = 3.92$, $SD = 0.91$), followed by the content of the assessment are suitable for students' ability ($M = 3.91$, $SD = 0.86$), the instructors combine a variety of testing methods and forms to assess learners' ability ($M = 3.85$, $SD = 0.93$), and the instructors allows students to do a project/essay to evaluate the study plan ($M = 3.85$, $SD = 0.85$). Students were least agreed with the exercises and tests are clearly commented and commented by the instructors ($M = 3.79$, $SD = 1.02$).

**3.2. Comparison between individual characteristics and the assessment of learning outcomes in conformity with CDIO model at the VNU-HCM students**

Table 4 shows that, overall, student individual characteristics difference exist regarding the assessment of their learning outcomes in conformity with CDIO model. Regarding the relationship in the assessment of their learning outcomes between male ($M = 3.81$, SD = 0.72) and female students ($M = 4.12$, SD = 0.61) at the VNU-HCM, the $t$-test findings reveal that the female students were significantly higher than those of the male counterparts ($t = -5.706$, $p < 0.001$).

**Table 4.** Statistical analysis for student individual characteristics at the VNU-HCM and the assessment of their learning outcomes in conformity with CDIO model

| Factor | | N | *M(SD)* | *t-test / F* | *post hoc* |
|---|---|---|---|---|---|
| Gender | Male | 941 | 3.81(.72) | -5.706*** | - |
| | Female | 166 | 4.12(.61) | | |
| University studying | UoT(A) | 245 | 3.94(.64) | 10.775*** | A,B > C |
| | UoIT (B) | 502 | 3.93(.71) | | |
| | UoS (C) | 360 | 3.72(.83) | | |
| Accommodation | Living w/ family (A) | 145 | 3.72(.70) | 3.511* | A < B |
| | On campus (B) | 719 | 3.88(.69) | | |
| | Off-campus (C) | 243 | 3.89(.78) | | |
| Grade description | Average (A) | 231 | 3.73(.85) | 5.165** | A < B |
| | Good (B) | 691 | 3.91(.68) | | |
| | Very good (C) | 185 | 3.86(.64) | | |

Note: UoT: University of Technology; UoIT: University of Information Technology; UoS: University of Science.
* p < .05, ** p < .01, *** p < .001

As shown in Table 4, the ANOVA findings demonstrate that there were significant differences among the assessment of learning outcomes in conformity with CDIO model and universities where the student is studying ($F = 10.775$, $p < 0.001$), accommodation of respondents ($F = 3.511$, $p < 0.05$), and grade description of students ($F = 5.165$, $p < 0.01$). Specifically, the findings of post-hoc explained that the University of Technology ($M = 3.94$, $SD = 0.64$) and the University of Information Technology ($M = 3.93$, $SD = 0.71$) students had higher score in the assessment of their learning outcomes than their colleagues in the University of Science ($M = 3.72$, $SD = 0.83$). The findings also indicate that students who are living with their family ($M = 3.72$, $SD = 0.70$) had lower satisfaction in the assessment of learning outcomes than those living on campus ($M = 3.88$, $SD = 0.69$). Finally, participants holding good of grade description ($M = 3.91$, $SD = 0.68$) had higher motivation in the assessment of learning outcomes than those holding average rank ($M = 3.73$, $SD = 0.85$). Unfortunately, there were no significantly different between the assessment of learning outcomes and factors of students who living off-campus and ranking of very good well in their results study.

**3.3. Effects of educational environment at university on the assessment of learning outcomes in conformity with CDIO model at the VNU-HCM students**

Table 5 suggests five models of logistic regressions, which analyze the effects of educational environment at university (such as evaluation methods, curriculum emphases, teaching approaches, and improvement activities) on the assessment of learning outcomes in conformity with CDIO model at the VNU-HCM students. Models 1 through 4 present the separate effects of

these factors on the assessment of student learning outcomes, and Model 5 present the combined effects. These models explained 63.6 % of the variance of the assessment of student learning outcomes of educational environment at university (Adj. $R^2$ =.636). Multicollinearity diagnosis yielded no value of variance inflation factor (VIF) in the regression models higher than 10 (in this research VIF = 1.850 to 3.395), indicating no risk of serious multicollinearity of the models (Hair et al., 2009; StataCorp, 1997). The regression models also exhibit the Beta coefficient ($\beta$) of attaining the assessment of student learning outcomes compared with not attaining such ones, with $\beta > 0$ indicates a positive effect, and $\beta < 0$ indicates a negative effect.

**Table 5.** Stepwise and regression analyses of independent variables effects on the assessment of learning outcomes at the VNU-HCM students

| Factor | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | VIF |
|---|---|---|---|---|---|---|
| | | | $\beta$ | | | |
| ***Evaluation methods*** | | | | | | |
| Based on products | .115*** | | | | .017 | 1.957 |
| Academic portfolio | .192*** | | | | .072** | 2.034 |
| Judging by the situation | .220*** | | | | .081** | 2.339 |
| Question and answer | -.014 | | | | -.022 | 2.346 |
| Writing exam | .199*** | | | | -.063* | 2.074 |
| Students' performance | .134*** | | | | .114*** | 2.481 |
| ***Curriculum emphasizes*** | | | | | | |
| Accord with the vision and mission | | .139*** | | | .011 | 2.420 |
| Objectives are clear and feasible | | .166*** | | | .052 | 2.322 |
| Rate of knowledge blocks is appropriate | | .077* | | | .075* | 3.395 |
| Learning outcomes are feasible | | .109*** | | | -.006 | 2.080 |
| Subjects are closely related | | .056 | | | .029 | 2.733 |
| Curricula is periodically adjusted | | .346*** | | | .242*** | 2.980 |
| ***Teaching approaches*** | | | | | | |
| Introduces objectives of the course | | | .246*** | | .138*** | 2.273 |
| Provide the criteria, evaluation methods | | | .150*** | | .001 | 1.850 |
| Use the grading scale and other forms of evaluation | | | .143*** | | .001 | 2.215 |
| Use a variety of teaching methods | | | .051 | | -.008 | 2.462 |
| Organize experiential learning activities | | | .235*** | | .130*** | 2.533 |
| Have improvements in the teaching activities | | | .083** | | .015 | 2.431 |
| ***Improvement activities*** | | | | | | |
| Participate in the adjustment of curriculum | | | | .387*** | .176*** | 2.193 |
| Physical facilities meet the requirements | | | | .087** | -.015 | 2.340 |

| | | | | | |
|---|---|---|---|---|---|
| Provide feedback to students | | | | .132*** | .161*** | 3.055 |
| Change appropriate assessment methods and forms | | | | .045 | -.098** | 2.706 |
| Train skills meet the outcomes of program | | | | .099** | -.060 | 3.125 |
| Adjust the procedures and regulations on examination | | | | .058 | .124*** | 3.243 |
| Adj. R² | .368 | .509 | .423 | .433 | .636 | - |

*\* p < .05, \*\* p < .01, \*\*\* p < .001*

The findings of this research demonstrate that educational environment at university factors persisted to have significant relationships with the assessment of learning outcomes in conformity with CDIO model at the VNU-HCM students. Model 1 indicates that the most items of evaluation methods factor, except item of question and answer, exerted a substantial influence on the assessment of student learning outcomes of the Vietnamese university. All items of based on products, academic portfolio, judging by the situation, writing exam, and students' performance, thereby, yielded positive effects on the assessment of student learning outcomes ($\beta$ = .115, .192, .220, .199 and .134, $p$ < 0.001, respectively). Similarly, five out of six items of curriculum emphases factor in Model 2 were positively associated with the assessment of student learning outcomes ($\beta$ =.139, $p$ < 0.001 for accord with the vision and mission, $\beta$ =.166, $p$ < 0.001 for objectives are clear and feasible, $\beta$ =.077, $p$ < 0.05 for rate of knowledge blocks is appropriate, $\beta$ =.109, $p$ < 0.001 for learning outcomes are feasible, and $\beta$ =.346, $p$ < 0.001 for curricula is periodically adjusted).

As for teaching approaches factor, Model 3 also identifies that there were five out of six items yielded positive effects on the assessment of learning outcomes similar to Model 1 and 2. They included items of introduces objectives of the course ($\beta$ =.246, $p$ < 0.001), provide the criteria, evaluation methods ($\beta$ =.150, $p$ < 0.001), use the grading scale and other forms of evaluation ($\beta$ =.143, $p$ < 0.001), organize experiential learning activities ($\beta$ =.235, $p$ < 0.001), and have improvements in the teaching activities ($\beta$ =.083, $p$ < 0.01). In Model 4, improvement activities factor had four items which found a positive relationship with the assessment of learning outcomes at the VNU-HCM students, namely participate in the adjustment of curriculum ($\beta$ =.387, $p$ < 0.001), physical facilities meet the requirements ($\beta$ =.087, $p$ < 0.01), provide feedback to students ($\beta$ =.123, $p$ < 0.001), and train skills meet the outcomes of program ($\beta$ =.099, $p$ < 0.01).

Overall, 50.9 %, of curriculum emphases for university students yielded the largest explanatory power (Adj. R² = .509) in the assessment of learning outcomes at the VNU-HCM students, compared with evaluation methods (Adj. R² = .368), teaching approaches (Adj. R² = .423), and improvement activities (Adj. R² = .433) among Models 1-4. However, all the items of educational environment at university factors persistently indicated significant difference on the assessment of student learning outcomes in Model 5.

In the combined Model 5, twelve out of twenty-four items significantly affected on the assessment of student learning outcomes. Only items of academic portfolio ($\beta$ =.072, $p$ < 0.01), judging by the situation ($\beta$ =.081, $p$ < 0.01), and students' performance ($\beta$ =.114, $p$ < 0.001) of evaluation methods factor steadily maintained their significant benefit effects on the assessment of student learning outcomes cross models. These results were similar to items of rate of knowledge blocks is appropriate and curricula is periodically adjusted of curriculum emphases factor, items of introduces objectives of the course and organize experiential learning activities of teaching approaches factor, and items of participate in the adjustment of curriculum and provide feedback to students of improvement activities factor. However, writing exam item of evaluation methods factor robustly persisted with significant effects on the assessment of student learning outcomes cross models, but, there had negative effects ($\beta$ = -.063, $p$ < 0.05). In addition, two items of change appropriate assessment methods and forms ($\beta$ = -.098, $p$ < 0.01) and adjust the procedures and regulations on examination ($\beta$ = .124, $p$ < 0.001) of improvement activities factor yielded negative and positive effects on the assessment of student learning outcomes in Model 5, respectively.

**4. Discussion**

Although there are many previous studies on the assessment of student learning outcomes and this topic is not new; however, little is known about the relationship between the assessment of student learning outcomes in conformity with CDIO model and other factors (such as individual characteristics and educational environments) in Vietnamese higher education institutions. The findings of this research contribute to fill the critical gaps in theory and practice regarding to this topic. Based on the results of this research, there are some major points as follows:

Firstly, as the studies utilized different methods, approaches and instruments to measure student learning outcomes in higher education institutions, the results vary. This study showed that students have fairly high opinion of the assessment of their learning outcomes in conformity with CDIO model. In addition, there is still much room for managers to improve the effectiveness of the assessment through the development of curriculum. Therefore, the findings are comparable to those of previous studies. Nevertheless, the limit of this study is that there is insufficient empirical evidence to compare these findings with other studies.

Secondly, female students appreciate the assessment used in this study significantly more than their male peers. The relationship between student learning outcomes assessment and gender is supported by the study of Ro and Loya (2015). Their study found that although female students do not rate their own engineering learning outcomes as highly as males do, they have better self-assessment of their professional learning outcomes than their counterparts. However, studies on the relationships between other factors of student individual characteristics (such as university studying, accommodation and grade description) and the assessment of student learning outcomes in accordance with CDIO model are relatively sparse.

Finally, the results of this study are similar to those of Kember, Ho and Hong (2010). The findings demonstrated that there is a relationship between educational environment at universities and the assessment of student learning outcomes. The study of Kember, Ho and Hong found that a favorable learning environment promotes the assessment in higher education institutions. Jimaa (2011) stated that assessment of learning plays an import role in a program's success, which can affect a program's reputation, enrollment, funding, and even its existence. Therefore, the assessment of student learning outcomes usually focuses on improving students' learning. Apart from that, it is also an opportunity to showcase what aspects that involved departments or programs are doing well, which can help improve students' learning as well as learning opportunities and promote the programs to incoming students.

There are many methods to assess learners' learning outcomes. Each of these methods possesses a wide range of assessment types that can be used flexibly. Assessing student learning outcomes necessitates the use of various methods to gather evidence before, during, and after learning activities (Boden, Gray, 2007). The study of Crawley, Malmqvist, Östlund and Brodeur (2007) made use of typical methods in accordance to CDIO model such as observation, written and oral questions, product review, technical diary and personal record of achievements, other self-report tools, self-assessment and peer-assessment in training engineers. Furthermore, the study of Baartman (2008) argued that faculty members' feedback for their students is the key in assessing their learning capability and can help them to participate more actively. The assessment of learning outcomes in agreement with the CDIO model is closely linked to teaching and learning activities, based on the philosophy of assessment for learning and assessment as a learning activity.

**5. Conclusion**

This study explored the students' perceptions of VNU-HCM of the assessment of their learning outcomes in accordance with CDIO model, and the relationship of student individual characteristics and educational environment at university factors to ones were examined.

The results revealed that most students at the VNU-HCM have fairly high opinion of the assessment of their learning outcomes. In addition, the findings of study indicated that the differences in student individual characteristics (such as gender, university studying, accommodation and grade description) exist in the assessment of their learning outcomes. Finally, factors of academic environment at universities (including evaluation methods, curriculum emphases, teaching approaches, and improvement activities) are proved to have significant relationships with the assessment of learning outcomes in accordance with CDIO model in students at the VNU-HCM.

Although this research contributes to filling the gap in the literature of students' leadership capacity in both theory and practice, it has some limitations. The primary limitation is that all the three universities of the VNU-HCM sampled in this research are in the fields of sciences and technology. Further research, thus, should collect samples from various higher education levels, disciples and other factors to obtain more sufficient empirical evidence on the assessment of student learning outcomes of university students in Vietnam. It is hoped that the barrier against the assessment of student learning outcomes found in this research might be useful for policy makers, experts and managers at the VNU-HCM to improve the level of the assessment in the process of designing training programs or curriculum. In addition, it is recommended that the improvement of items which have positive effects on the assessment of student learning outcomes based on CDIO model should be focused.

## 6. Acknowledgments

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## Peculiarities of Perceived Aggressiveness among Youth School's Students

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**Abstract**
The aim of the current descriptive study was to examine perceived characteristics of aggressiveness of youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence. Youth schools provide learning opportunities for students who fail in conventional schools because they required specialized attention not available in the conventional school. The analysis covered 178 youth school's students, which were randomly selected from different youth schools in Kaunas region. The study used two surveys: Assinger's questionnaire and Buss-Perry Aggression Questionnaire. The data in the Assinger questionnaire were found to be different from the normal distribution. Statistical analysis of these data was performed using the chi-square test. The data of the Buss and Perry's Aggression Questionnaire were normally distributed, thus making it possible to use t-test for independent samples. Youth school's students who received disciplinary punishment for violence had more positive attitudes toward aggression, i.e., they tend to justify the aggression partly or approve completely. Youth school's students who received disciplinary punishment for violence were more verbally and physically aggressive than youth school's students who not received disciplinary punishment for violence. The findings of the present study point out new trends to a deeper understanding of the peculiarities of aggressiveness among youth school's students.

**Keywords:** aggressiveness; attitudes to aggression; punishment, youth school, students.

### 1. Introduction
Scientists investigated aggressiveness of students in various educational environments including primary education (Jain et al., 2018), secondary education (Bekiari, Spyropoulou, 2016), however, aggressiveness among students in youth schools have not received considerable attention. The authors of this study sought to facilitate an identification of peculiarities of aggressiveness in youth school's students. Topicality of investigation of perceived characteristics of aggressiveness in youth school's students is based on the argument that very little is actually known about what goes

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on within the precincts of youth schools (Kelly, 1993). Some researchers (Muñoz, 2004) reported that the alternative education particularly that related to youth at-risk often is based on uncomprehensive research.

Youth schools are destined to teach specialized students who have dropped out of typical schools (Malinauskas, 2019). The "youth school is usually part of the middle or high school program offered to secondary-aged students" (Dunning-Lozano, 2016: 434).

Youth schools provide learning opportunities for students who fail in conventional schools because they required specialized attention not available in the conventional school. Many students in youth schools have high rates of academic and behavioural problems (Foley, Pang, 2006). For such students could be characteristic attendance problems, underachievement problems and deficient in credits to graduate (Dunning-Lozano, 2016). Students, who were often suspended due to fights, or those who disrupted classes, could be sent to youth school so that they would not interfere with other students. Youth school's students may have unique learning interests or disabilities; they can be potential perpetrators, violent people or convicted young people or participants of juvenile detention systems.

The lack of positive socialisation among youth school's students can be interpreted as a precondition for aggressive behaviour (Gudžinskienė, Burvytė, 2017). Youth school's students have lower social skills than students in high schools for the reason that youth schools are accomplished to implement specialized instruction to students that have behavioural complications, nonappearance, bad academic results (Malinauskas, 2019). Punishment in school is a typical replay to the violence that arises in youth schools. Disciplinary punishments for violence often involved short-term suspension, reprimand, and debarment from class (Ergün, 2014). Punished youth are more likely to drop out of school (Skiba, Rausch, 2006). Consequently, punished students do not view education as a viable process toward adult success (Noguera, 2003). Increased aggressive behavior, drug use, and violence often is as a result from school punishment and exclusion (Rios, 2010).

**Objectives.** The purpose of the present study was to examine perceived characteristics of aggressiveness among youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence. It was hypothesized that perceived aggressiveness is more characteristic for youth school's students who received disciplinary punishment for violence than that of youth school's students who not received disciplinary punishment for violence. This hypothesis was based on earlier research (Noguera, 2003) showing that punished students are more likely to engage in aggressive and delinquency-like behavior as a result of school punishment and exclusion. Results of the previous studies suggest "the importance of assessing contextual risk factors (for instance, disciplinary punishment) in students attending youth schools to provide comprehensive intervention for students in these settings" (Rubens et al., 2019: 508).

## 2. Materials and methods

Cross-sectional design was chosen in this study because we wanted to investigate differences in perceived characteristics of aggressiveness among youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence.

Youth school's students were randomly chosen for inclusion in the sampling frame. The participants were randomly selected applying a two-stage sampling strategy: first, the youth school was selected from the list of the schools of district, and then 16-18-year-old youth school's students in those schools were invited to participate. Names of participants were randomly drawn from official youth school's 10th – 12th grades rosters. The analysis covered 178 youth school's students. Group of youth school's students who received disciplinary punishment for violence consisted of 82 adolescents and group of youth school's students who not received disciplinary punishment for violence consisted of 96 adolescents. The mean age of the participants was 16.83 ± 1.14 years.

**Instruments.** The research conducted for this study included two surveys:

1. *Assinger's Questionnaire* for the identification of the attitudes to aggression (Raigorodskij, 2000). This instrument consists of 20 items and the range of responses was 3-point scale. Questionnaire has been translated into Lithuanian and adaptation has been performed.

Respondents' answers were evaluated by points, where 35 points or less indicate the negative attitude to aggression, 36 to 44 points indicate the neutral attitude, and 45 or more points indicate the positive attitude. The internal consistency of the questionnaire was assessed by Cronbach's alpha coefficient (α = .76 (Malinauskas, Dumciene, 2014) and α = .77 for the present sample).

2. *Buss-Perry Aggression Questionnaire (AQ).* This instrument consists of 29 items to assess self-reported forms of aggressiveness (Buss, Perry, 1992). The AQ consists of four subscales: hostility (eight items), anger (seven items), verbal aggression (five items) and physical aggression (nine items). Respondents are required to rate the items using a 5-point Likert scale. Internal consistency of the four subscales ranges from α = .63 to α = .79 (Malinauskas, Dumciene, 2014).

**Data collection procedures.** After parental consent was obtained researcher administered surveys in a paper-and-pencil format in classrooms during class time. Youth school's students filled out a consent form, provided information about age and about receiving/not-receiving disciplinary punishment for violence, and then completed the assessment questionnaire (consisting of the instruments detailed above).

**Statistical analysis.** Skewness and kurtosis coefficients were calculated to check normality. The data in the Assinger questionnaire were found to be different from the normal distribution. Statistical analysis of these data was performed using the chi-square test. The data of the *Buss and Perry's Aggression Questionnaire* were normally distributed. All variables distribution of the *Buss and Perry's Aggression Questionnaire* were checked for skewness and kurtosis and had acceptable distributions (skewness and kurtosis between −2 and +2 are considered acceptable to prove normal distribution (George, Mallery, 2010)), thus making it possible to use *t*-test for independent samples. Cohen's d was used as effect sizes indicator. Cohen's d effect sizes are generally defined as small (d = .2), medium (d = .5), and large (d = .8). Statistical Package for Social Sciences (SPSS) Version 24.0 was used to perform statistical analysis.

**Ethical procedures.** Approval from the Ethical Committee of the University was successfully received. Parental consent was obtained before evaluation of school's students for the reason that they were 16-18 years old. Confidentiality was ensured since questionnaires were handed out for completion in classrooms. The participants' names were not recorded in the assessment questionnaire and confidentiality was guaranteed.

### 3. Results
The attitudes in relation to aggression of youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence are given in Table 1.

**Table 1.** Attitudes to aggression of youth school's students (percentages and frequencies)

|  | Attitudes to aggression, % (*frequency*) | | |
|---|---|---|---|
|  | Negative | Neutral | Positive |
| Youth school's students who received disciplinary punishment for violence* | 21 (17) | 35 (29) | 44 (36) |
| Youth school's students who not received disciplinary punishment for violence | 38 (36) | 32 (31) | 30 (29) |

\* *p* < .05

Statistical analysis showed that youth school's students who received disciplinary punishment for violence and students who not received disciplinary punishment for violence differed significantly in the attitudes to aggression ($\chi^2$ (2) = 6.57; *p* < .05). It was established that positive attitudes in relation to aggression were characteristic for 44 % youth school's students who received disciplinary punishment for violence and for 30 % youth school's students who not received disciplinary punishment for violence.

Data of self-reported forms of aggressiveness among youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence are given in Table 2.

**Table 2.** Means (M) and standard deviations (SD) for aggression dimensions of youth school's students

| | 1 | | 2 | | *t* value | Cohen's *d* |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | | |
| Physical Aggression | 3.04 | .52 | 2.89 | .45 | 2.04* | .31 |
| Verbal Aggression | 3.07 | .49 | 2.93 | .43 | 2.01* | .31 |
| Anger | 2.96 | .52 | 2.81 | .48 | 1.99* | .30 |
| Hostility | 2.89 | .51 | 2.74 | .50 | 1.97* | .30 |

*$p < .05$; *df* = 176.
1 – Youth school's students who received disciplinary punishment for violence;
2 – Youth school's students who not received disciplinary punishment for violence.

Youth school's students who received disciplinary punishment for violence were more verbally and physically aggressive than students who not received disciplinary punishment for violence. Statistical analysis showed that youth school's students who received disciplinary punishment for violence reported higher physical aggression ($t$ (176) = 2.04; $p < .05$). Youth school's students who received disciplinary punishment for violence were more verbally aggressive than students who not received disciplinary punishment for violence ($t$ (176) = 2.01; $p < .05$).

Mean-score differences between youth school's students who received disciplinary punishment for violence and youth school's students who not received disciplinary punishment for violence were significant ($t$ (176) = 1.99; $p < .05$) with respect to anger: students who received disciplinary punishment for violence reported higher anger. It was found that hostility indicators levels among students who received disciplinary punishment for violence were higher than those of students who not received disciplinary punishment for violence ($t$ (176) = 1.97; $p < .05$).

## 4. Discussion

The purposes of the present study were to explore perceived characteristics of aggressiveness in youth school's students who received disciplinary punishment for violence and students who not received disciplinary punishment for violence. Comparative analyses enabled us to identify univariate associations among status of receiving disciplinary punishment for violence, psychological attitudes towards aggression and levels of different forms of aggression.

More positive attitudes to aggression in youth school's students who received disciplinary punishment for violence may be related with their more prominent seeking of recognition from peers (Garandeau, Cillessen, 2006). It is in line with arguments that more positive attitudes to aggression are related with higher probabilities of involvement with aggressive actions (Reijntjes et al., 2010). It could be in line with arguments by Losel and Bender (2014) that aggressive actions that individuals make early in their lives influence their aggressiveness later, but there are no data on aggressive behavior in the family that may have been learned in the family or in the foster home.

Data of our present research revealed that youth school's students who received disciplinary punishment for violence showed higher scores of the perceived characteristics of aggressiveness, although the effects were rather small (Cohen's *d* ranged from .30 to .31). It was confirmed that youth school's students who received disciplinary punishment for violence were more verbally and physically aggressive than students who not received disciplinary punishment for violence. Students who not received disciplinary punishment for violence were less angry and less hostile than youth school's students who received disciplinary punishment for violence.

The results of the present research could be explained by the studies which suggests that aggressive actions creates for students a sense of pleasure (Benenson et al., 2008), and aggressive actions that individuals make early in their lives influence their aggressiveness later (Losel, Bender, 2014).

It was also established that students who not received disciplinary punishment for violence were less angry and less hostile than youth school's students who received disciplinary punishment for violence. We can suppose that, firstly, aggressiveness was provoked by the aggressive actions that individuals make early in their lives, and, secondly, aggressiveness was induced by the appreciation among peers. The results of present study can be explained by the links of attributes of aggressiveness of students with youth schools' peculiarities (youth schools' are as separate tracks for students at-risk, for some violent people or convicted young people) (Muñoz, 2004). Our results can be explained by the various processes that determine increase of aggressiveness among youth school's students who received disciplinary punishment for violence and suggests that students more prone to engage in aggressive behavior are more likely to ally with potential perpetrators outside of school (Patterson, 1992) because the most available peers are often those who have previously chosen asocial behavior (Muñoz, 2004).

### 5. Limitations and areas for further study

The findings of this study, delimited to youth school's students, do not show differences between students of different types of schools. The present study does not distinguish aggressiveness related to students' conditions social environment for maturation. This research does not focus on the variables of the socio-economic status of the youth school's students but belonging to less or more affluent classes could influence perceived characteristics of aggressiveness. Consequently, future research is required to focus on the socio-economic status of the youth school's students. It cannot be ruled out that youth school's students who participated in the study only partially revealed the analyzed problem, therefore, in order to increase the quality of the study and the reliability of the results, it would be appropriate to interview not only students but also their teachers in the future. To sum up, the findings of the present study point out new trends to a deeper understanding of the peculiarities of aggressiveness among youth school's students.

### 6. Conclusion

Research analysis indicated that youth school's students who received disciplinary punishment for violence had more positive attitudes to aggression, i.e., they tend to justify the aggression partly or approve completely, and were more aggressive than students who not received disciplinary punishment for violence. These findings suggest the importance of education of youth school's teachers about punishment research on outcomes.

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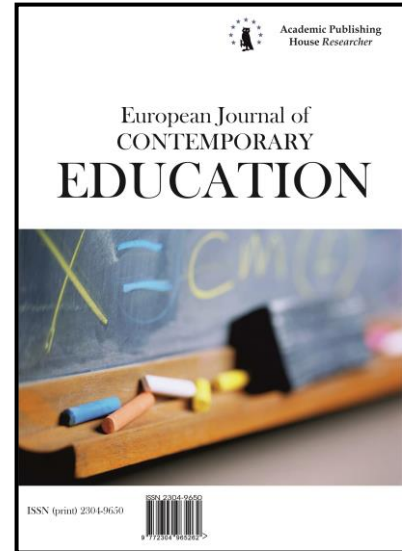
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## Development Prospects of Distance and Online Education in the Higher Education System of Ukraine

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**Abstract**

The article examines the advantages and perspectives of distance education development in the Ukrainian higher education system. One of the innovations in the process of organizing education in Ukraine, as a country that actively implements the demands of time and the Bologna process, is the actualization of distance learning, that meets the needs of the modern society, the society that needs a mobile professional who can implement the skills and knowledge in the globalized society, not only limited to the norms and standards of their own country. Distance learning is one of the promising and effective forms of higher education, which ensures the expansion of professional contacts, as well as greater use of the scientific and methodological potential of higher education.

The authors consider the open educational resources to ensure the further effectiveness of the education system in Ukraine (in the context of society digitalization), to adapt it to the process of global integration. Open educational resources, both worldwide and Ukrainian, are the means for the development of skills and knowledge, due to which future professionals in a particular field have the opportunity to become more competitive at the labor market in the period of society globalization, achieving more significant goals.

**Keywords:** distance learning, higher education system, professional skills and knowledge, open educational resources.

### 1. Introduction

In the 21st century, the traditional process of education is transforming into computer-based training. It is possible mainly due to the development of the Internet: for instance, to receive and

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share information with different countries of the world through the Internet sites, or to communicate freely with other users of the network online – as a fact, modern information digital technologies improve the efficiency of the learning process. Another trend in the contemporary educational system is the cross-industry activity, which integrates several specialties at the same time. The demand for getting such highly qualified specialists is constantly increasing as they can integrate and synthesize knowledge from different fields and become more versatile professionals.

The Nobel Prize laureate in physics, Richard Feynman, noted that the best way to learn a subject is to gain knowledge from different scientific schools. Online education gives us this opportunity (variability and a broader view of a particular sphere), both for offline universities and various educational institutions, it is an opportunity to make learning more interactive (Shtykhno, 2016).

The goal of this research is to examine different forms of distance learning, in particular the advantages of the open educational courses as the tools for developing communication abilities and professional skills of future specialists, mastering their ability to solve typical and non-typical tasks independently, to search for the necessary information and to apply professional activities through the whole life.

Achieving this goal involves performing the following tasks:

1) to analyze the process of providing open educational resources in distance learning;

2) to examine the functions of Coursera and Prometheus – online courses platforms – as the effective tools for the implementation of distance learning in Ukraine.

### 2. Materials and methods

The research is based on systematic, synergistic, and activity-, personality-oriented approaches. The methodology used made it possible to distinguish the main paradigms of studying contemporary distance learning system in the world, comparing with Ukraine, in order to optimize and implement technological innovations of this sphere in the Ukrainian educational system. The study used methods of analysis and synthesis, analogy, system and classification, comparison and generalization. The method of synthesis solved the research tasks through the application to primary sources on the subject. The application of the analytical method to the primary source data made it possible to analyze distance learning technologies, in particular open educational courses, regarding their implementation in the national educational system to European legislation; as well as the compliance of the international distance learning system with the specificities of the national one. Comparative analysis was used as one of the main methods of analysis, which made it possible to compare the domestic open course platform for distance learning Prometheus with the world-known Coursera legal basis for regulating the object of study in the other countries of the world. The descriptive method allowed presenting the results of the study in a logical sequence. The method of generalization helped us to obtain reliable and valid results and conclusions.

The materials used for the study are the scientific theoretical basics for the developments on relevant issues, as well as the modern online distance learning platforms Coursera and Prometheus, which are very popular with Ukrainian students.

The results of a survey of the Sumy State University students (Faculty of Foreign Philology and Social Communications), carried out using Google Forms of online surveys and polls, were used for preparation of the article. The study was based on the Pearson's $\chi^2$ criterion as non-parametric methods of assessing the significance of differences between actually observed and expected results.

As part of the study, we interviewed students of "Translation" department in the Sumy State University. The total number of students at this department is 200 persons, among whom 119 persons took part in the survey, that is 59.5 %. The error of the study representativeness with a probability of 0.95 does not exceed 2 %. Quota of sampling is done according to the training course (year of studying). Respondents were selected at random.

### 3. Discussion

In recent decades, world-class distance learning technologies have evolved significantly in the world, as evidenced by foreign studies, such as J.-S. Lee, H. Cho, G. Gay, B. Davidson, A. Ingraffea (Lee et al., 2003), highlighting the problems of eliminating computer illiteracy; the methodology and means of implementing e-learning via the Internet, A. Klašnja-Milićević et al. (Klašnja-Milićević, 2011), examining online teaching and e-learning personalization in distance learning

process: T. Bond-Barnard and H. Steyn (Bond-Barnard et al., 2013), analyzing communication developing tools in distance learning process; A. Garcia, P. De Bra, N. Stash, G. Fletcher, M. Fabri, M. Pechenizkiy (Garcia et al., 2016), elaborating web-based education tools for disabled students.

Ukrainian scientists have their own researches on distance learning, i.e. N. Andrusenko (Andrusenko, 2017), O. Korbut (Korbut, 2017), N. Samoluk and M. Shvets (Samoluk, Shvets, 2013), L. Shtykhno (Shtykhno, 2016) study the general aspects of the problem, that is the relevance of providing distance learning in the Ukrainian educational system, elaborate the organizing models and technologies of this process, anticipating the perspectives of its development; N Stetsenko (Stetsenko, 2016), Yu. Torba (Torba, 2016), I. Yaroshchuk (Yaroshchuk, 2013) discuss the empiric problems, such as the development of distance learning tools for improving the professional education system, especially the communicative skills, design and system thinking (Lebid, Shevchenko, 2020a; Lebid, Shevchenko, 2020b) as an obligatory component for general professional training.

Issues on distance learning, forms, methods, and conditions of its implementation in Ukraine are also studied by K. Bugaichuk (Bugaichuk, 2012), T. Kapustynska (Kapustynska, 2018), Yu. Sokolova (Sokolova, 2018), and others.

### 4. Results

Nowadays, no one doubts that cyberspace constitutes a real and crucial part of social space. It is difficult to defend a thesis that it is an unreal world. One can work, earn, trade, study, find entertainment, etc. in cyberspace. Educational reality contributes significantly to cyberspace as well. On the one hand, it exists at an explicit, formal level – in the shape of curricula, e-learning activities, independent or guided search for knowledge and information or a communication network between particular subjects of the educational process. On the other hand, there exists an informal, hidden level – in the shape of new forms of cheating, copying ready solutions, undertaking activities connected with entertainment at the time formally devoted to studying, informal contact among students, etc. (Łęski, 2018: 23-29). These two areas can be analyzed from the point of view of their benefits for the development of the educational process today. Cyberspace gives an opportunity to modify the traditional way of getting knowledge, to modify the traditional process of education through transforming it into computer-based teaching and learning.

Distance learning and teletutoring are extremely active areas of research. Many courses are now being developed on the Web. Distance learning means that the learning material is offered as computer-based training (CBT) or as Web-based training (WBT) that can be used by students in their own learning environment at their place of work or at home. Access and interaction are completely self-organized (Opwis, 2001). In the process of distance learning, the teacher-learner interaction takes place in virtual space with the help of the world telecommunication infrastructure, which enables the creation of a mass self-study system as well as general information exchange.

Historically, distance learning appeared in 1840 when Isaac Pitman encouraged English students to study via the post. In Europe and America, distance education began its intensive development in the 1970s. In Ukraine, distance education has been actively introduced since 2000 and is governed by the Concept for the Development of Distance Education in Ukraine. Distance learning entered the 21st century as the most effective system of training and continuous support for high-level qualifications. Nowadays, digitalization of higher education is considered to be one of the leading directions of its development in Ukraine. On the one hand, that is a complex of socio-pedagogical transformations regarded to providing the educational systems with innovative methods and tools of training, on the other hand, that is the promoting implementation of electronic facilities based on microprocessor technology, as well as software products in educational institutions (Andrusenko, 2017).

According to the experts of the UNESCO Institute for Information Technologies in Education, the most important directions of the promoting education system are:

- improving the quality of education through fundamentalization, applying different approaches with new information technologies;
- ensuring the leading character of the entire education system and its focus on the problems of the future post-industrial civilization;

- making education more accessible to the planet's population through the widespread use of distance learning and self-education applying information and telecommunication technologies;

- enhancing creativity in training to prepare people for life in different social environments (providing developing education) (UNESCO IITE, 2020).

Changes in the education system of the 21st century occur for the following reasons: The first reason is related to the educational needs of the post-industrial society. We need new learning routes that meet the specific conditions, requests and individual characteristics of the learners. Today, electronic textbooks reflect the views of authors that are intransigent to such peculiarities (taking into account the traditional education system standards).

The second reason is related to the trends in information technology development, which opens up new possibilities in the intellectualization of automated systems and their interface. The global Internet has opened access to information servers located in different countries of the world. The network bandwidth is growing, allowing territorially disjointed people to communicate in real time. All this opens up unprecedented opportunities for the education sector in accessing educational information and optimizing its presentation (Dolynsky, 2011).

The system of higher education in most European countries is characterized by the transition from a centralized model of knowledge transfer, at the center of which is a teacher who communicates knowledge to a student, to an independent information reception model, at the center of which there is a student (Klish, 2017). This process is facilitated by informatization in society, which has become one of the most significant global operations of our time. The widespread promotion of information technology into teaching practices requires a revision of the educational process.

The National Doctrine of Education Development determines the priority of education development, that is the promotion of modern information and communication technologies, which ensure further improvement of the educational process, its accessibility and effectiveness, and preparation of the young generation for life in the information society. This is achieved by providing gradual informatization and digitalization of the education system aimed at meeting the educational information and communication needs of participants in the educational process; by applying distance learning using the educational process and library informatization along with traditional means (Korbut, 2017).

According to the Regulations on Distance Learning, registered on April 30, 2013, under № 703/23235 in Ukraine, distance learning means an individualized process of acquiring knowledge, skills and methods of cognitive activity of a person, which is provided mainly through indirect interaction of remote from each other participants of the educational process in a specialized environment that functions on the basics of modern psychological, pedagogical, information and communication technologies (Regulations..., 2013).

The process of distance learning is based on the interaction between teachers and students, applying a set of modern technologies that provide the main volume of educational material, giving future professionals the opportunity to work independently.

The majority of researchers (Bugaichuk, 2012; Klish, 2017) define distance learning as the education process characterized by five main features:

- the presence of a teacher and a student and, at least, the existence of an agreement between them;
- spatial separation of a teacher and a student;
- spatial separation of a student and an educational institution;
- two-way interaction between a teacher and a student;
- selection of materials intended specifically for distance learning.
- There are four types of participants in the distance learning system:
- a learner or a student (the one who studies);
- a teacher (the one who teaches);
- a manager (the one who carries out the planning of educational activities, develops training programs, deals with various organizational issues);
- an administrator (a person who ensures the efficient and stable functioning of the system, and, if necessary, resolves technical issues).

Different means of providing educational information can be used in distance learning – from traditional print textbooks to the most up-to-date computer technologies. In recent years,

distance learning has been extended through the possibility of learning via the Internet. Technically, it is based on such software as Authoring Tool and Learning Management System. The system of information exchange allows students, teachers, experts, and other participants of the educational process to exchange information with each other both synchronously (in real time) and asynchronously.

Such process of learning can be used within the university, if it has a local computer network (for example, at Sumy State University there is Lectur.ED and MiXlearning). This process is based on the method of electronic learning (computer learning, as one of the variants of this method).

The essence of e-learning lies in the fact that the density of knowledge and skills accumulation increases due to the distribution of Learning Objects and the quality control of its mastering. First, students are offered to study a part of the lecture materials, after that it is necessary to complete practical tasks for mastering the studied material. It is necessary to complete all the tasks before transferring to the next block, which is possible only after fully mastering the previous one. This method can be applied using the so-called xDLS (eXtensible Distance Learning System). This is the automation system (for providing the information) of distance learning in different educational institutions (LO, 2017).

There are several organizational and methodological models of distance learning: external degree training; studying on the basis of one university; cooperation of several educational institutions; autonomous educational institutions specially created for the distance education purposes; autonomous training systems; non-formal integrated distance learning based on multimedia programs.

The scientists (Anderson et al, 2001; Klašnja-Milićević, 2011; Samoluk, 2013) suggest such basic principles of distance learning be taken into account while organizing the process:

- the principle of interactivity: providing for students the more interactive way of communication with teachers through modern means of telecommunications;
- the principle of basic knowledge: in order to obtain the education through distance learning a student needs some basic knowledge and the hardware to gain further education;
- the principle of individualization: distance learning makes it possible to individualize the educational process, consistent with the curriculum through an interactive communication as well as computer mediation;
- the principle of pedagogical expediency of new information technology usage.
- The use of distance learning technologies allows to optimize the modern educational process through innovative means of informatization and digitalization:
- to reduce the costs of training;
- to train a large number of people simultaneously;
- to improve the quality of education through the use of modern electronic learning tools;
- to create a single educational environment (Willey, 2020).

Analysis of the distance learning process allows to define it as:

- flexible: students have an opportunity to learn in comfortable conditions (convenient time, place);
- modular: the development of a distance learning program is made on a modular basis;
- concurrent: distance learning combines several educational programs simultaneously;
- distant: the possibility of obtaining an education degree without being in the educational institution;
- asynchronous: convenient learning schedule for both a student and a teacher;
- massive: a large number of students;
- profitable: distance learning is economically efficient;
- social: distance learning has no social tension providing equal educational opportunities regardless of residence and income;
- international: distance learning provides a convenient opportunity to import and export educational services.

The following basic elements are currently popular when organizing the distance learning process:

- electronic correspondence;
- virtual classrooms;
- online video conferences;

- forums and blogs;
- chats and ICQ;
- webpages and websites;
- online courses, etc.

In today's educational environment, the main global trend is to scale open educational resources. Open educational resources make it possible to increase access to quality education, taking into account their unimpeded and shared use in many countries and educational institutions. The term Open Educational Resources (OER) was first introduced in July 2002 at the UNESCO Open Educational Systems Forum for Developing Countries. Generally, open educational resources are meant as educational and scientific resources that are openly available or released under a license that allows them to be used and modified free of charge by the third parties. Given this definition, it is possible to distinguish the characteristic features of the open educational resources: educationally, methodologically and scientifically oriented materials; support of different formats and media for material presentation; publication of educational and scientific materials under the conditions of an open license; free access; usage, processing, and redistribution of materials by other users; minimal restrictions (or no restrictions) when working with open educational resources.

According to the Cape Town Declaration (2008), open educational resources ensure the continued effectiveness of open education in the information society. The development and productivity of open resources should ensure the international movement of the same name, «open educational resources» (Daniel, 2014; Open Content, 2020).

Also, the availability of open educational resources has led to the globalization of education, which makes the boundaries of «scientific schools» blur, and the «closed teaching methods» disappear (Bond-Barnard, 2013).

Educational institutions promoting open educational resources have a positive reputation and attract more students, and such institutions are financed by non-governmental funds. Universities play the leading role in the creation of open educational resources by having implemented video tutorials on YouTube channels and having created more elaborate learning complexes for entire mastering courses within different knowledge fields (Lee et al, 2003).

The development and implementation of Open Educational Resources promote great advantages:

- providing free and universal high-quality access to content: due to the transparency of resources and the ability to evaluate and discuss publicly, teachers and students have the opportunity to obtain sample information;
- reducing significant spending on education: users do not incur additional costs due to the digital form of providing information;
- a substantial reduction of time for the development of educational programs and updating of existing ones: they also compensate for the lack of certain skills related to the development of advanced technologies;
- facilitating multi-channel transmission of information (multimedia), there is an opportunity to engage different channels that has a positive impact on the quality of the learning process;
- encouraging communication between developers and consumers of educational services;
- providing an opportunity to implement the principle of «lifelong learning» (Samoluk, 2013; Sharov, Martynuk,2012).

It should be mentioned that an effective form of open educational resources is an institutional repository, an electronic open access archive. The World Wide Web provides access to the research results of scientists in various fields in the modern information space to anyone, anytime and anywhere. All libraries in the world have the opportunity to open their catalogs and other necessary resources for free access and use by the people interested in it. It became possible due to the worldwide Open Access movement. Open access to information is ensured through electronic repositories created in higher education and research institutions, where in addition to printed articles, non-printed ones are also archived.

The basic principles of open access to scientific knowledge are set out in the following documents: Budapest Open Access Initiative adopted by the Open Society Institute; Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. In particular, the central theme of the Budapest Open Access Initiative was to invite universities, libraries,

publishers, foundations, and scholars to join open access, and make the results of research open to the community (Bugaichuk, 2012).

The primary guideline for universities and libraries is the general principles formulated by the International Federation of Library Associations and Institutions (IFLA, 2020), which is the basis for the Open Archives ideology. These principles include:

- worldwide consolidation of scientific archives;
- free access to archives (to metadata);
- unified interfaces of archives and information providers;
- easy to use archives.

The open access model is useful for university libraries, which in the information society are the main participants in forming a system of scientific and educational research organization and publication processes, as being open research institutions. The web-based mechanism of today guarantees fast and free access to them.

However, open access does not mean copyright infringement because it is complied with law. Using the resources of the institutional repository makes it possible to accomplish the following tasks:

- to provide open access to scientific and educational works online, free of charge, full-text, fast and permanently;
- to accumulate knowledge (to obtain, gather and store the research results by categories: author, institution, discipline, scientific school, etc.);
- to unify the standards of data storage formats, to use open-source software;
- to personalize workspace (comfortable interface and user contribution tracking);
- to provide content navigation based on a category principle (structured and logical information);
- to quantify the information volume as a user development indicator (gives the objective reflection of the scientific work results).

Over the last decade, the number of open educational resources provided by repositories of higher education institutions and project websites has increased significantly, and accordingly, the number of Ukrainian users of such well-known platforms as Coursera, Edx, Udemy, MIT Open CourseWare, Open Learn has increased. The emergence of such resources, from one point of view, led to ubiquitous learning (u-learning) and, on the other, to the education that meets the society's needs, that is providing lifelong learning in any desired direction which is now a prevalent educational trend in Ukraine (UUA, 2009).

UNESCO-based innovative university repositories such as MIT Open CourseWare, Open Yale Courses, TED, MERLOT, Notre Dame Open Courseware, Open Learn, and others are examples of the above-mentioned open resources (UNESDOC, 2020). Almost all universities in Ukraine now have their own repositories (for example, the Sumy State University repository.

An essential component of national documentary and information sources is scientific publications. The main social function of these publications is to provide the primary scientific information to society and to make the content of the scientific property public. At the same time, they perform a socially important function of scientific priorities fixation and serve as a means of scientific communication. Today the creation of open access and open archives is continuously improving and becoming competitive with the existing "journal model" (printed edition). Thus, the open resources containing full-text versions of scientific works are:

- Google Scholar – a free, accessible search engine that indexes the full text of scientific publications of all formats and disciplines;
- ELibUkr-OA — (a multidisciplinary open electronic archive) a service offered through the ELibUkr project portal for scientists, professors, PhD students, postgraduate students and researchers of universities or any other scientific institutions of Ukraine that do not support their own (institutional) open electronic archive;
- scientific periodicals of Ukraine on the portal of Vernadsky National Library of Ukraine;
- OpenDOAR – a reputable directory of academic open access repositories.
- Among the world-known open resources, there are online courses that give the opportunity to master different subjects remotely, as well as web-based tools for organizing training or knowledge control:
- Coursera online platform that makes education accessible to everyone by offering online courses from leading universities and organizations of the world;

- Prometheus is a Ukrainian public project for massive open online courses, the purpose of the project is to provide the best educational opportunities to every citizen of Ukraine free of charge.

The advanced online courses existing all over the world allow users to study, communicate and be respectable citizens of their countries. Stanford University researchers launched a Coursera online education project in April 2012. This project offers users a large number of free online courses from the representatives of the world's leading higher education institutions, upon successful completion of which the student has the opportunity to obtain a certificate.

The potential of the platform includes more than 2000 courses in the following fields: social sciences, humanities, engineering, biology, IT, medicine, mathematics, business, etc. The duration of the training ranges from three to ten weeks and is available free of charge. The language of instruction is predominantly English, but the video materials of each course are subtitled in different languages.

Coursera training is asynchronous, it means that teachers and students have the opportunity to work autonomously on an individually pre-determined schedule. The peculiarity of the courses is that every week students need to learn a new educational block by watching the topic related videos, reading additional theoretical literature, interacting on forums, completing current course tasks, and more. All the materials should be worked through within a week, and each theme should be completed by an individual control task, like creating a video, writing an essay, etc. and a test.

In order to complete the course successfully, students must obtain at least the minimum number of points determined by the course developers within a specified period. The tests are automatically verified by computer programs; and individual tasks are cross-checked, which requires that each student of the course must evaluate a certain number of other students' works according to predefined criteria.

The test system also assumes that the student who has checked the work should comment and justify the assessment grade. After reaching the test deadline and completion of the work evaluation, all students have the opportunity to obtain intermediate control results, which are defined as the arithmetic mean of the grades obtained from the students who evaluated the individual works.

To prevent plagiarism and respect academic integrity, Coursera focuses students' attention on compliance with the principles of the *Honor Code*, which they must agree to before submitting each individual assignment.

Coursera project experts summarized the results of their work in December 2018 and found that computer sciences, psychology, cryptocurrencies, and algorithms were the most popular subjects for studying.

All courses are organized in such a way that they clearly explain the terms assigned to study the material and have the optimal combination of theoretical and practical work. One of the main points of interaction between all participants of each course is their mutual evaluation of each other's work, which allows them to compare their results with others.

Therefore, Coursera is one of the most popular online courses platforms. Coursera courses can be an auxiliary tool to acquire specialized skills, as well as an integral part of higher education programs.

In order to organize knowledge control and study of specific issues in different subjects, it is appropriate to use web tools, such as *LearningApps.org*, which is a Web 2.0 service to support learning and teaching processes with small interactive modules or Kahoot!, which is a free web tool for creating interactive quizzes, etc. There are a lot of open e-learning platforms, for example: Atutor, Dokeos, DotLRN, ILIAS, LON-CAPA, Moodle, OpenUSS, Sakai, SpaghettiLearning, etc.

Prometheus Massive Online Learning Platform is the first and largest free education project for anyone and everyone in Ukraine, an attempt of the Ukrainian educational community to join the modern educational space of Europe and the world as a whole. The mission of this platform is to make available the best courses from leading academics, universities, and organizations worldwide. On October 15, 2014, registration for the first four online courses of the Prometheus project was opened, prepared by the academics of three well-known Ukrainian universities: Taras Shevchenko National University of Kyiv, Kyiv Polytechnic Institute, and Kyiv-Mohyla Academy.

In the first six months since the launch of the project, more than 70,000 users had already registered on the website, for which 20 courses were available (Sokolova, 2018).

The primary purpose of this project is to revolutionize education in Ukraine. Together with the leading higher education institutions, the courses developers are introducing mixed learning technology doing their best for the development of Ukraine (Kapustynska, 2018).

It is now a large-scale portal with dozens of programs on a variety of topics, from management or media literacy to philosophy. In addition, Prometheus provides access to online training courses for External Independent Testing (examinations for admission to universities in Ukraine). Soon, Prometheus developers will launch a new major project — How to Join Leading Western Colleges and Universities for a full scholarship from the graduates of the Harvard University, University of Pennsylvania, and Stanford University. The purpose of the course is not only to help Ukrainians to enter the best Western educational institutions but also to motivate students to return after studying to Ukraine to make our country better and more successful.

The number of registered listeners of the platform has already exceeded 550,000 people. Each participant of the course should open the own account, which contains important personal information. Upon successful completion of the selected course, the student has the opportunity to obtain a certificate. To receive the certificate, each participant must take intermediate tests on each topic of the selected course and complete the final assignment, and the total achievement rate is determined by the number of points scored.

In Prometheus history the greatest demand was for the following courses: Programming Fundamentals, Science of Everyday Thinking, Financial Management, Entrepreneurship, How to Create a Startup, Psychology of Stress, and How to Deal with It. All these courses are among the most popular. Programming Fundamentals Course has over 100,000 registered students (Online courses..., 2020)

In order to test the effectiveness of the course, developers use a number of indicators, among which is the percentage of those who have successfully completed the course. The success stories of the students are also being tracked and published.

Along with the western platforms of massive open online courses, the Prometheus project has several significant advantages:

- creation of courses specific for Ukraine (Ukrainian law, foreign languages, history of Ukraine, etc.);

- development of the courses that already exist in the West but are not accessible to Ukrainians because of the language barrier in the Ukrainian language;

- establishing close cooperation with leading Ukrainian companies through their participation in the creation of course programs and their involvement in the production of specific parts of courses;

- integration into the higher education system through a mixed course format.

The project is continuously evolving, increasing the number of courses available and introducing the latest teaching methods for everyone interested.

In this context, we conducted a study of the level of assessment and effectiveness perception of online learning, including general educational platforms such as Coursera, Prometheus, etc. The research was conducted as a survey in the Google form for Bachelor (1-4 year of study) and Master students (5-6 year of studying) of specialty «Translation» of Sumy State University.

It should be noted that there is a fairly high percentage of respondents' support for the effectiveness of online learning – 63 %. The ineffectiveness of online learning for obtaining the necessary knowledge, skills, and abilities was noted by 17.6 % of the respondents, and 19.3 % found it difficult to answer.

Analyzing the results of the survey depending on the year of studying, it should be noted that in the middle years of studying for the Bachelor's degree, especially in the second year, there is a greater percentage of support for online learning. Though, there appears a gradual decrease of online learning support towards the fourth (graduation) year and master's studying, which may be associated with a significant increase in the number of linguistic workshops in senior years and the complication of the process of developing professional skills in the relatively limited educational conditions connected with the pandemic.

As for the first year of study, there is also a rather skeptical attitude towards distance learning. The paradox is that first-year students, who already have experience of online learning at school, nevertheless, for the most part, express uncertainty about its effectiveness, which is

explained by the short adaptation period of former school students in the new realities of university education.

Nevertheless, despite a rather high percentage of skeptics in relation to online learning, the indicator of students' awareness of online platforms available for learning is high – 95.8 %. At the same time, those who actively use the opportunity of education and self-education on these resources make up 76.5 %.

Interestingly, the overwhelming majority of respondents know the two most popular online platforms – Coursera (89.1 %) and Prometheus (67.2 %). While other online platforms, such as Edx, Open Learn, and others, are known by less than a third of the respondents. Such large-scale online platforms as the MIT OpenCourseWare or the platforms of Harvard, Oxford, or Yale universities are known to a few. At the same time, in comparison with Coursera and Prometheus, less "popular" online platforms of universities of Harvard, Oxford, Yale, and others are better known to senior undergraduate (usually the 4th year of studying) and graduate students. In contrast, Coursera and Prometheus are known to the students of all years of studying.

Profession-oriented (linguistic) online courses and those on communication skills, leadership, project management, etc. were also popular among respondents. Moreover, profession-oriented courses were in great demand among junior undergraduate students, especially freshmen. Whereas project management, for example, was more interesting to senior students.

**Table 1.** Number of respondents

| Course | Total quantity of students (person) | Number of students involved in the survey (%) |
|---|---|---|
| 1 course/year | 56 | 66 |
| 2 course/year | 49 | 65 |
| 3 course/year | 37 | 73 |
| 4 course/year | 32 | 67 |
| 5-6 course/year (Master students) | 26 | 62 |

**Table 2.** The level of support for distance and online education by students of the specialty «Translation» of Sumy State University

| | Bachelor Students | | | | | | | | Master Students | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 year | | 2 year | | 3 year | | 4 year | | | |
| | % | pers. | % | pers. | % | pers. | % | pers. | % | pers. |
| Consider distance and online education effective | 53 | 17 | 72 | 20 | 68 | 10 | 62 | 14 | 55 | 12 |
| See the opportunity for education and self-education on online platforms | 64 | 21 | 83 | 23 | 78 | 12 | 75 | 16 | 69 | 14 |

As a result of our study of the higher education students' opinions, it becomes necessary to confirm the conclusions obtained using mathematical methods of analyzing statistical data. For this purpose, we have determined the observed and expected results of the survey according to three parameters: the level of higher education – bachelor and master students (Table 3); the year of study – junior and senior students (Table 4); the year of study – students of year 1 - 6 (Table 5-6).

**Table 3.** Observed and expected results (level of higher education – criterion 1)

| Factorial Feature | Observed Results | | | Expected Results | | |
|---|---|---|---|---|---|---|
| | Effective Feature | | Sum | Effective Feature | | Sum |
| | Bachelor | Master | | Bachelor | Master | |
| Consider distance and online education effective | 61 | 12 | **73** | 61 | 12 | **73** |

| See the opportunity for education and self-education on online platforms | 72 | 14 | **86** | 72 | 14 | **86** |
|---|---|---|---|---|---|---|
| **Total** | **133** | **26** | **159** | **133** | **26** | **159** |

**Table 4.** Observed and expected results (year of study – criterion 2)

| | **Observed Results** | | | **Expected Results** | | |
|---|---|---|---|---|---|---|
| | **Effective Feature** | | | **Effective Feature** | | |
| Factorial Feature | Junior Students (1-2) | Senior Students (3-6) | **Sum** | Junior Students (1-2) | Senior Students (3-6) | **Sum** |
| Consider distance and online education effective | 37 | 36 | **73** | 37 | 35 | **72** |
| See the opportunity for education and self-education on online platforms | 44 | 42 | **86** | 43 | 42 | **85** |
| **Total** | **81** | **78** | **159** | **80** | **77** | **157** |

**Table 5.** Observed results (year of study – criterion 3)

| | **Effective Feature** | | | | | |
|---|---|---|---|---|---|---|
| Factorial Feature | 1 year | 2 year | 3 year | 4 year | 5-6 year | **Sum** |
| Consider distance and online education effective | 17 | 20 | 10 | 14 | 12 | **73** |
| See the opportunity for education and self-education on online platforms | 21 | 23 | 12 | 16 | 14 | **86** |
| **Total** | **38** | **43** | **22** | **30** | **26** | **159** |

**Table 6.** Expected results (year of study – criterion 3)

| | **Effective Feature** | | | | | |
|---|---|---|---|---|---|---|
| Factorial Feature | 1 year | 2 year | 3 year | 4 year | 5-6 year | **Sum** |
| Consider distance and online education effective | 17 | 19 | 10 | 13 | 11 | **70** |
| See the opportunity for education and self-education on online platforms | 20 | 23 | 11 | 16 | 14 | **84** |
| **Total** | **37** | **42** | **21** | **29** | **25** | **154** |

Based on the observed and expected results we have determined for three criteria, a null hypothesis was formulated: $H_0$ – differences in the years of studying do not affect the general perception and assessment of the effectiveness of distance and online education formats.

Using the formula to calculate $\chi^2$,

$$\chi_n^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

we got the following results:
1)      for the first criterion, the value of the $\chi^2$ test is 0.001; p-value=0.974
2)      for the second criterion, the value of the $\chi^2$ test is 0.004; p-value=0.949
3)      for the third criterion, the value of the $\chi^2$ test is 0.037; p-value=0,999

As we can see, according to all three criteria, the significance level is p>0.05; the relationship between factorial and effective features is statistically insignificant. Therefore, we can confirm the null hypothesis we have formulated. This is also demonstrated by the results of the survey, according to which, despite some uncertainty in assessing the effectiveness of distance education formats, the degree of their support is high, as shown by the data (Table 2).

The study has limitations due to the fact that it is impossible to generalize the data obtained in one university for the entire quantity of students involved in the higher education system of Ukraine.

## 5. Conclusion

One of the innovations in organizing professional education in Ukraine, as a country that actively implements the demands of time and the Bologna process, is the actualization of distance learning which allows meeting the needs of modern society — the society that needs mobile professionals who can realize themselves in a globalized society, and who are not limited to the norms, standards, and knowledge of their own country.

Distance learning is one of the promising and effective forms of higher education, which ensures the expansion of professional contacts, as well as the greater use of the scientific and methodological potential of the higher education system.

Nowadays, it is impossible to concentrate all the information resources that have been accumulated by humanity in the field of scientific and educational space in a separate educational institution. Therefore, with the help of remote technologies, it is possible to combine and coordinate the actions of several universities. Due to the development of digitalization, it has become possible to apply the best features of traditional forms of learning and integrate distance learning educational methods within them.

Through the use of a computer, compact information media on the Internet allow to expand the scope of educational services, to increase the impact on those who are taught, to diversify the supply of materials and to provide methodological support for the educational process systematically.

The characteristic features that allow the use of distance learning methods in the traditional educational process are technological feasibility and positive impact on the student. Technological feasibility is the use of new information technology in the educational process that facilitates the person's involvement into the world information space. By the positive influence on the student, an increase of the creative and intellectual potential of the distantly learning person, his/her self-organization, desire for knowledge, use of modern information and telecommunication technologies, and ability to make responsible decisions independently is meant.

According to the distance learning development concept in Ukraine, distance learning technologies can be applied not only in the traditional education system. At present time, the most relevant means of distance learning in Ukraine are open educational resources. Further development of the open educational resources movement will provide an opportunity to solve a number of urgent tasks relevant to open distance learning: enable free and universal access to competitive high-quality education; significantly reduce the cost of educational services; significantly reduce time and technology resources in providing educational services; optimize learning by saturating it with information components; ensure multi-channel communication within the educational process; maximize the effectiveness of digital education and lifelong learning. Open educational resources are an effective instrument of obtaining knowledge and mastering professional skills, which positively influence the level of competence of Ukrainian specialists and will make them more competitive in the globalized labor market.

In the conditions of COVID-19 quarantine, Ukrainian universities meet new challenges continuing the process of education, which demands technologically advanced distance forms of teaching students. Thus, the distance-learning tools discussed in the article become even more urgent at present time. Besides free and open access to the Prometheus courses (Ukraine), all the educators and students of Sumy State University can register for a number of the Coursera courses. Recently Sumy State University has joined the Coursera for Campus program that provides free access to over 3800 courses from the leading universities and companies of the world.

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# Language Mediation Development in Teaching a Foreign Language

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**Abstract**

The relevance of foreign language proficiency of university graduates led to the design and pilot study of the of non-linguistic students' language mediation development model. This model was implicated at the MGIMO of the Ministry of Foreign Affairs of Russia, the Odintsovo branch (Moscow Region) in the I-IV courses, Plekhanov University of Economics and the Kuzbass Institute of the Federal Penal Service of Russia (Novokuznetsk, Kemerovo region, in the I-II courses) in 2019-2021. The authors have disclosed the components of the model based on a set of cultural, competence and communicative approaches. Besides, mediation training methods and amendments to the content of language education were presented here.

The working concepts of the study are specified: types of mediation (interactive, non-interactive and hybrid), approaches and methods of developing mediation skills. The principles of selecting the content of language education (development and development of practice-, cultural- and professionally-oriented variable topics; priority of dialogical forms of communication in the language in the field of the studied concept with an emphasis on mediation; conducting negotiations in the language, etc.) based on the results of mediation are substantiated.

The pilot study highlighted that the content of education and teaching methods were the most flexible components of the designed model, that were quite easily transformed into any type of training (standard, mixed, hybrid and/or distance). The analysis of the language teaching methods used (debates, case studies, etc.) proved their compliance with the requirements of the current standard. The presented results of the pilot study, under the implementation of the developed model, including the period during the COVID-19 pandemic, verified by the data of

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control and pilot groups and measurement procedures, proved the effectiveness of the non-linguistic students' language mediation development model.

**Keywords:** language mediation, language mediation development, foreign language, teaching methods.

## 1. Introduction

The importance of high language proficiency level of non-linguistic students is out of question, however, the observed current changes in the labour market indicate that a modern graduate should also possess a language mediation.

The framework of the study, carried out in 2019-2021 at MGIMO of The Ministry of Foreign Affairs of the Russian Federation, Odintsovo branch (Moscow region), the 1st – 4th year students, Plekhanov University of Economics (Moscow), the 1st – 2nd year students) and Kuzbass Institute of the Federal Penal Service of Russia (Novokuznetsk, Kemerovo region, the 1st – 2nd year students), was led under the requirements of the current Federal State Educational Standard for Higher Education (hereinafter the Standard, FSES for HE) and "Common European Framework of reference for languages: learning, teaching, assessment companion volume with new descriptors" (2018, 2020), The Teaching English Continuing Professional Development (CPD) Framework (2020), The European Profiling Grid (2020) (Morozova, 2020). The state determines the efficiency of language education implementation at non-linguistic universities at a sufficiently high general and professional levels (C1 – C2), including students' language mediation development in the professional sphere, in order to increase their competitiveness in the labour market, that makes the research relevant (The Cambridge English…, 2021; Obshcheevropeiskie kompetentsii…, 2003; Newby et al., 2007).

At the same time, the observed educational realities, verified by the COVID-19 pandemic and shift to distance and/or hybrid learning, demanded from teaching staff to revise approaches, models, methods and ways of teaching language (implemented in online format and by means of LMS systems).

The aim of the research is to design a new model of non-language students' language mediation development, based on a set of cultural, competent, communicative approaches, and on the requirements of the current FSES. The model absorbs the latest international trends in the language education implementation in the conditions of standard, mixed, hybrid and distant types of education.

## 2. Materials and methods

We applied statistical analysis methods during the pilot study implementation, where a total of 50 teachers and 300 students of 1-4 courses of MGIMO University, Kuzbass Institute of the Federal Penal Service of Russia and Plekhanov University of Economics (Russia) took part in 2019–2021 (the time period the study was held). All participants of the pilot study were divided into 2 groups: control (the studying process was held under regular programs out of the pilot study) and pilot (we applied the designed model here). To verify the pilot results we used the following.

To prove the validity of the results obtained and the effectiveness of the developed model as implied at MGIMO (112 students), we used the non-parametric method Pearson's Criterion $\chi^2$ (significance level 5 %), formula:

$$x^2 = \sum_{i=1}^{m} \frac{(E-T)^2}{T},$$

(1) where E – empirical frequencies; T – theoretical frequencies.

To prove the reliability of the obtained results and discover effectiveness of the created model of language mediation development with the example of Plekhanov University of Economics we used Student's parametric method. 83 first- and second-year students of Plekhanov University of Economics have taken part in this research. We calculated the average arithmetic values of $X$ ($X_i$ is the value of the individual measurement, i.e. scores per test) for each group separately by the following formula:

$\bar{X} = \frac{\sum_{i=1}^{k} X_i}{k}$, (2) where k is the number of measurements in the group (in our case k = 5 tests).

Furthermore, we applied a number of methods, for instance: integrated analysis of the data to disclose the efficiency of the model, the analysis of theoretical sources on the problem, the study of the pedagogical experience, curriculum and others, which were used to highlight the relevance and current state of the problem.

### 3. Discussion

The methodological foundation of the study is based on the researches of N.M. Belenkova, N.D. Galskova, N.I. Geza, T.A. Kostyukova, M.B. Kazachkova, N.V. Kuzmina, A.K. Markova, A.L. Morozova, M.M. Stepanova, E.I. Passova, N.V. Parshina, I.A. Pushkareva and others. We share the opinion of our colleagues and believe that the goal of language education is to improve the foreign-language communicative competence of students in terms of language proficiency development at both professional and general levels (Stepanova et al., 2014; Pushkareva, 2017; Gal'skova et al., 2006).

The issues of mediation skills developing of non-linguistic students are partly presented in the studies of M.K. Denisov, A.A. Kolesnikov, O.M. Litvishko, A.L. Morozova, T.A. Kostyukova, A.A. Kolesnikov, Yu. A. Chernousova, etc. (Litvishko et al., 2016; Obdalova et al., 2012, Kolesnikov et al., 2012) as this is rather new area of language didactics. An analysis of the foreign educational researchers' experience on this issue (R. Gardner, G. Zarate, H. Timperley, A. Wilson, I. Hawkins and others) proved the priority of mediation skills developing, especially while studying English for specific (Zarate, 2004; Gardner, 2002; Hawkins, 2007).

The fundamental provisions of the students' mediation skills study are as follows:

- culturological approach (N.D. Galskova, N.I. Gez, S.I. Grigoriev, L.G. Guslyakova, S.K. Gural, A.S. Zapesotsky, T.A. Kostyukova, M.I. Solnyshkina M.B. Kazachkova) focused on professional culture studying during the creation and improvement of the culturological environment that is undeniable significant while mediation skills development (Solnyshkina et al., 2020; Galaguzov, 2010; Shaposhnikova et al., 2019). It should stated that E.N. Bogdanov, E.V. Berezhnova, E.V. Yermolovich, V.V. Krayevsky, S. Kramch, J. Cook, V.M. Onishchik, E.G. Silyaeva, A.N. Hodusov, D.S. Yakovleva, U. Hatmacher, etc. designed some models of the culturological environment creation in the field of higher education with parallel studying private questions of humanitarian, professional and communicative cultures and issues (Kramsch, 1993; Cook, 2010);

- competent approach (V.I. Baidenko, N.I. Gez, Yu.G. Tatur, V.A. Khutorskaya, etc.) designed at obtaining the desired result;

- a communicative approach (I.A. Winter, S.I. Korolev, E.I. Passov, S.G. Ter-Minasova, R.P. Milrud, etc.) aimed at developing oral speech skills and conducting complex negotiations within the mediation framework (Cook, 2010).

Here we applied such complementary theoretical methods as: analysis and generalization with subsequent synthesis and abstraction, the design of the educational process model in the discipline "Foreign Language". To prove the authenticity of the obtained results and the effectiveness of the developed model, the nonparametric method of Pearson's Criterion $\chi^2$ and Student's parametric method were used.

### 4. Results

Following the developers of Common-European competencies, we treat language mediation as a language activity that exist separately from production, reception and interaction (Morozova et al., 2020; Newby et al., 2007). Solution of applied, practical-oriented issues of multilevel multicultural language education is recognized as the goal of the mediation. Furthermore, the mediator acts as an agent whose task is to solve successfully the case entrusted to him during the negotiations on behalf of the principal. This requires from mediator (as an agent) possession of professional culture, ethics, etiquette and communication skills as well as negotiation.

Analysis of the works of M.K. Denisov, A.A. Kolesnikov, O.M. Litvishko, Yu.A. Chernousova, etc., made it possible to distinguish the following types of mediation: interactive (focused on transmitting information from communicator to recipient and vice versa); non-interactive (aimed

at transmission information from communicator to recipient, feedback is not assumed) and hybrid one. A number of mediation forms are recorded: mediation during negotiations, conversation, translation, summarizing, review, writing letters, correspondence, retelling, etc. (Galaguzov, 2010).

Based on the abovementioned data, we designed the model of language mediation development of non-linguistic students (Figure 1).
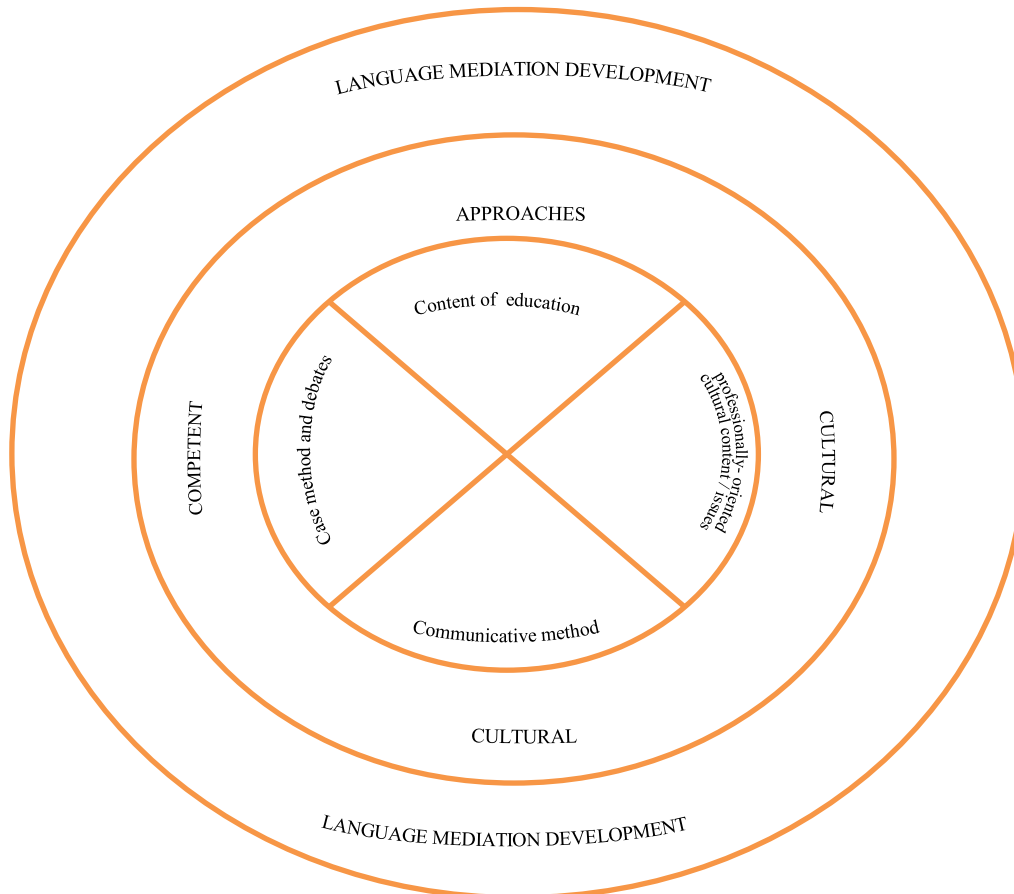


**Fig. 1.** Model of language mediation development of non-linguistic students

Further, it seems logical to discuss briefly this model. Figure 1 demonstrates that the model rests on key cultural (creation and maintenance of a profession-oriented cultural environment), competent (achievement of desired educational results, in particular, development of language mediation) and communicative (development of oral and written language mediation) approaches, as well as the requirements of the current Standard, which determines the adjustment of the content of linguistic education at a non-language university, the use of adequate teaching methods under the experience of European colleagues (Morozova et al., 2020). A distinctive feature of the developed model was the fact that it should be suitable for standard, mixed, hybrid and/or distant types of learning.

It is crucial to consider the content of language education that should be concept based. Here we share the view of N.V. Volodina, B.A. Zhigalev, O.A. Obdalova, A.A. Kolesnikov, O.M. Litvishko, S.V. Ustinkina (Obdalova et al., 2012). It should be highlighted that the concept-based language education has become the source of creating both practical-oriented foreign-language communication, in the context of specialization, and maintaining the cultural environment, which is ultimately focused on the language mediation development of non-linguistic students.

We made the following amendments to the content of education within the framework of this model (Figure 1), aimed at the language mediation development of the 1st – 4th year students of MGIMO University, Odintsovo branch (Moscow region), REU named after G.V. Plekhanov (Moscow) 1st and 2nd year students) and KI of the FPS of Russia (Novokuznetsk, Kemerovo region,

1st and 2nd year students) taking into account the requirements of cultural, competent and communicative approaches:

1) development of variable practical, cultural and professional-oriented topics;

2) priority of the dialog-based communication in the field of the studied concept with the emphasis on mediation;

3) organization of debates, classic's forums, focus groups, role games as forms of mediation;

4) conducting negotiations in a foreign language (free and based on given cliches);

5) written speech development (writing business letters, letters of advice, Chartres, minutes, reviews, memorandum, referencing, etc.) based on the results of mediation.

Observations have shown that effective communication and negotiation as parts of language mediation are impossible without consideration of the peculiarities of culture, norms, etiquette, and rules (including the professional aspect) of the target- language country and its comparison with the native culture for parallel student's self-identification. Therefore, while designing the model, we relied on the key ideas of a cultural approach.

While designing the model (Figure 1), we came to the conclusion that brining amendments to the educational content, with the parallel creation of a professionally-oriented cultural environment, highlighted review of the teaching methods in accordance with the culture-specific concepts, chosen specialization and indicated approaches, which are pointed on language mediation development.

Considering our training experience we admit that the case method is one of the most effective teaching methods within the framework of a competent approach. So, within the framework of the developed model (Figure 1), students of MGIMO of the Ministry of Foreign Affairs of Russia, Plekhanov University of Economics and KI of the FPS of Russia solved different professionally oriented cases that involved negotiation between the initially conflicting parties by means of oral mediation development (monologue, dialogue, conversation, discourse, negotiations). The solution of various cases, as the pilot study showed, often turned into debates. Furthermore, the successful solution of cases and conduct of the debates ultimately required (as a result of negotiations) writing a wide range of reports, letters of advice and other types of business correspondence (letter of advice, minutes, note, summary, etc.), which were aimed at developing written mediation in a foreign language.

It should be noted that the use of the above-described methods for the language mediation development was combined with a communicative language teaching method (under communicative approach) in the process of maintaining a vocationally oriented cultural environment. And an active interaction of all participants of mediation allowed to develop its various types and forms.

Further, it seems logical to deliver briefly the main results of the pilot study on the of language mediation development based on the model (Figure 1), which was implemented at MGIMO of The Ministry of Foreign Affairs of the Russian Federation, Odintsovo branch (Moscow region) among the 1st – 4th year students, Plekhanov University of Economics (Moscow, among the 1st – 2nd year students) and Kuzbass Institute of the Federal Penal Service of Russia (Novokuznetsk, Kemerovo region, among the 1st – 2nd year students) in 2019–2021 in various types of training. The groups were characterized by approximately equal indicators in all features – academic records, average grade point, etc.

The pilot study was carried out in three stages. We will characterize them briefly. At the control study, which took place within the framework of traditional and distant types of education (2019, the period of the Covid–19 pandemic restrictions), we made an attempt to establish the needs of students in learning a foreign language with the aim of professional self-education, as well as to study the initial state of their language mediation development. An analysis of the results obtained during the surveys, conversations and tests showed that about 70 % of students of Plekhanov University of Economics and KI of the FPS of Russia and about 95 % of students of MGIMO are interested in learning a foreign language. However, only 27 % of students are interested in the language mediation development, 52 % of students said they are not familiar with language mediation, but would like to deal with this issue, and 21 % found it difficult to answer. Data on the students' needs, obtained at the control study, updated the problem of the language mediation development. The pilot study (step 1) took place in a distant (remote) type of learning, and the pilot study (step 2) in a hybrid type of learning due to Covid–19 restrictions and was aimed

at disclosing the efficiency of the developed model in different types of learning (traditional, distant, hybrid types of learning).

Then we'll present the main outcome of the model implied at MGIMO of the Ministry of Foreign Affairs in Russian Federation expressed through differentiation of students by the level of language mediation development (Figures 2, 3).
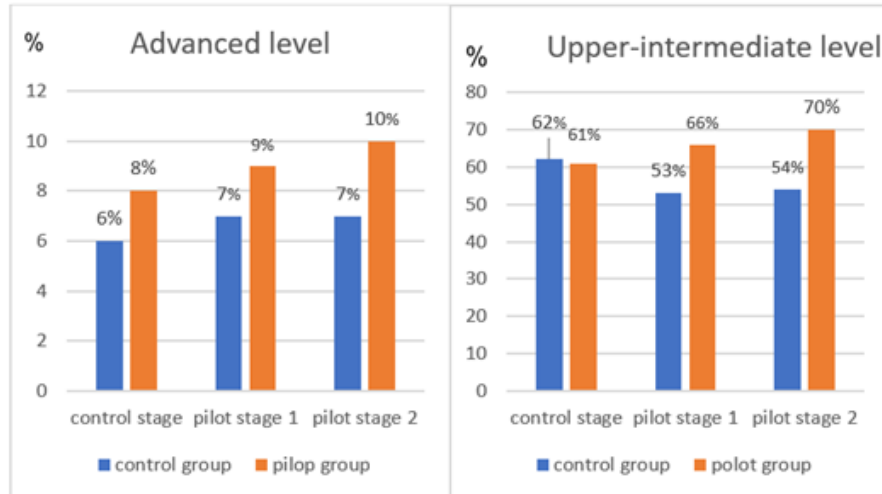


**Fig. 2.** Dynamics of development of advanced and upper-intermediate levels of language mediation of students at different stages of the pilot study (MGIMO Odintsovo)

Figure 1 reflects the dynamics of advanced and upper-intermediate levels language mediation development of students at different stages of pilot study at MGIMO. We disclosed an increase in the advanced level of language mediation development from 6 % (control study, March 2019) to 10 % (2nd stage of the pilot study, December 2020) with a simultaneous increase in the upper – intermediate level from 61 % to 70 %, which indicates the effectiveness of the work done.
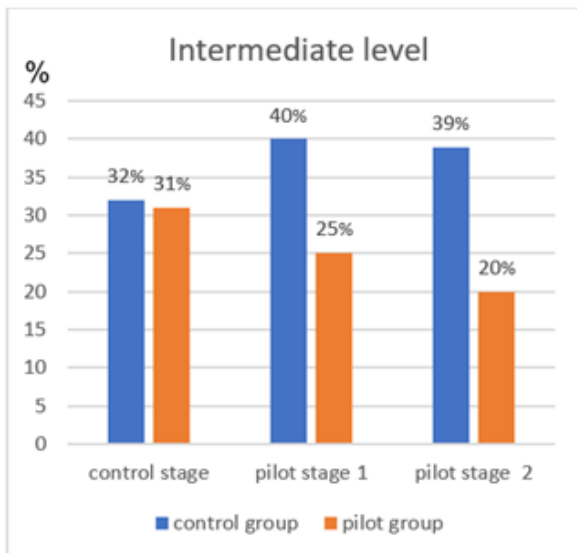


**Fig. 3.** Dynamics of development of intermediate level of language mediation of students at different stages of study (MGIMO Odintsovo)

Figure 3 shows the dynamics of intermediate level development of language mediation at different stages of pilot study at MGIMO. The implementation of the designed model allowed us to reduce the intermediate level from 31 % to 20 %, which confirms the efficiency of the author's model.

Let us present the cumulative dynamics of language mediation development at Plekhanov University of Economics (Moscow) and the Kuzbass Institute of the Federal Penal Service of Russia (Novokuznetsk, Kemerovo Region) (Figures 4, 5).
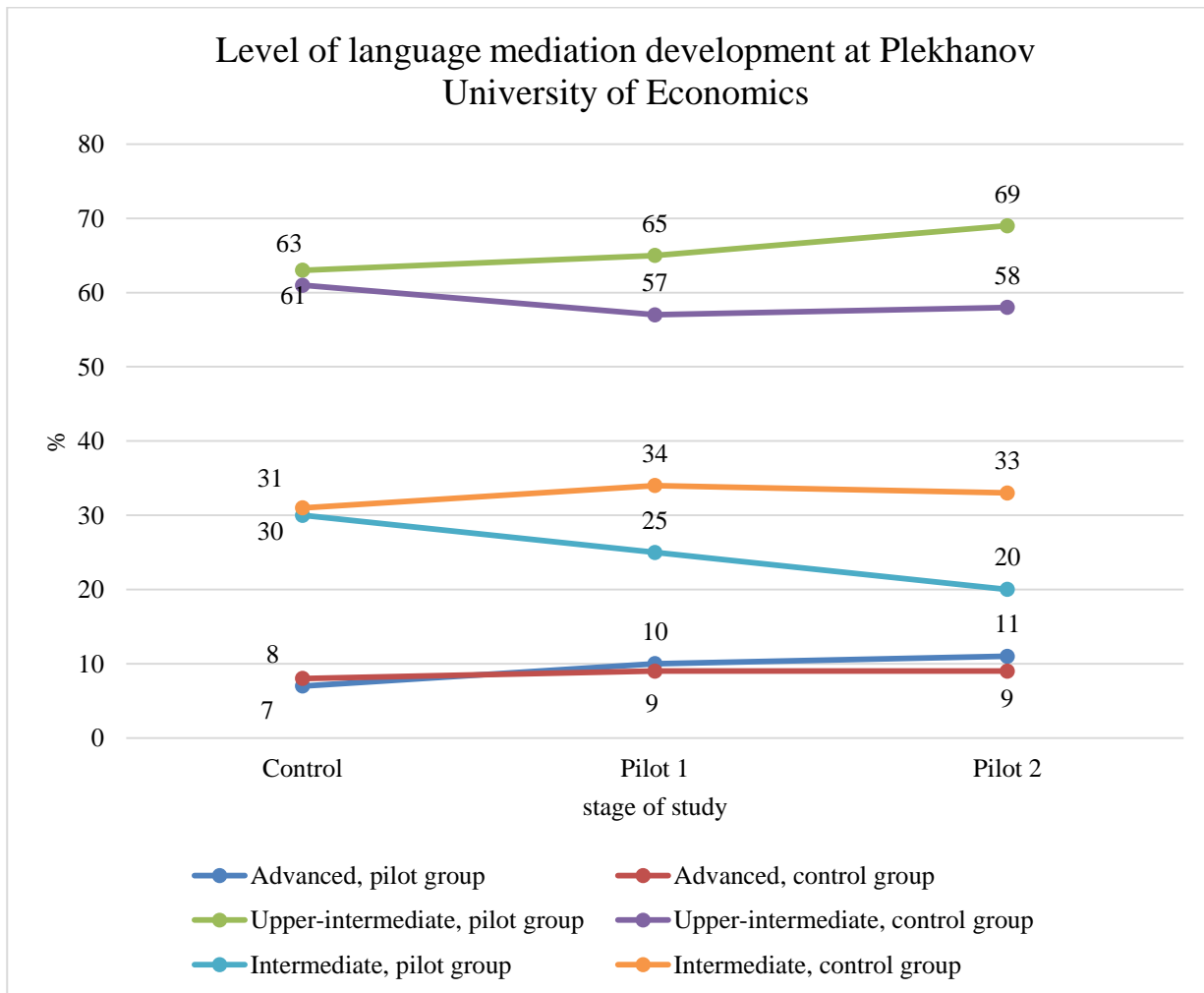


**Fig. 4.** Level of language mediation development at Plekhanov University of Economics
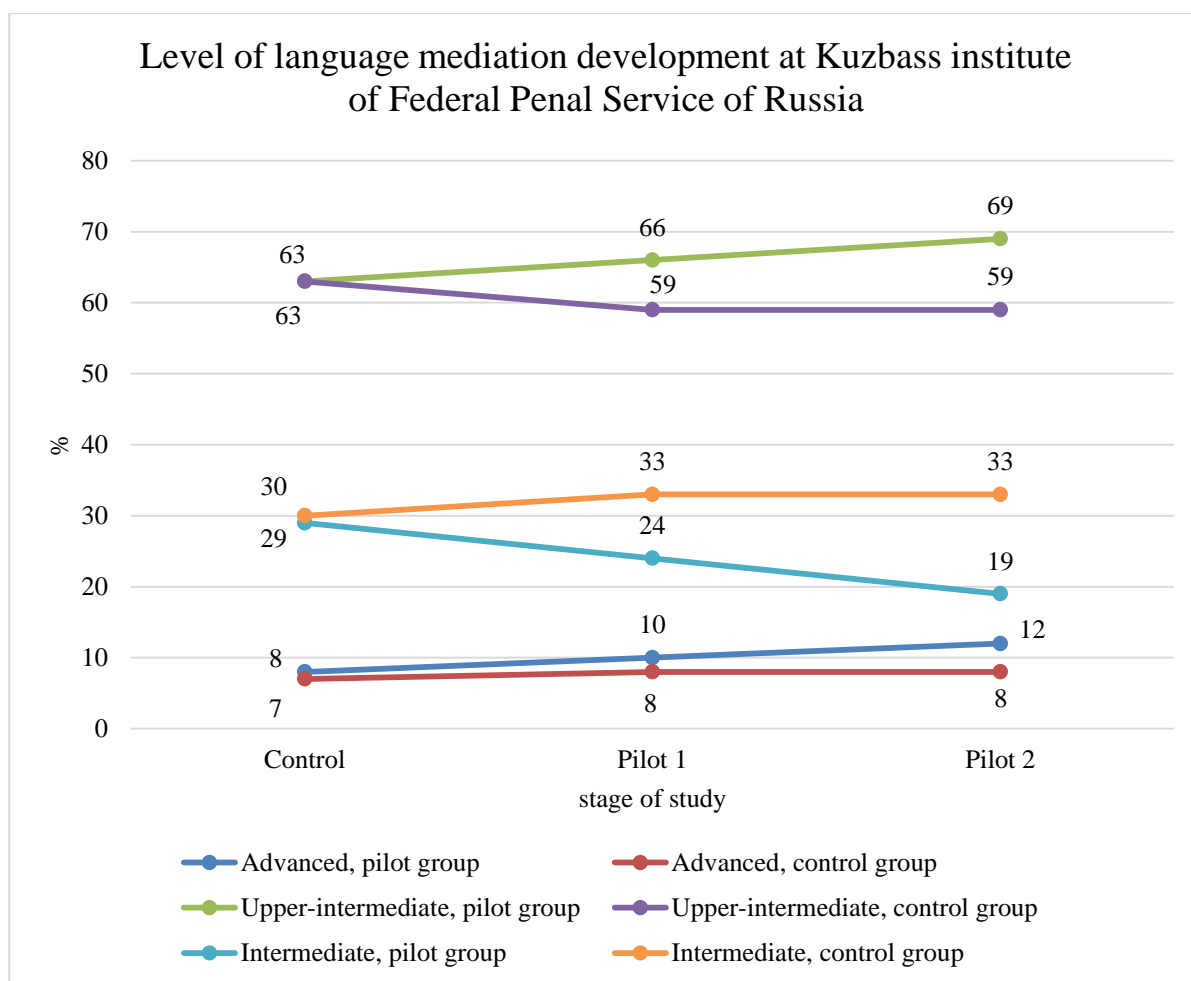
**Fig. 5.** Level of language mediation development at Kuzbass institute of
Federal Penal Service of Russia

Thus, the data, presented above in Figures 2-5, confirms the model's efficiency (Figure 1) and the work done in the language mediation development field. As the data in the control groups strongly prove an increase in advanced and upper-intermediate levels and a corresponding decrease in the intermediate level of language mediation development. To put that into perspective, we presented this data in table (see Table 1).

**Table 1.** Dynamics of level of language mediation development at MGIMO University, Plekhanov University of Economics and Kuzbass Institute of the Federal Penal Service of Russia at different stages of the study

| Level of language proficiency | MGIMO | | | Plekhanov University of Economics | | | Kuzbass institute of Federal Penal Service of Russia | | |
|---|---|---|---|---|---|---|---|---|---|
| | Control study | Pilot Study1 | Pilot Study2 | Control study | Pilot Study1 | Pilot Study2 | Control study | Pilot Study1 | Pilot Study2 |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Advanced Pilot group | 8 | 9 | 10 | 7 | 10 | 11 | 8 | 10 | 12 |
| Advanced Control group | 6 | 7 | 7 | 8 | 9 | 9 | 7 | 8 | 8 |
| Upper-intermediate Pilot group | 61 | 66 | 70 | 63 | 65 | 69 | 63 | 66 | 69 |
| Upper-intermediate Control group | 62 | 53 | 54 | 61 | 57 | 58 | 63 | 59 | 59 |
| Intermediate Pilot group | 31 | 25 | 20 | 30 | 25 | 20 | 29 | 24 | 19 |
| Intermediate Control group | 32 | 40 | 39 | 31 | 34 | 33 | 30 | 33 | 33 |

The data obtained in Table 1 provide strong evidence of the efficiency of the pilot study in the intended direction.

To prove the validity of the results obtained and the efficiency of the developed model, that was implied at MGIMO (112 students), we used the non-parametric method Pearson's Criterion $\chi^2$ (significance level 5 %), formula (1).

Method Pearson's Criterion $\chi^2$ was aimed at evaluation the difference between the distributions of empirical and theoretical frequencies and comparison the number of students whose language mediation level increased with those students whose level remained the same (Tables 2, 3, 4).

**Table 2.** Empirical frequencies (E)

| Groups | Outcome | | Total |
|---|---|---|---|
| | Mediation level has improved | Mediation level remained the same | |
| pilot | 31 | 25 | 56 |
| control | 14 | 42 | 56 |
| Total | 45 | 67 | 112 |

The data in Table 2 show that E in the pilot groups is higher than in the control groups.

**Table 3.** Theoretical frequencies (T)

| Groups | Results | | Total |
|---|---|---|---|
| | Mediation level has improved | Mediation level remained the same | |
| Pilot | $\frac{45 \times 56}{112} = 22.5$ | $\frac{67 \times 56}{112} = 33.5$ | 56 |
| Control | $\frac{45 \times 56}{112} = 22.5$ | $\frac{67 \times 56}{112} = 33.5$ | 56 |
| Total | 45 | 67 | 112 |

The materials of Table 3 demonstrate theoretical frequency (T) calculations. Comparison and conversion of empirical (E) and theoretical (T) frequencies (Table 4).

**Table 4.** Calculation Table $x^2$

| Groups | E | T | (E-T) | (E-T)² | $\dfrac{(E-T)^2}{T}$ |
|---|---|---|---|---|---|
| Pilot (level improved) | 31 | 22.5 | 8.5 | 72.25 | 3.21 |
| Pilot (level didn't improve) | 25 | 22.5 | 2.5 | 6,25 | 0.27 |
| Control (level improved) | 14 | 33.5 | -19.5 | 380.25 | 11.35 |
| Control (level didn't improve) | 42 | 33.5 | 8.5 | 72.25 | 2.16 |
| | | | | $\sum\limits_{i=1}^{m}$ | 16,99 |

Thus, we got $\chi_1^2$ = 16.99 > 3.8 (Table 4), which made it possible to deny the null hypothesis (NH) at a high level of significance (P < 0.05, the number of the freedom level (2-1)*(2-1) = 1). We clarified the number of degrees of freedom by the following formula: f = (r − 1) × (c − 1). Accordingly, for a four-slot table 1 in which 2 rows (r = 2) and 2 columns (c = 2), the number of degrees of freedom is f2x2 = (2 - 1) * (2 - 1) = 1. So, it can be admitted that the recorded difference in the pilot and control groups was not due to incidental causes but was a direct consequence of purposeful mediation skills development activities in the context of created model conditions.

To prove the reliability of the obtained results and discover effectiveness of the designed model of language mediation development at Plekhanov University of Economics we applied Student's parametric method. 83 first- and second-year students of Plekhanov University of Economics have taken part in this study. The working hypothesis is that our model of the language mediation development will be more effective than traditional teaching. 5 students' tests were considered during the pilot study. According to their results (Table 5) we have calculated the validity of the differences and checked the propriety of the suggested hypothesis.

**Table 5.** The results of the pilot among the 1st and 2nd year students of Plekhanov University of Economics according to Student's method.

| Groups | Number of students, n | Score for or tests (rating works) | | | | |
|---|---|---|---|---|---|---|
| Pilot | 43 | 46 | 34 | 39 | 41 | 37 |
| Control | 43 | 31 | 41 | 37 | 33 | 38 |

We calculated the average arithmetic values of $X$ ($X_i$ is the value of the individual measurement, i.e. scores per test) for each group separately by the following formula (2), where $k$ is the number of measurements in the group (in our case $k = 5$ tests).

$$\bar{X}_э = \frac{46 + 34 + 39 + 41 + 37}{5} = \frac{197}{5} = 39,4$$

Let us substitute values from Table 5:

$$\bar{X}_к = \frac{31 + 41 + 37 + 33 + 38}{5} = \frac{180}{5} = 36$$

Comparison of average arithmetic values proves that the value ($\bar{X}_э = 39,4$) in the experimental group is higher than ($\bar{X}_к = 36$) in the control one. However, for final approval of the effectiveness of work undertaken, it is necessary to verify the statistical reliability of the differences between the calculated average arithmetic values. To do this, in both groups we calculated the standard deviate (5) by the following formula:

$\delta = \frac{X_{imax} - X_{imin}}{K}$, where $X_{imax}$ – the largest dimension for the corresponding group, $X_{imin}$ – the smallest, $K$ – the tabular coefficient ($K = 2.33$ in our case).

Then we substituted the values from Table 5:

$$\delta_э = \frac{46 - 34}{2,33} = 5,15; \; \delta_к = \frac{41 - 31}{2,33} = 4,29$$

and obtained a standard error of the average arithmetic value ($m$) according to the formula:

$$m = \frac{\delta}{\sqrt{n}} \; (\text{при } n \geq 30)$$

Next, we calculated the standard error of the average arithmetic value (m) for each group:

$$m_э = \frac{5,15}{\sqrt{43}} = 0,78; \; m_к = \frac{4,29}{\sqrt{43}} = 0,65$$

After that, average error of difference was obtained by the following formula:

$$t = \frac{\bar{X}_э - \bar{X}_к}{\sqrt{m_э{}^2 + m_k{}^2}} = \frac{39,4 - 36}{\sqrt{0,78^2 + 0,65^2}} = \frac{3,4}{\sqrt{1,0309}} = 3,35$$

To determine the validity of the differences, we compared the obtained value (t) with the boundary one at a 5 % significance level ($p = 0{,}05$). The number of freedom degrees was $s = n_\text{э} + n_\text{к} - 2$, where $n_\text{э} = 5$ and $n_\text{к} = 5$n are the total number of individual results in the experimental and control groups respectively.

$s = 5 + 5 - 2 = 8$

Boundary value at p = 0.05 and 8 degrees of freedom: $t_\text{гр} = 2{,}31$.

So, we got $t_\text{гр} = 2{,}31 < t = 3{,}35$, therefore, the differences between the average arithmetic test scores of the two groups are considered valid at a 5 % significance level which allows us to conclude that the work we have done in the field of mediation development is effective.

## 5. Conclusion

Nowadays language mediation development is very relevant while foreign language education implementation. Thus, nowadays students of non-linguistic universities need to possess not only foreign language proficiency at the C1-C2 levels, but also language mediation proficiency, especially in the professional sphere, which meets the requirements of the current Standard and international trends in the field of language education development. The designed model of language mediation development of non-linguistic students appeared to be efficient due to the provided findings.

Finally, we do not claim to provide a thorough solution of the issues studied in this paper. The research is an attempt to reveal the main approaches to solving the problem of language mediation development, based on the theoretical analysis and pilot study outcome, to disclose the possible ways of this problem solvation in the field of higher professional education.

## 6. Acknowledgements

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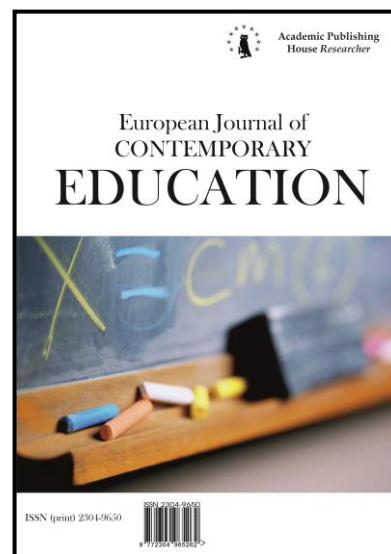
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**Teachers' Perception of ICT Integration in English Language Teaching at Vietnamese Tertiary Level**

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**Abstract**

The ICT integration has a far-reaching consequence to the socio-economic development worldwide. This study contributes to the scientific researches on the teachers' perceptions towards the impact of ICT use on English language teaching. The study used a mixed method approach with primary sources – a researcher-made questionnaire and semi-structured interviews. The sample population consisted of 357 selective teachers using Slovin formula with the judgemental sample technique ($p$ = 95 %; $r$ = ±5 %) out of 5.000 teachers of English from 3 national and regional universities in Vietnam, namely the north – Vietnam National University, Hanoi; the centre – Hue university; the south – Vietnam National University, Ho Chi Minh city in different parts in Vietnam during the school year of 2020–2021. The results reveal that teachers were fully aware of the importance of ICT implementation and showed their positive perceptions when using ICT for teaching English. They were dissatisfied with the ICT facilities and training instruction on ICT use. Dedicated ICT network and exclusive educational software for English language teaching should be specifically invested. Teachers' training program on ICT use is necessary to be updated periodically. The study results would be served as a useful resource for educational administrators and stakeholders in reforming educational policies on teaching English with ICT integration.

**Keywords:** ICT integration, perception, dedicated, exclusive, English language teaching.

**1. Introduction**

The global adoption of Information and communications technology (ICT) into the educational field has been attracted a great deal of concerns. This trend is especially influenced by the luminescence of the fourth industrial revolution (commonly stated "Industry 4.0") (Schwab, 2016). The exploitation of ICT in the educational context requires the potential of revolutionizing the outmoded educational system. Although teachers are more familiar with and confident in the use of ICT, their active utilization of it is still modest and peripheral (Liu et al., 2017; Fraillon et al.,

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2014). The impact of ICT on an educational system, especially in developing countries such as Vietnam, has been drawn the considerable attention of many scholars (e.g. Pham, 2018; Pham, 2019; Al-Munawwarah, 2014; Liu et al., 2017; Nikian et al., 2013). When taking the adaptation of ICT into account, while some scholars (e.g. Lin et al., 2017; Budiman et al., 2018; Katemba, 2020; Pham, 2018) have carried out technology-adoption models to rectify possible reasons for the reluctance of applying ICT into their teaching, especially English language teaching and learning (ELT), others (e.g. Salehi, Salehi, 2012; Pham, 2019; Almalki, 2020; Lin et al., 2014) have investigated specific potential barriers to teachers' practices of ICT implementation in the classroom. In order to meet the requirement of ICT integration in school premises, technology infrastructure and ICT-based tools for instruction and learning have been updated with the rationalization that better ICT at schools would result in remarkable educational and pedagogical consequences, which is beneficial for both teachers and students in terms of ELT (Budiman et al., 2018; Hafifah, 2020; Zhelezovskaia, 2016). However, the excessive optimism about the ICT integration into education would lead to some disappointments about an overall improvement in the field of teaching and learning English. So, it is necessary to find out the reasons and in which circumstances ICT integration serves as a good device for educational contexts.

The implementation of ICT in learning and teaching practices actually demands many changes such as the adaptation of teachers' pedagogical and professional knowledge, students' willingness, and school supports. For teachers, they have to reform their teaching styles, and redesign the instruction basing on the appropriate theories of learning and development. Furthermore, the stakeholders or university administrators consider the construction of ICT tools for teaching purposes which are state-of-the-art according to changes involving perspectives on teaching and learning requirement. Students, moreover, have to be ready and competent with adequate knowledge about hybrid learning. The lack of students' incompetent ICT understanding might lead to the failure of exploiting ICT tools for studying, particularly for English acquisition (Silviyanti, Yusuf, 2015; Soto et al., 2011; Isnani, 2019).

At present, the ubiquity and availability of ICT have enabled teachers to easily adopt ICT as an integral part of their daily teaching practices and ICT integration has been regarded as a major priority in an educational field. In comparison with teachers of other subjects, English language teachers are not eager to exploit technology and their technology adoption is seemed unwilling and unproductive (Mohammed, Almekhlagi, 2017; Gilakjani, Leong, 2012; Burston, 2014). Regarding Vietnamese long-standing cultural teaching and learning, teachers play as key dominants in the classroom. Although a shift from teacher-centered to learner-centered approach (Schreurs, Dumbraveanu, 2014) has taken place in Vietnamese educational system, the role of teachers in the classroom is very influential (Pham, 2018; Hoang, 2010b). In addition, the blended learning has already been implemented, which emphasizes the autonomous English language learning at a tertiary level (Thu, 2017). A few studies, however, have investigated the influence of teachers' perception towards ICT use in ELT. To address this knowledge gap, the present study investigated the beliefs of teachers of English as a foreign language (EFL) towards the ICT integration concerning the factors and obstacles that deter teachers from comfortable use of ICT to enhance students' English competence.

**Literature review**

Many studies (e.g. Abbasova, Mamadova, 2019; Almalki, 2020; Avisteva, 2020; Hafifah, 2020; Katemba, 2020; Pham, 2019) conducting about teachers' perspective on ICT integration towards its impact and results have been discussed extensively in the field of educational contexts. Previously, second language acquisition introduced the term relating to the manipulation of computing devices – computer assisted language learning (CALL), which is defined as the use of a computer in the teaching or learning of a second or foreign language (Richards, Schmidt, 2010). In contrast, ICT refers broadly to the study of the use of computers, the Internet, video, and other technology as a subject at school (OALD, 2020). Hence, ICT has a broader meaning which comprises the meaning of CALL in its boundary. As a result, ICT is popularly used in ELT instead of CALL (Ahmadi, 2018). The implementation of ICT has currently been a beneficial aspect of teaching and learning, especially in ELT. Since ICT integration was introduced into a language teaching sector, it has caused many controversial debates relating to teachers' perceptions and factors concerning ICT integration.

**Teachers' perceptions about ICT integration in ELT**

Teachers' behavior is considered as one of the most important factors determining the success of technological integrations (Ertmer, Ottenbreit-Leftwich, 2013; Alkhawaldeh, Menchaca, 2014; Lin et al., 2014). In general, teachers' perceptions of ICT in education have a great impact on ICT integration and adopted attitudes in the classroom. The aforementioned scholars state that teachers find it resourceful to constitute ICT collaborating teaching and learning activities as a valuable tool and they are positive about students' achievement of ICT knowledge and skills. They, however, do not acknowledge the extensive use of ICT in the classroom as well as sound uncertain about its potential to improve teaching. Besides, teachers are eager and motivated to get to know about ICT, but they only take advantage of some basic ICT applications and a limited range of software, particularly for personal purposes. In practice, teachers use their computing devices for low-level supplemental work either word processing such as lesson plan preparation, registration of students' grades, and designing English tests or surfing the Internet to get relevant information for lesson plans (e.g. Juniana, Muslem, 2017; Pham, 2019; Almadi, 2018). Unfortunately, a few EFL teachers exploit the capacity of implementing ICT for instructional purposes and collaborating ICT with subject teaching in order to reform their teaching styles to arouse students' autonomous English language learning which is considered as a remarkable imprint of the learner-centered approach (Shreurs, Dumbraveanu, 2014) in educational purposes, to activate students, to motivate learning activities, and to stimulate high-level thinking and reasoning skills (Malagon, Perez, 2017; Pham, 2018). Moreover, although some studies (Ahmadi, 2018; Budiman et al., 2018; Hafifah, 2020; Sabiri, 2020) have pointed out that many teachers have positive viewpoints on contemporary educational technologies, they do not feel confident in effectively integrating ICT into their teaching instruction. This hesitancy might be accounted for the inadequate training and experience which explain for teachers' negative attitudes towards the implementation of educational technologies. Thus, teachers' level of competence with ICT greatly impacts how they exploit ICT and how they encourage themselves to implement ICT tools during their teaching and learning processes. Recent researches (e.g. Avisteva, 2020; Abbasova, Mammadova, 2019; Katemba, 2020) have acknowledged teachers' beliefs about ICT usefulness and their intentions to apply ICT in their instruction. They also reckon that most effective teachers who possess not only positive opinions on ICT, but also good ICT skills consider ICT integration as a part of a stimulating platform, supporting their teaching practices as well as their students' involvement in active learning environment.

**Factors influencing teacher use of ICT**

In reality, factors influencing teachers' use of ICT appear to encompass several aspects such as rationale for ICT integration, perceived usefulness of ICT in EFL, perceived ease of ICT implementation, modes of teaching with ICT intervention, experiences of ICT use in EFL, access to equipment supporting ICT application, and support for ICT utilization. These perspectives would be exploited thoroughly in this study instrument to shed light on the research findings.

*Rationale for ICT integration.* Some studies (e.g. Malagon, Perez, 2017; Juniana, Muslem, 2017; Isnani, 2019; Sabiri, 2020) have discussed the reasons for taking advantage of ICT integration into EFL. They mostly agree that educational reforms and the influence of Industry 4.0 (Schwab, 2016) require teachers to change their teaching practices. For example, cross-cultural communication could take place either verbal or non-verbal forms, in which the latter is hard to explain by means of utterance, but effective and easy to understand by using ICT denotation. Besides, thanks to the development of ICT resources, hybrid or blended learning mode could be backed up without the limitation of geological boundaries. Similarly, the essence of one curriculum might be franchised to different educational places in terms of English as a medium of instruction (EMI) (Ducker, 2020; Agai-Lochi, 2015), which meets the requirement of learners' expectations in the expanding circle as well as inner circle to be able to master their English competence as speakers in the inner circle (Kachru, 1985). Therefore, external influences have a great impact on teachers' internal motivation to reform their pedagogical methods to keep up with the fast development and innovation of EFL contexts.

*Perceived usefulness of ICT in EFL.* When collaborating the availability of sophisticated educational software in EFL, some researches (Liu et al., 2017; Shinghavi, Basargeka, 2019) have indicated the effectiveness of the ICT implementation. For example, Liu et al. (2017) carried out a survey with 202 Chinese EFL teachers on their technology acceptance model (TAM), they

concluded that TAM was positively acknowledged on one condition that teachers integrated technology effectively, so a shift from traditional transmissive pedagogy to constructivist one would necessarily take place. Similarly, Shinghavi and Basargeka (2019) conducted a research involving 515 teachers in the implementation of ICT in the classroom contexts in India. They claimed the decisive role of ICT in education, which drove the learning theory from teacher-centric process to more learner-centric one. This finding is somehow in line with the earlier result of the study conducted by Shreurs and Dumbraveanu (2014), emphasizing the vital role of learner-centered teaching approach in autonomous language learning.

*Perceived ease of use of ICT*: As a matter of fact, computing devices for the purpose of supporting ELT such as laptops, tablets, smart phones are ubiquitous. Together with the development and revolution of ICT infrastructure, there has been a few studies mentioned the difficulties of use of ICT (Juniana, Muslem, 2017; Katemba, 2020). Juniana and Muslem (2017) blamed the insufficient equipment and poor internet connections for hindering the implementation of ICT use in ELT. This is the same result in the study done by Katemba (2020) with 30 teachers in the rural area in Indonesia, the scholar arrived at the conclusion that the most challenges were the limitation of ICT tools and the low internet connection. In comparison with Vietnamese circumstance, the studies (e.g. Hoang, 2010b; Pham, 2018; Pham, 2019) have revealed that the availability of ICT tools ascertains Vietnamese EFL teachers to exploit ICT facilities up to their expectations.

*Modes of teaching*: They refer to the pedagogic practices teachers select in ELT collaborated with ICT use. Some researches (e.g. Ghavifekr et al., 2014; Sahin-Kizil, 2011; Zhelezovskaia, 2016; Ali, 2018) have investigated the effect of using ICT integration as a pedagogic reform in modes of teaching. Sahin-Kizil (2011) stated that the implementation of ICT into classroom instruction yielded as positive attitudes which brought about an advantageous perspective over conventional method of instruction. The use of ICT for educational purposes would benefit learning outcomes as it facilitates and instructs students to self-direction and self-control in the learning processes (Ghavifekr et al., 2014). Teachers felt very enthusiastic about classroom instruction when integrating ICT use during their lessons. This is considered as pedagogic reform in the study carried out by Ali (2018) which concluded that ICT integrated with classroom instruction had a positive learning outputs.

*Experiences of ICT in teaching*: In this aspect, experiences in teachers' knowledge about ICT integration (e.g. Avisteva, 2020; Ghavifekr et al., 2014), in pedagogic performance (Al-Munawwarah, 2014; Avisteva, 2020; Liu et al., 2017; Sahin-Kizil, 2011), and ICT infrastructure (Juliana, Muslem, 2017; Salehi, Salehi, 2012) would be taken into account. In general, teachers understand the worth and value of using ICT in their teaching career, they believe that in order to put ICT into practice successfully, favourable conditions for ICT integration should be given as a priority such as classroom infrastructure and supportive educational policies (Avisteva, 2020). Besides, teachers also have to be well-trained to use ICT for teaching, especially ELT, not much for their own work. Thus, teachers' attitudes play a vital role in using ICT in the instruction. Experiences of ICT use in teaching also have affected the choice of pedagogical performance. Al-Munawwarah (2014) claimed that the benefit of using ICT in ELT enabled teachers to create enjoyable learning activities, promoting learners' interactive involvement during learning processes. In addition, the influence of ICT implementation causes teachers' pedagogical beliefs to be more constructivist-oriented than transmissive-oriented (Liu et al., 2017), and teachers assume that the implementation of ICT is more advantageous than the traditional methods of instruction (Sahi-Kizil, 2011). Besides, ICT experiences require its infrastructure in a good condition. Insufficient equipment coupled with poor internet connection is commonly found in many studies (e.g. Juliana, Muslem, 2017; Nikian et al., 2013; Salehi, Salehi, 2012; Mahdum, 2019).

*Access to equipment*: For this matter, it refers to the exploitation of ICT hardware and software for the purpose of ELT. Some researches (e.g. Ungar, Baruch, 2016; Mahdum et al., 2019; Pham et al., 2019; Nikian et al., 2013; Abbasova, Mammadova, 2019) have discussed at length the availability of ICT equipment for ELT. Thanks to the development and innovation under the impact of Industry 4.0 (Schwab, 2016), the access to utilize ICT infrastructure does not have much obstacles. In fact, educational entertainment, virtual classrooms, and e-learning programs have made themselves available to serve educational purposes, especially ELT.

*Support for ICT use*: This mentions the assistance of supportive factors concerning the implementation of ICT for educational purposes. Technical helps, pedagogical sharing experience, or facilitated educational policies are major contributions in view of supportive ICT integration in ELT. Liu et al. (2017) conducted a research with 202 Chinese EFL teachers and proposed to retrain them for better preparation for updating contemporary ICT knowledge in ELT. This study did not investigate ICT technological assistance or educational policy reforms. Another study conducted by Avisteva (2019) examined the integration of ICT in language teaching. The scholar somehow shared similarity with the finding in Liu et al. (2017), and indicated that teachers had limited confidence in applying technological skills to support their creativity. This study only concentrated on the role of teachers towards the ICT integration. On the contrary, Almalki (2020) recommended that EFL teachers were supposed to be supported with professional development and ICT technological resources. Thus, the focal point of the study strengthened the role of policymakers in terms of providing assistance for teachers to implement ICT in ELT. With the support from the above theoretical framework, this study was conducted in order to answer the following questions:

1. What is the perception of Vietnamese tertiary teachers towards ICT in English language teaching?

2. What is the perceptual differences between male and female teachers in ICT integration in English language teaching?

## 2. Methodology
### Research Design
The study was basically designed to examine the perceptions of 357 Vietnamese teachers of English, who were selected out of the estimated 5,000 lecturers from 3 main universities in Vietnam by stratified sampling method ($p = 95$ %; $r = \pm5$ %), they were treated as the study population for eliciting their opinions on the implementation of ICT in ELT. Initial contact with 3 university administrators was made via email with the permission requested for conducting surveys. The study employed quantitative and qualitative approaches via the questionnaire and the semi-structured interview. The questionnaire was conducted with the active link of Google form, together with a request to participate in the follow-up, semi-structured interview over the telephone. The raw collected feedback was screened before encoding with IBM SPSS program for the data treatment.

### Participants
As it was impossible for the researcher, with the constraint of money and time, to collect information about 5,000 estimated teachers of English from 3 main faraway universities, particularly Vietnam national university, Hanoi – in the north of Vietnam, Hue university – in the central part, and Vietnam national university, Ho Chi Minh city – in the south of Vietnam. the judgemental sampling technique was employed as a matter of uncertain respondents' involvement. The researcher used Slovin's formula with the confidence level 95 % and the margin of error ±5 % to determine 357 sample population. Specifically, the participants included 158 male teachers (44.3 %), and 199 female ones (55.7 %). Their professional experience consisted of 42 teachers under 5 years (11.8 %), 65 under 10 years (18.5 %), 82 under 15 years (23 %), 53 under 20 years (14.8 %), 60 under 25 years (16.8%), 29 under 30 years (8.1 %), and 26 over 30 years (7.3 %). 132 teachers (37 %) taught English major students, 77 teachers (21.6 %) lectured non-English major students, and 148 lecturers (41.5 %) taught both types of students. their academic degrees comprised 89 doctors (24.9 %), 222 masters (62.2 %), and 46 bachelors (12.9 %). Of 357 respondents, 68 participants agreed to participate in the follow-up, semi-structured interview over the telephone.

### Research Instrument
The study utilized the researcher-made questionnaire which featured in factual and behavioral criteria (Dörnyei, Taguchi, 2010), and 8 semi-structured interview questions concerning internal and external factors. The questionnaire was addressed by 3 experts on educational assessment and accreditation for content validation. After that, a pilot study with a batch of 45 teachers was conducted to validate the strength and weakness of the instrument to fine-tune the final version with the acceptable scale ($0.9 > \alpha \geq 0.8$) (Cronbach, 1951). The respondents were asked to answer the list of 8 close questions. For the last question, the participants expressed their

opinions according to Likert scale, i.e. (1) strongly agree, (2) agree, (3) neutral, (4) agree, and (5) strongly agree. If they accepted to join a tele-conversation, the researcher focused on 8 aspects.

**Procedure**

Having a proper instrument tool and the initial contact with 3 main universities in 3 regions to explain the purpose and to request their assistance for permission to float the questionnaire, the researcher's email with active link of Google form was sent to teachers' email address availed by the concerned university administrators. The questionnaire, which was included the researcher's instruction, explained the objectives and relevance of the study, guaranteed the anonymity, told them the choice of refusal if they did not want, and requested them if they were willing to participate in the tele-conversation. The participants were expected to reply the questionnaire after one week since the email received. In the case of a low response rate (less than 25 %), another email was sent to the participants as a courtesy reminder politely asking them to respond to the survey. A thanking email was sent back to the respondents as the confirmation of reception.

The researcher cooperated with another educational expert to evaluate the recording to analyze the perceptions of the participants separately, then the researcher compared the two sources of assessment for the final version. Finally, the raw data was classified, encoding the screened data with SPSS program for the data treatment.

**Statistical tools**

Frequency statistics was employed to address the demographic information, the choice of ICT integration, the level of confidence, and the self-evaluation of teachers' ICT competence. Descriptive statistics was used to analyze the factors affecting ICT implementation in ELT with the quantitative explanation such as (1.0-1.79) very low, (1.8-2.59) low, (2.6-3.39) neutral, (3.4-4.19) high, and (4.2-5.0) very high. Independent T-test was utilized to find out the discrepancy between male and female teachers towards the ICT integration in ELT, which should be the basis for proposing the implications for innovating and reforming the training program of ICT.

For interview questions, frequency statistics was also used to address the collected data for internal and external factors.

**3. Results**

When investigating the frequent use of ICT in ELT, all teacher participants claimed that they exploited ICT integration during their English teaching process. 43 teachers (12 %) confessed that they had a little confidence in using ICT while the majority of them, i.e. 252 teachers (70.6 %) revealed that they were confident in their ability to utilize ICT in ELT, and 62 respondents (17.4 %) felt very confident about their exploitation of ICT for the purpose of ELT. In addition, the participants were also expected to self-evaluate their ICT competence in their teaching practices. The results showed that most of the respondents, i.e. 247 teachers, equivalent to 69.2 %, expressed their competence in the exploitation of ICT in ELT. 64 teachers, accounting for 17.9 % claimed to be very competent in using ELT, and 46 teachers (12.9 %) thought that they had a little competence in applying ICT for ELT.

The rationales that teacher participants reflected were somehow similar in their choice as the standard deviations were lower than 1.0%, but the results were not the same. Specifically, they highly recognized the tremendous benefits for using ICT in ELT ($M$ = 4.13; $SD$ = .56 %), personally preferred teaching English with ICT ($M$ = 4.17; $SD$ = .55 %), and followed the directives from their superiors ($M$ = 3.53; $SD$ = .78 %). Besides, they had neutral opinions on the pressure from both students ($M$ = 3.15; $SD$ = .59 %) and teachers ($M$ = 2.97; $SD$ = 45 %).

Concerning the perceived usefulness of ICT integration, teachers generally had high perceptions for it. In particular, they believed that using ICT improved their productivity very highly ($M$ = 4.37; $SD$ = .71 %). They were, however, uncertain about the better results in their students' studies with regard to ICT integration ($M$ = 3.18; $SD$ = .63 %). They were also unsure about the possibility of enhancing students' employability in the future ($M$ = 3.22; $SD$ = .65 %). Teacher respondents agreed quite highly that ICT integration was helpful for ELT ($M$=4.13; $SD$ = .61 %), improved their teaching performance ($M$ = 4.17; $SD$ = .60 %), and helped students practice language skills ubiquitously ($M$ = 4.10; $SD$ = .64 %). Furthermore, teachers believed that ICT-enhanced lessons could be re-used ($M$ = 4.08; $SD$ = .59 %). They also reckoned that ICT helped them access extensive teaching resources on the Internet ($M$ = 4.04; $SD$ = .57 %). Besides, the participants highly remarked that utilizing ICT improved their expertise in their subject areas

(*M* = 3.44; *SD* = .70%), facilitated them to share teaching experiences (*M*=3.82; *SD* = .74 %), enhanced their lesson preparation (*M* = 3.85; *SD* = .78 %), increased study motivations for students (*M* = 3.62; *SD* = .88 %), helped students understand subjects more deeply (*M* = 3.90; *SD* = .66 %), and promoted autonomous learning (*M* = 3.77; *SD* = .93 %). In addition, they concluded that email was a useful tool for them to communicate with colleagues and students (*M* = 3.52; *SD* = .69 %).

In terms of perceived ease of ICT use, teachers found it easy to use the Internet (*M* = 4.24; *SD* = .84 %), which was considered very high according to Likert scale. They highly claimed to use computers (*M* = 3.91; *SD* = .70 %), to exploit ICT in lesson preparation (*M* = 3.52; *SD* = 70 %), and to implement ICT in language teaching in the classroom (*M* = 3.82; *SD* = .72 %). Besides, the participants held neutral opinions for sharing their teaching experiences with others (*M* = 3.04; *SD* = .69 %). They also had very low viewpoints about training themselves how to use ICT in language teaching (*M* = 2.48; *SD* = .59 %).

As regards modes of teaching, the respondents gave very high remark on the fact that face-to-face teaching blended with online teaching was an appropriate for their university (*M* = 4.31; SD = .47 %). They highly believed that teaching with ICT was more enjoyable than teaching without ICT (*M* = 4.06; *SD* = .65 %). In addition, they had low personal standpoint when expressing that they felt comfortable with the face-to-face teaching mode and did not want ICT in their teaching (*M* = 2.12; *SD* = .70 %), and teaching languages totally online was appropriate for their university (*M* = 2.20; *SD* = .81 %).

Considering experiences of ICT use in ELT, teachers had low perspectives when confirming that they could not control the content of materials downloaded from the Internet (*M* = 2.29; *SD* = .82 %), assessment and testing practices at their university were still not ICT-based (*M* = 2.04; *SD* = .55 %), and the Internet easily distracted students from their studies (*M* = 2.12; *SD* = .62%). Furthermore, they had neutral stance on the following aspects. That is, they had no time to learn how to use ICT (*M* = 2.77; *SD* = .80 %), it was expensive to use ICT in teaching (*M* = 3.17; *SD* = .58 %), they had difficulty in classroom management when using ICT (*M* = 3.01; *SD* = .54 %), they had had negative experiences with using ICT in classrooms before (*M* = 309; *SD* = .59 %), they had succeeded in using ICT in teaching (*M* = 3.11; *SD* = .65 %), and ICT would facilitate students' violation of intellectual property rights (*M* = 3.11; *SD* = .59 %). In addition, the participants also had high opinions on the following viewpoints. In particular, it was very time-consuming to use ICT in lesson preparation (*M* = 4.00; *SD* = .53 %), they believed that ICT increased workloads for teachers (*M* = 3.79; *SD* = .71 %), technical problems often happened and wasted a lot of time in lessons (*M* = 3.56; *SD* = .64 %), the speed of Internet connection at their university discouraged teachers from using ICT (*M* = 3.64; *SD* = .69 %), and ICT had been integrated into the current curriculum at the department all level at their university (*M* = 3.50; *SD* = .73 %).

Evaluating the access to equipment, teachers expressed low assessment when thinking that they had limited access to university's computers (*M* = 2.10; *SD* = .75 %), they had to share university's computers with others (*M* = 2.15; *SD* = .72 %), and university's computers rarely had technical problems (*M* = 1.88; *SD* = .65 %). Besides, they had neutral attitudes towards the judgement that computer software was updated by their university on a regular basis (*M* = 3.23; *SD* = .42%). Additionally, the results indicated high standpoint that only some classrooms at university are equipped with computers and Internet connection (*M* = 3.60; *SD* = .68 %), university's computers were mainly installed in computer labs and in the library (*M* = 3.88; *SD* = .62 %), and most university's computers had software that they could use for language teaching (*M* = 3.83; *SD* = .70 %).

Addressing the support for ICT use, teachers provided very low assessment of the content of ICT training courses at their university which met their need (*M* = 1.57; *SD* = .66 %). They also made low remarks that ICT training was customized according to the level of ICT skills of their university teachers (*M* = 2.08; *SD* = .66 %), the frequency of ICT training courses at their university met their need (*M* = 1.92; *SD* = .63 %), technical problems in using ICT in classroom at their university were often solved fast (*M* = 2.07; *SD* = .59 %), their university had an official document guiding the use of ICT in teaching and learning (*M* = 2.13; *SD* = .66 %), and the official ICT guidelines had been well disseminated to all staff in their university (*M* = 2.15; *SD* = .36 %). Moreover, teachers had neutral ideas when reckoning that there was a culture of sharing experiences in ICT use in language teaching at their university (*M* = 3.15; *SD* = .36 %), they could

not resolve technical problems (*M* = 2.91; *SD* = .56 %), they received strong support for ICT use from either university's leaders (*M* = 2.79; *SD* = .68 %) or the leaders of their department/centre (*M* = 3.03; *SD* = .60 %).

Table 1 presents the internal and external factors which influence teachers' pedagogical practices in ELT. The outcomes are resulted from the semi-structured interviews with 68 teachers with the permission of recording the interviews. The recordings were separately assessed by the researcher and an educational expert. As glimpsed from Table 1, all participants acknowledged the role of ICT integration in ELT.

**Table 1.** Factors relating to the decision of ICT use in ELT

| *Internal factors* | | *Frequency* | *Percent* | *Related factor* |
|---|---|---|---|---|
| The role of ICT in your English teaching is crucial. | No | 14 | 20.6 | |
| | Yes | 54 | 79.4 | Teacher |
| Some teachers of English say their English knowledge does have an influence on their integration of ICT in their teaching. | No | 7 | 10.3 | |
| | Yes | 61 | 89.7 | Teacher |
| Your knowledge/skills affect the way you use ICT in your English teaching. | No | 8 | 11.8 | |
| | Yes | 60 | 88.2 | Teacher |
| Your profession develops when it comes to ICT integration in your English teaching? | No | 14 | 20.6 | |
| | Yes | 54 | 79.4 | Profession |
| | Total | 68 | 100.0 | |
| *External factors* | | *Frequency* | *Percent* | *Related factor* |
| Some teachers say their students' technical knowledge and skills affect their ICT integration in classroom teaching. | No | 11 | 16.2 | |
| | Yes | 57 | 83.8 | Student |
| Your colleagues affect your ICT use in classroom instruction. | No | 10 | 14.7 | |
| | Yes | 58 | 85.3 | Peer |
| Is there technical support from technicians? During class hour? Or out of class hours? | No | 19 | 27.9 | |
| | Yes | 49 | 72.1 | Technician |
| The university and department policies influence the way you integrate ICT in your teaching. | No | 20 | 29.4 | |
| | Yes | 48 | 70.6 | Administrator |
| | Total | 68 | 100.0 | |

Table 2 points out the contrastive comparison among male and female teachers in regard with the implementation of ICT in ELT in terms of 7 perspectives.

**Table 2.** Perceptual differences between male and female teachers in ICT integration

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | Mean Difference | Std. Error Difference | 95 % Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | | | Lower | Upper |
| Rationale for ICT use | Equal variances assumed | .101 | .751 | 1.15 | 355 | .250 | .16993 | .1475 | -.120 | .46008 |
| | Equal variances not assumed | | | 1.15 | 333.4 | .251 | .16993 | .1479 | -.121 | .46092 |

| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|---|
| Perceived usefulness of ICT | Equal variances assumed | .158 | .691 | .07 | 355 | .945 | .01921 | .2780 | -.528 | .56591 |
| | Equal variances not assumed | | | .07 | 332.0 | .945 | .01921 | .2790 | -.530 | .56805 |
| Perceived ease of use of ICT | Equal variances assumed | 1.02 | .314 | -1.4 | 355 | .163 | -.25593 | .1829 | -.616 | .10380 |
| | Equal variances not assumed | | | -1.39 | 330.8 | .165 | -.25593 | .1837 | -.617 | .10550 |
| Modes of teaching | Equal variances assumed | .305 | .581 | 1.22 | 355 | .224 | .15734 | .1293 | -.097 | .41162 |
| | Equal variances not assumed | | | 1.22 | 337.0 | .224 | .15734 | .1293 | -.097 | .41164 |
| Experiences of ICT use in teaching | Equal variances assumed | .00 | .986 | -.73 | 355 | .463 | -.19019 | .2590 | -.700 | .31919 |
| | Equal variances not assumed | | | -.73 | 334.1 | .464 | -.19019 | .2596 | -.701 | .32036 |
| Access to equipment | Equal variances assumed | .01 | .936 | .44 | 355 | .664 | .08072 | .1854 | -.284 | .44541 |
| | Equal variances not assumed | | | .44 | 336.0 | .664 | .08072 | .1856 | -.284 | .44573 |
| Support for ICT use | Equal variances assumed | .161 | .689 | .07 | 355 | .941 | .01504 | .2036 | -.385 | .41553 |
| | Equal variances not assumed | | | .07 | 327.7 | .942 | .01504 | .2050 | -.388 | .41830 |

The finding concludes that *Sig.* and *Sig.* (2-tailed) figures are bigger than .05 %, that is, there is no difference among the teachers towards the practices of using ICT in ELT. Thus, it is unnecessary to formulate the distinct educational policies, regulations or directives to promote the implementation of ICT for the success of teaching English at the tertiary level.

## 4. Discussion

The teachers are well experienced and qualified, they mostly have good academic status, which is very necessary as they almost teach English major students and non-English major ones. In addition, teachers' belief towards ICT implementation has generally recognized as a necessary determinant for the success of technological integration in ELT (Albirini, 2006; Ali, 2018; Isnani, 2019). Findings from this study indicate that the respondents are confident in teaching English mediated by ICT intervention, this is because they feel competent to apply the technological advances during their pedagogical practices (Soto et al., 2011; Sashin-Kizil, 2011; Katemba, 2020). Besides, the results from the semi-structured interview reveal that teachers have to take the responsibility of deciding what and how ICT integration should be exploited for ELT.

In fact, the majority of English language teachers in Vietnam has positive reasons for the integration of ICT in ELT, they believe that ICT use plays an essential part in supporting ELT process at the tertiary level. Teachers also express their willingness to use ICT in ELT, they do not seem to be influenced by external factors such as their colleagues or school administrators. These results are in line with the studies which presented the rationales accounting for the use of ICT in ELT (e.g. Avisteva, 2020; Isnani, 2019; Sabiri, 2020). Technologically educational innovations

require teachers to develop their self-efficacy to catch up with the speed of the fast-track changes in the world of e-learning capabilities. Teachers must update themselves with the full arm of ICT knowledge then advocate their understanding about ICT with ELT to provide the best efficiency to support their learners thanks to the promotion of their autonomous language learning.

The findings of ICT usefulness reveal that teachers need to do their lesson plans basing on the core ideas mixed between traditional teaching methods and state-of-the-art approach. Currently, the relationship between teachers, students, and stakeholders are constructed with the connectedness of ICT implementation. Concerning teachers' aspect, ICT integration helps them easily carry out their teaching performance which is supported by the authentic resources, verbal or non-verbal denotations. Actually, some cross-cultural communications such as handshakes, diplomatic kiss exchange, or facial expressions are hard to demonstrate by teachers. Moreover, take phonetics and phonology for example, this subject is very challenging for teachers to feel satisfied, and for students to visualize and mimic the correct sounds. ICT use, therefore, could be the best solution to address the difficult circumstances. Teachers simultaneously have chances to improve their knowledge as well as experiences thanks to ICT. They could exchange teaching resources, effective teaching tactics, or even classroom management (Liu et al., 2017; Shreurs, Dumbraveanu, 2014; Shinghavi, Basargeka, 2019). Currently, many edutainments keep introducing to assist English teachers, reduce teachers' workload, and promote learner autonomy. With the development and innovation of artificial intelligence (AI), teachers can instruct their students to self-study with the reduction time of face-to-face class. In order to implement effectively ICT use in ELT, teachers also exploit ICT resources, that is, teachers need to update themselves with authentic materials, learn how to deal with unexpected technological errors, and how to control their students during the teaching process (Soto et al., 2011; Pham et al., 2019; Lin et al., 2014). Regarding students' role in ICT use, they have to be trained how to learn as a blended learning approach, so they can take advantage of using ICT integration for promoting their autonomous language learning (Alkhawaldeh, Menchaca, 2014; Ungar, Baruch, 2016).

The results regarding teachers' experiences of ICT use present that they acknowledge the benefits of hybrid learning and teaching modes, i.e. students should acquire English with face-to-face classes and the support of ICT during learning process. Teaching English in Vietnam has recently utilized some basic ICT uses (Hoang, 2010b; Pham et al., 2018). Nowadays, global integration, especially in the age of Industry 4.0 focusing on AI (Schwab, 2016), encourages the international educational exchanges using English as an effective, communicative medium. This movement requires ELT educators to innovate the pedagogical approaches (Schreurs, Dumbraveanu, 2014). Teaching process and testing assessment are two vital components in educational context, especially in ELT. With the intervention of ICT use, the effectiveness of its integration has contributed to the success of EFL students (Ahmadi, 2018; Sabiri, 2020; Silviyanti, Yusuf, 2015). As such, the majority of the participants claimed during the semi-structured interviews that the contribution of ICT integration in ELT is very necessary. Recognizing the essential impact of ICT use in ELT, recent curriculum has been reformed to include the role of ICT as part of English teaching program (Ghaviferk et al., 2014; Liu et al., 2017; Ali, 2018). The debates have risen whether AI robot teachers should be replaced human instructors in terms of teaching English.

Overviewing the findings, external factors such as the access to equipment or support for ICT use have got some unfavourable conditions. Although ICT infrastructure is, to some extent, well-equipped, some elements, for example, educational software for teaching English, technical helpdesk, or teacher training programs for using ICT in ELT have not given adequate attention. In fact, basic ICT manipulation such as using some software applications for lesson plans is not considered as barriers for most of teachers. Monitoring ICT for teaching English requires many skilled and on-the-job training tactics which have been discussed in many studies so far (e.g. Alkhawaldeh, Menchaca, 2014; Lin et al., 2014; Singhavi, Basargekar, 2019). External factors might easily put under control such as Internet connection, technological problems or computers crash but an effective and tailored software applications for ELT could be the biggest obstacles when implementing the blended learning and teaching English. Besides, the results indicate there is a mismatch between school administrators and teachers' expectations in regard with ICT policies for ELT. On the one hand, educational policies promote teachers to incorporate ICT in order to draw students' attention to help them get the best English learning outcomes. On the other hand, necessary activities to enable teachers to exploit the best fruits of ICT use for ELT have not been

specified (Ertmer, Ottenbreit-Leftwich, 2013; Pham et al., 2019; Singhavi, Basargeka, 2019). In practice, school administrators take charge of investing in ICT infrastructure and software applications, arranging short courses to introduce the system and how to use it for the purpose of teaching English. Expert supervision and supportive schemes are not given attention. ELT software needs to be tailored and fine-tuned to meet the requirement of different groups of students, which is often neglected. As a result, the utilization of ICT for ELT often leads to the failure.

The synchronized analysis in the semi-structured interviews also confirms the roles of internal and external factors that involve 6 aspects, namely teacher, profession, student, peer, technician, and administrator. These factors reveal that ICT use is favored and supported at Vietnamese tertiary level, the solution is expected to find out how to combine them to make a united effort to take advantage of ICT integration for the purpose of successful English teaching practice.

For the convenience of ICT use, teachers do not have many difficulties in utilizing the ICT facilities but they have problems in managing how to use ICT in ELT. The findings relating to equipment show that ICT infrastructure is well-equipped to serve the educational purposes, but not specify ELT. That is, ICT equipment is supplied for all subjects and majors that universities are in charge of training (Merillo, Domingo, 2019; Pham, 2019). Thus, there should be an exclusive ICT infrastructure such as dedicated software and network to meet the requirement for ELT. As the findings concerning the support for ICT use, lack of coaching and technological assistance has been accounted for the fact that although teachers prefer face-to-face teaching blended with online mode to conventional teaching method, teachers of English have received a little attention from the favor of educational policies (Hoang, 2010b; Thu, 2017; Pham, 2018). The results reveal the current situation that teachers of English seemingly have to get to know the ICT devices and its software by themselves. Besides, dedicated software for teaching English is not efficient and customized to meet the teachers' expectations. When teachers seeking for help from technological helpdesks in case of problem occurrence are not effective, this situation can be found similar in other studies (e.g. Avisteva, 2019; Liu et al., 2017; Almalki, 2020).

## 5. Conclusion
The aforementioned information supports the conclusion that teachers are willing and get ready to implement ICT into ELT, which shares the similarities in the concluded remarks in the previous studies (e.g. Ahmadi, 2018; Budiman et al., 2018; Avisteva, 2010; Abbasova, Mammadova, 2019). All participants claim that they have already integrated ICT infrastructure into ELT. Most of them show their confidence and feel competent to apply ICT use for the intention of delivering their lessons. The respondents reckon that they recognize the benefits of using ICT in ELT so they themselves choose to implement it for the sake of students' achievement in English acquisition. Teachers also acknowledge the usefulness of ICT integration because they feel highly demanding and worthy when utilizing ICT for teaching English (Silviyanti, Yusuf, 2015; Malagon, Perez, 2017; Liu et al., 2017). As far as the demanding aspect concerned, teachers need to get used to the blended learning. That is, they should provide learning opportunities through a combination of several different forms of learning especially that of technology-based resources and conventional teachers, or book-based learning (Richards, Schmidt, 2014). As a result, teachers devote more time to prepare carefully for their lesson, they have to try their best to select a variety of the learning materials to satisfy students' expectations. Teachers need to self-study many technological applications to make their lessons more interesting. For example, their lectures are not only based on a simple Powerpoint-assisted application, but teachers also have to embed real-time movie clips from a website and their lectures should run on the Internet platforms.

### Limitation of the study
Due to the constraints of time and finance, this study is bound to the limited sample population – teachers of English, and one subject – English language teaching. In order to guarantee the overall assessment of ICT integration in the educational setting, it is advisable that more researches would be conducted on the implementation of ICT for other subjects to ensure the liability of the ICT influences, especially in the age of the fourth industry revolution (Schwab, 2016). In addition, the investigation of students' perception towards the practices of teachers' ICT integration when teaching English should be done using a quasi-experimental method to ensure the unbiased results.

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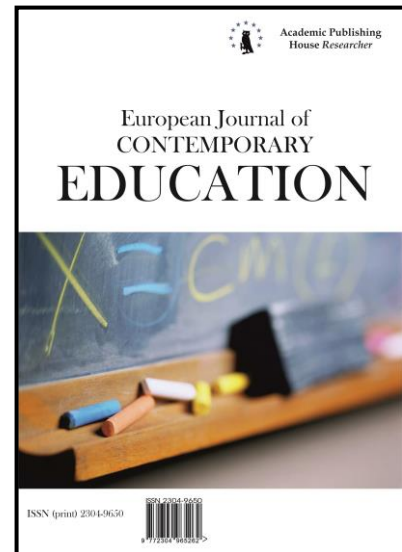
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# Organizational and Pedagogical Conditions for the Educational Process Implementation within the Inclusive Education in the Republic of Kazakhstan

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## Abstract

The present article aims to identify the major problems English teachers face in the process of working with special educational needs learners in the context of inclusive education in general education schools of the Republic of Kazakhstan. Despite the studies on special methods and pedagogy of inclusive education carried out by the educators, there are still no inclusive education achievement indicators enshrined in law.

The study uses the following general scientific methods: analysis of the current and prior normative legal acts regulating teachers' activities in the field of inclusive education, analysis of scientific and methodological literature on special, general, and inclusive education, synthesis of definitions of inclusive education concepts as well as a survey of English teachers.

The conducted survey demonstrates a range of material, technical, pedagogical, and specific subject-related problems the teachers face in the context of inclusive education. Such problems are determined by the specifics and distinctive characteristics of teaching the English language in inclusive education conditions, as well as the preceding absence of courses on the methods of teaching the English language in inclusive education in the programs of higher educational establishments.

One of the main problems identified by the study was insufficient level of teacher training courses to prepare for teaching within the inclusive education, as well as the lack of appropriate methods on teaching English in an inclusive classroom. Thereunder, current article describes some practical ways of addressing problems defined.

**Keywords**: individual differences, individual learning, inclusive education, language teaching, learning environment, special methods, special educational needs, talented and gifted learners.

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## 1. Introduction

The country's leadership has repeatedly urged the necessity to provide students in the Republic of Kazakhstan with access to quality education. In particular, the President of Kazakhstan Kassym-Jomart Tokayev in his Address to the Nation of September 1, 2020, states that children should receive quality education, regardless of their residential place and language of instruction (Address to the Nation by the President of Kazakhstan, 2020). The inclusive education, which has been one of the most important directions in the development of education and educational reforms of the Republic of Kazakhstan since 2008, is aimed to solve the problem of an access to quality education for all students.

In international practice, the term "inclusion" was first introduced at the UNESCO conference in 1994, which was held in the city of Salamanca. The conference resulted in the adoption of "The Salamanca Statement", which stated that "people with special educational needs should have access to learning in regular schools, which, in turn, must provide the conditions necessary for them based on pedagogical methods primarily oriented on children with the goal of meeting their needs" (UNESCO, Ministry of Education..., 1994).

It was only in 2018 that inclusive education was enshrined in the Law "On education" of the Republic of Kazakhstan (Law of the Republic of Kazakhstan, 2018). In particular, this law states that "the core task of inclusive education is to provide all learners with an equal access to education, irrespective of their special educational needs and individual capabilities" (Law of the Republic of Kazakhstan, 2007).

The State Program for the Development of Education and Science of the Republic of Kazakhstan for 2016–2019, approved by the Government Decree (Decree of the Government of the Republic of Kazakhstan, 2018), defined the categories of students for whom the inclusive education needed to be implemented. This Program is the organizational basis for implementing the Public Policy of the Republic of Kazakhstan in the field of education. Programs for the Development of Education and Science of the Republic of Kazakhstan are a package of policies in the education system.

Thus, the current State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020–2025 avoiding duplicating previously defined categories of learners in need of inclusive education, notes only percentage of educational institutions having created conditions for inclusive education, as well as the activities aimed at developing inclusive education practice (Decree of the Government of the Republic of Kazakhstan, 2019).

Despite the clear tasks set towards the inclusive education development in Kazakhstan, there is still a number of problems impeding its successful implementation. When implementing the principles of participation, development of abilities and preservation of identity in practice, there arise difficulties due to a lack of a common understanding what the inclusive education is.

In addition, the main obstacle in ensuring access to quality education for students with special educational needs may be, first of all, in identifying persons having special educational needs and how to meet these needs. Hence, it is also important to identify locally the main factors that can influence an access to quality education for all students, regardless of their educational needs.

To define students' qualitative characteristic being needed of implementing inclusive education principles, it is primarily necessary to determine what inclusive education is in essence and what way it differs from traditional segregated education on the one hand, and from special education on the other.

Several scientists, e.g. D.Z. Akhmetova (Akhmetova, 2013), define inclusive education as joint learning (upbringing) including the organization of joint educational lessons, leisure activities, and different types of additional education for learners with and without disabilities, with which R.N. Zhavoronkov disagrees (Zhavoronkov, 2011). Still, the need to meet special educational needs remains out of focus, which, according to the Salamanca Statement, is an important component of inclusive education.

F. Bryer and W. Beamish (Bryer, Beamish, 2019) define inclusive education as a multifaceted practice which encourages diversity and differences caused by family conditions, social class, sex, language, social and economic past, cultural origin, or capabilities in its system of values and beliefs and is founded based on human rights and social justice.

The concept "special educational needs" has no universal definition yet. In the legislation of the Republic of Kazakhstan the concepts "disabled students" and "students with special educational needs" are synonymous. However, the concepts "disabilities" and "special educational needs" must

be distinguished, since the meanings of words in each concept demonstrate that the concept "special educational needs" is broader. In particular, I.V. Vozniak (Vozniak, 2017) believes that inclusive education should be implemented for all students needed in support.

E. Dimitrellou, J. Hurry, and D. Male (Dimitrellou et al., 2018) in their research use the concept "pupils with special educational needs and disabilities" (SEND). This definition is much broader since it expands the concept of special educational needs to an indefinite range of persons, not exclusively limited to students with disabilities.

In addition, we disapprove (Zhetpisbayeva, Shalbayeva, 2019) the fact that talented and gifted learners are excluded from the list of people with special educational needs at the legislative level. We are more inclined towards the position of individual researchers. For instance, A.I. Savenkov (Savenkov, 2018) and M.M. Chris (Smith, 2006) who argue that both children with mental retardation and gifted and talented children, children with musculoskeletal system disorders and children fond of sports and having higher sports performance than most students, repatriated children and children living in settlements with no schools have special educational needs.

Exclusion of gifted children from the category of learners with special educational needs can be explained by the fact that while the problem of teaching children with disabilities has been sufficiently studied, the issues of identifying and teaching gifted children remain underresearched. V.N. Bogoiavlenskaia (Baiborodova et al., 2018) indicates that a universal scientifically grounded concept of giftedness is still lacking.

D. Mitchell (Mitchell, 2011) identifies various factors as the reasons for special educational needs in children, namely sensory, physical, intellectual, and emotional factors. L.T. Hilt (Hilt, 2017) also believes that children with language difficulties (in the conditions of Kazakhstan – immigrants and repatriates) have special educational needs as well and can be excluded from the educational process due to their distinctive characteristics which later causes difficulties in achieving progress following school curriculum. Therefore, special educational needs are not limited to the needs of disabled children. In addition, it becomes necessary to adapt the existing school curriculum to the special educational needs of students for achieving the necessary minimum educational content.

We believe that all the above-mentioned categories of children require inclusive education that would provide them with equal access to education regardless of their specific characteristics, allow them to preserve their individuality and develop their capabilities. The inclusion of only children with disabilities in inclusive education cannot be limited. Not only scientists from Kazakhstan, as well as the CIS countries have difficulties in defining which students should get inclusive education but, for example, scientists from Sweden as well (Magnússon, 2020: 28).

Inclusion currently presents more than eliminating of the barrier in access to education and improving the participation of learners with special educational needs in the educational process (Traxler, 2016) and, according to E.A. Ekzhanova and E.V. Reznik (Ekzhanova, Reznikova, 2008), calls for changes in the general education environment and providing support services accounting for the psychophysical capabilities of a child with special educational needs.

Several researchers substitute the concept of inclusive education with integrated education, which is fundamentally wrong (Sigal, 2016). For instance, Akhmetova (Akhmetova, 2013) defines inclusive education and integrated education as synonymous concepts without demarcating them. Unlike inclusive education, integrated education involves the inclusion of a child with special educational needs in a general education environment with no significant alterations being made to it: long-term and middle-term planning is not changed or slightly adjusted, the classroom (or the school) is not always equipped in accordance with the individual needs of children. Although both types of education present the optimal ways of teaching children with special educational needs in general education schools (Zhetpisbayeva, Asylbek, 2016), using these concepts as synonymous is prevented by the differences in approaches to each of them.

M. Ainscow, R. Slee, and M. Best (Ainscow et al., 2019) argue that inclusive education as a philosophical movement calls for changes in values and way of thinking in leaders of various levels and specialists who present an integral part of inclusive education to create an understanding that will form the conditions necessary for inclusion by changing the educational environment of schools and classrooms. In addition, the empirical research studied by M. Pozas, V. Letzel, and Ch. Schneider (Pozas et al., 2020: 224) shows high efficiency of a differentiated approach, which also does not align with the Salamanca Statement Principles.

The study of literature references has allowed to determine that when defining the concept "inclusive class" we are talking about creating the learning environment in the classroom, thereby meeting special educational needs of all students (Opitz et al., 2020; Lundqvist, Larsdotter Bodin, 2018). V.A. Yasvin interprets the "learning environment" as the child's interaction with everyone and everything surrounding him. This also includes the assistance of an educational psychologist or special-needs expert, which are needed by a part of students with special educational needs. Moreover, according to a number of scientists, the creation of a barrier-free learning environment by special needs student himself is important as well (Hewett et al., 2020: 759; Bloom et al., 2020b: 171). This kind of all students' inclusion contributes to a high efficiency of inclusive education implementation (De Leeuw et al., 2020: 1194).

L. Palla (Palla, 2019), A. Bloom, S. Critten, H. Johnson, C. Wood (Bloom et al., 2020a), L.M. Olssona, S. Bengtssona, M. Granlunda, K. Huusb, E. Elgmark Andersson and I. Kåreholt (Olssona et al., 2020) in addition to teachers, experts and children themselves, consider it necessary to include parents in the inclusive education process. The researchers may be included as well (Korsgaard et al., 2020: 509). While Billington T. (Billington, 2017) thinks neuroscientists may also be included in the inclusive learning, but he notes that in this case, there is a risk of overestimating what is normal and what is not. In other words, the learning environment includes school community, involving unlimited number of specialists.

Therefore, we can define inclusive education as providing special needs students with an access to general education schools by creating material, technical and pedagogical conditions for them, based on special teaching methods which targeted at meeting the educational needs of such students, as well as ensuring training based on adapted to special educational needs programs by using an individual approach and a sometime segregated learning when co-teaching fails meeting individual special educational needs.

Based on what we stated above, we can conclude that scientists have not yet reached a universal understanding of the essence of inclusive education. In turn, the lack of a clearly formulated conceptual apparatus in this subject area entails difficulties in implementing inclusive education (Alzahrani, 2020: 71). There is also a risk of inclusive education being implemented in a fashion not following the requirements posed by legislators to quality accessible education. The indicated difficulties were identified in the process of surveying teachers from general education schools the results of which are presented below.

As we have noted earlier, providing all students with quality education, regardless of their educational needs is one of the strategic concerns identified by the country's government. Taking into account the fact that the inclusive education was legislatively enacted in the education system of the Republic of Kazakhstan fairly recently, there is a number of difficulties school community faces in its implementation process.

In particular, these problems are characterized by the insufficient qualification of teachers working in the conditions of inclusion which leads to the rejection and misunderstanding of inclusive education; the connection between an educational institution and parents being broken leaving parents as the participants of the educational process outside of inclusive education; the lack of consideration for age-related and physiological characteristics of individual students which call for a special approach; teachers lacking the knowledge of special methods of teaching the subject to children with special educational needs; shortage or even lack of scientific and methodological literature meeting the requirements of modern trends of inclusive education and examining various aspects of teaching children in inclusive classrooms (Abildina et al., 2018).

The State Program for the Development of Education and Science for 2020–2025 of the Republic of Kazakhstan states that only 60 % of all domestic schools have created conditions for the implementation of inclusive education. However, the document does not specify what is meant by "conditions for inclusive education". We can assume that they are understood as material and technical conditions, but not psychological and pedagogical. Most likely, the definition "conditions for inclusive education" was given in previous State Program for the Development of Education and Science for 2016–2019.

According to the above-mentioned State Program for the Development of Education and Science for 2020–2025, in December 2020, it was planned to develop competence requirements for teachers working within the inclusive education (special education teachers, subject teachers,

assistant teachers, etc.) (Decree of the Government of the Republic of Kazakhstan, 2019). Thus, it is currently difficult to talk about any indicators that define an inclusive class teacher.

## 2. Materials and methods
### Research design
Since the development of inclusive education in Kazakhstan, there are currently no pedagogical university graduates being proficient in teaching subjects on methodology and psychology within the inclusive education. Therefore, refresher courses are the only available way to provide schools with skilled personnel who know teaching methods in an inclusive classroom.

The goal of our study was to identify teacher satisfaction with refresher courses on teaching within the inclusive education. It should be noted that, as indicated by M. Nind and S. Lewthwaite (Nind, Lewthwaite, 2018), the methods for studying inclusive pedagogics are developed poorly at present.

We have not found any questionnaires designed to assess the understanding of the essence and principles of inclusive education, i.e. the questionnaire was developed taking into account the definitions used in laws and regulations as well as studies, a review of which was presented earlier in this article. Moreover, the analysis of survey results accounted for the experience of M. Grosche and T. Lüke (Lüke, Grosche, 2017) indicating that survey data may contain socially desirable answers distorting the overall results.

Aside from general scientific methods of analysis of scientific and methodological literature, scientific articles devoted to the studies on the problem of inclusive education in the Republic of Kazakhstan, the Russian Federation, and other specific countries and the analysis of the published normative legal legislative acts and by-laws aimed at regulating the implementation of inclusive education, we deployed the method of synthesis to identify the best conditions allowing to meet students' special educational needs using various methods of traditional and special pedagogics.

### Research participants
However, along with the analysis of existing scientific and methodological literature, the study calls for a survey of teachers working in inclusive or special correctional classrooms to identify the problems arising in the process of implementing inclusive education, as well as for a survey of teachers not working in such classrooms but have or have not completed refresher courses on inclusive education to identify the level of their understanding of the problems of working in the conditions of inclusive education.

The survey was conducted during the 2019–2020 academic year. The study sampling principle was as follows: the survey required the teachers' participation from urban and rural schools. The survey should have been attended by teachers working in inclusive classrooms and those working in non-inclusive general education classrooms and special correctional classrooms. Overall, the study involved 70 teachers from the city of Karaganda and the village of Ushtobe, 68 of whom were female and 2 were male.

We have chosen English teachers in general education schools for our survey primarily due to the fact that the school is one of the largest and deeply advanced educational organizations in the implementation of inclusive education. Teachers were selected in one subject, as it is the field study that allows clearly seeing the process of implementing inclusive education, as well as the joint work of all participants in the educational process, who directly create the learning environment of an inclusive class.

### Research progress
Thus, we developed and conducted a survey for English teachers from ten general education schools of the city of Karaganda, including the Ushtobe village school. One of Karaganda schools was experimental, since it has implemented the inclusive education on a trial basis the year before a similar process began in other schools in the country. We included the above-mentioned school in the survey due to its special status as an experimental school.

The survey composed questions on the effectiveness of courses on inclusive education and the implementation of the knowledge acquired in such courses, the knowledge of the foundations and provisions of inclusive education, and identification of methodological problems and problems

with material and technical equipment of English language classrooms for the implementation of inclusive education for an individual English teacher and the school as a whole.

**Statistical analysis**

The descriptive statistics methods were used for empiric evidence, including frequency distribution and the Chi-square test to establish statistical relationship between categorical data. This method allows to assess the significance of differences between the number of observations actually identified as a result of the study falling into each category, as well as the theoretical number that can be expected in groups under study when confirming the research hypothesis.

The null hypothesis states that two variables are considered mutually independent if the observed frequencies in the cells coincide with the expected frequencies. If the observed and expected frequencies are statistically different, then the null hypothesis is rejected and an alternative hypothesis is accepted, which holds that the two variables are interdependent.

It means that this method provides an opportunity to assess the statistical significance of differences between two or more relative indices, thereby proving or falsifying the original hypothesis. The Chi-square value test and p-levels are shown in Tables 1 and 2. Values calculated via IBM SPSS 27.0.0.0 statistical software.

The results obtained were analysed and interpreted from teachers' satisfaction or dissatisfaction with the knowledge gained during refresher courses, as well as knowledge and understanding of the inclusive education theoretical framework and teaching methods within the inclusive education.

**3. Results**

Table 1 shows the Chi-square test results, which indicate teachers' knowledge of working within the inclusive education, i.e. working in a general education non-inclusive classroom at a level Chi-square = 6,144 and p = 0,013; a general education inclusive classroom at a level Chi-square = 12,854 and p < 0,001; and a general education special classroom at a level Chi-square = 0,584 and p = 0,445 accordingly.

**Table 1**. Chi-square value test for distributing the surveyed teachers working in general education non-inclusive, inclusive and special classrooms, who either passed or did not take any courses on inclusive education

| Contingency table | | | | | |
|---|---|---|---|---|---|
| | | | Working in a general education non-inclusive classroom | | |
| | | | yes | no | total |
| Taking cross-curriculum courses on inclusive education | yes | Frequency | 9 | 2 | 11 |
| | | % | 81,8 % | 18,2 % | 100,0 % |
| | no | Frequency | 58 | 1 | 59 |
| | | % | 98,3 % | 1,7 % | 100,0 % |
| Total | | Frequency | 67 | 3 | 70 |
| | | % | 95,7 % | 4,3 % | 100,0 % |

Chi-square = 6,144; p = 0,013

| Contingency table | | | | | |
|---|---|---|---|---|---|
| | | | Working in a general education inclusive classroom | | |
| | | | yes | no | total |
| Taking cross-curriculum courses on inclusive education | yes | Frequency | 6 | 5 | 11 |
| | | % | 54,5 % | 45,5 % | 100,0 % |
| | no | Frequency | 6 | 53 | 59 |
| | | % | 10,2 % | 89,8 % | 100,0 % |
| Total | | Frequency | 12 | 58 | 70 |
| | | % | 17,1 % | 82,9 % | 100,0 % |

Chi-square = 12,854; p < 0,001

| Contingency table | | | | | |
|---|---|---|---|---|---|
| | | | Working in a general education special classroom | | |
| | | | yes | no | total |
| Taking cross-curriculum courses on inclusive education | yes | Frequency | 0 | 11 | 11 |
| | | % | 0,0 % | 100,0 % | 100,0 % |
| | no | Frequency | 3 | 56 | 59 |
| | | % | 5,1 % | 94,9 % | 100,0 % |
| Total | | Frequency | 3 | 67 | 70 |
| | | % | 4,3 % | 95,7 % | 100,0 % |

Chi-square = 0,584; p = 0,445

As can be seen from the given Table 1, 67 teachers (95,7 %) worked in a general education non-inclusive classroom, where 9 of them (81,8 %) completed cross-curriculum courses on inclusive education, compared to 58 (98,3 %), who did not. 12 teachers (17,1 %) worked in a general education inclusive classroom, where 6 teachers (54,5 %) completed cross-curriculum courses on inclusive education, whereas 6 of them (10,2 %) did not. As for the teachers working in a general education special classroom, then their number comes up to 3 (4,3 %), where none of teachers (0,0 %) passed any cross-curriculum courses on inclusive education.

The above-mentioned demonstrates that there is a theoretical possibility to provide all students with high-quality education regardless of their educational needs. However, as our study has demonstrated, a range of difficulties arise in the practical implementation of inclusive education principles at the English language lessons due to incorrect understanding of said principles.
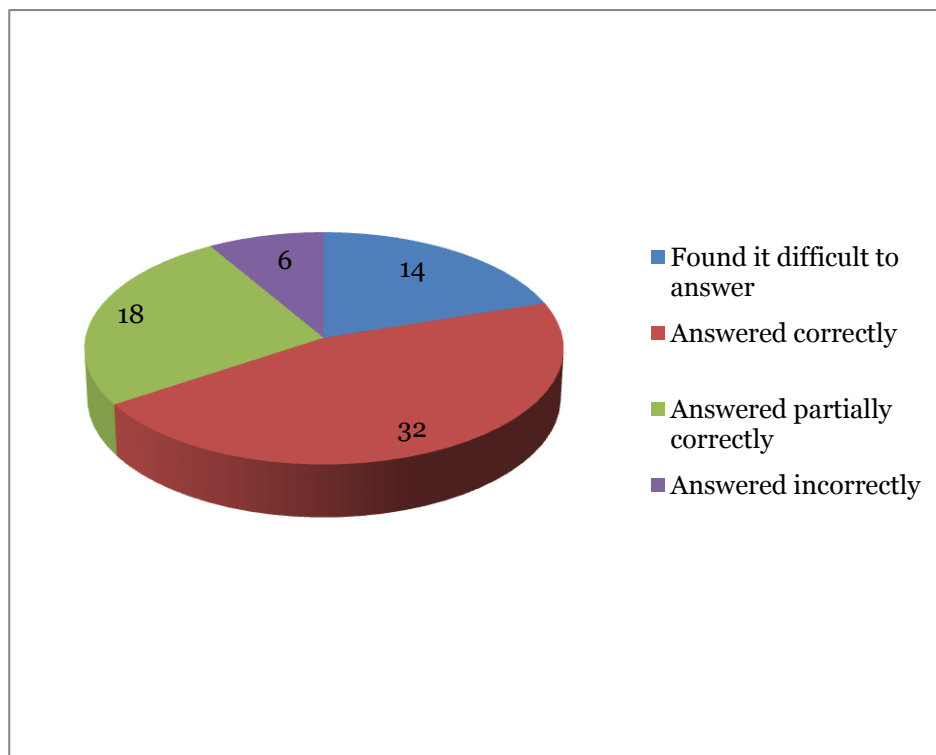


**Fig. 1.** The number of teachers who answered the question on what inclusive education is correctly or incorrectly

The results of the conducted study demonstrate that less than half of teachers currently working in inclusive and special correctional classrooms (6 out of 15) have completed courses on inclusive education but do not have a general idea of how to work on an inclusive education program and what special needs children in inclusive classrooms may have. In the meantime, the nine teachers who have completed such courses do not work in inclusive or special correctional classrooms. It is hard to determine what the process of selecting teachers to refer to inclusive education courses is determined by considering that 45,5 % of such teachers do not receive teaching load in inclusive classrooms.

Out of all teachers surveyed, 14 respondents found it difficult to answer the question of what inclusive education is. A complete definition of inclusive education was provided by 32 teachers out of 70. Six of these teachers were working in inclusive classrooms. A partially correct definition was provided by 18 teachers, two of whom were teaching English in inclusive classrooms. Six respondents provided inaccurate definitions of inclusive education. None of them were working in inclusive classrooms, yet two of them claimed they were familiar with the experience of organizing inclusive education.

It must be noted that 31 of all correct answers were quite apparently copied from internet sources, for instance, inclusive education was defined as education accessible for all, which involves children being included in a universal educational environment regardless of their special needs. However, such an understanding of inclusive education is one-sided and corresponds to integrated education more.

Partially correct answers were provided by teachers themselves, which demonstrates that they attempt to form their own understanding of inclusive education and does not contradict the Salamanca Statement, which, according to Magnússon G. (Magnússon, 2019: 680), allows various interpretations of the concept "inclusive education". In particular, as previously noted, it can be defined as including all children in the general education system or meeting the special educational needs of such students.

The following answers were interpreted by us as incorrect: "Inclusive education is separate work with children in inclusive classrooms", "Inclusive education is learning that takes place in the conditions of deviant behavior of a child if a healthy child has certain special characteristics", "Inclusive education is the education of children with disabilities", "Inclusive education is teaching children who have problems with health or deviant behavior in a separate classroom". Since all teachers including those who have completed special courses do not have a complete understanding of the principles of inclusive education and inclusive education itself, such a small number of respondents who were satisfied with the quality of knowledge provided in special courses is not surprising.

The next question concerned the categories of children covered by inclusive education. Teachers were asked to choose such multiple answer options as "children with health problems, deviant behavior, low social-economic and social-psychological status, children from families of migrants and refugees, repatriated children, and children living in settlements with no schools".

The correct answer to the indicated question included marking all answer options since all of them indicated the categories of children covered by inclusive education. However, none of the teachers answered the question correctly. Two teachers only excluded the category of children living in settlements with no schools from their answers. One more teacher also excluded children with low social and economic status from their answer in addition to the category mentioned earlier. Another teacher marked all answer options except for the categories of children living in settlements with no schools and children with deviant behavior.

The following categories of children were noted by teachers as the ones that present difficulty in joint learning: "children with specific intellectual characteristics", "inclusive", "socially neglected", "underdeveloped", "children with speech disorders", "children with deviant behavior", "children with intellectual disorders". Along with these categories, teachers also listed "children older than 14 years old", "students of 8th and 9th grades", "first-grade students", and "emotional children". The problem discovered in the course of the survey demonstrates not only that a part of teachers is not ready to work with children taking into account their age-related, psychophysical, and social characteristics but also that teachers are not aware of what categories of students actually present students with special educational needs. While teaching children with special

educational needs indeed requires special training, age-related characteristics of children are included in the courses of general psychology and pedagogics.

**Table 2.** Chi-square value test for being satisfied with knowledge obtained at refresher courses on inclusive education

| Contingency table | | | | | | |
|---|---|---|---|---|---|---|
| | | | Satisfaction with knowledge obtained at refresher courses on inclusive education | | | |
| | | | yes | no | found it difficult to answer | total |
| Taking cross-curriculum courses on inclusive education | yes | Frequency | 2 | 7 | 2 | 11 |
| | | % | 18,2 % | 63,6 % | 18,2 % | 100,0 % |
| | no | Frequency | 9 | 13 | 37 | 59 |
| | | % | 15,3 % | 22,0 % | 62,7 % | 100,0 % |
| Total | | Frequency | 11 | 20 | 39 | 70 |
| | | % | 15,7 % | 28,6 % | 55,7 % | 100,0 % |

Chi-square = 8,967; p = 0,011

However, the category of emotional children may refer to children with behavioral disorders. While work with physical disabilities children typically does not cause teachers any difficulties, according to E. Bešić, L. Paleczek, P. Rossmann, M. Krammer, B. Gasteiger-Klicpera (Bešić et al., 2020), the inclusion of children with behavioral disorders causes concern among teachers. The inclusion of emotional or behavioral disorders' children can also affect general physical and mental state as well as success of such learners (Metzner et al., 2020: 231).

Eight of the surveyed teachers were satisfied with the knowledge provided in refresher courses on inclusive education. All of them worked in non-inclusive general education classrooms. Only two of them have completed interdisciplinary refresher courses. Out of the 37 teachers unsatisfied with the quality of provided knowledge, seven have completed refresher courses on inclusive education and 9 were working in inclusive classrooms. Only two out of 25 teachers who found this question difficult to answer have completed refresher courses.
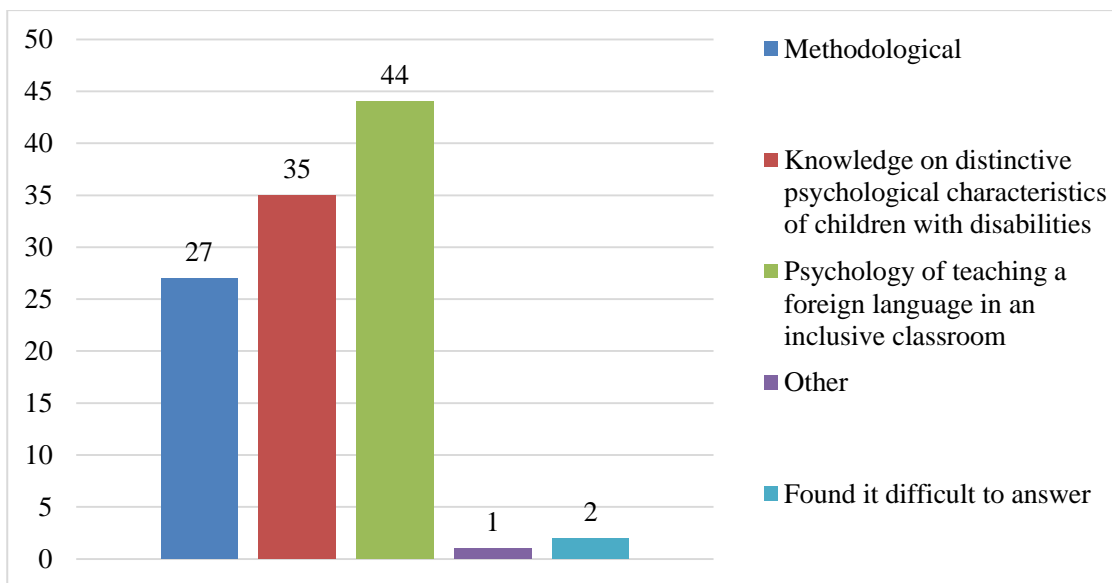


**Fig. 2.** Distribution of answers to the question "What knowledge necessary for teaching in an inclusive class do you lack?"

Therefore, only two out of 11 teachers who have completed refresher courses on inclusive education were satisfied with the quality of knowledge obtained in them. However, they were all unable to put the acquired knowledge into practice since none of them worked in inclusive or special correctional classrooms.

Nine of the survey respondents reported lacking methodological knowledge necessary for teaching in an inclusive classroom. Three of them were working in such classrooms. Four teachers did not possess enough methodological knowledge and knowledge of specific psychological characteristics of children in inclusive classrooms. Nine teachers reported not having enough knowledge of specific psychological characteristics of children in inclusive classrooms, one of them being an inclusive classroom teacher.

Eighteen respondents lacked the knowledge of the psychology of teaching English in inclusive classrooms with one of them working in such a classroom. Eight teachers out of the survey sample noted note having sufficient knowledge in all spheres mentioned in the question. One of them was working in an inclusive classroom. The knowledge of distinctive psychological characteristics of children and the psychology of teaching English in inclusive classrooms was reported to be insufficient by 14 teachers half of whom worked in inclusive and special correctional classrooms.

One respondent reported not having sufficient knowledge in the methodology of inclusive education and planning. Such an answer indicates that it is methodological knowledge the teacher lacks.

One more teacher working in an inclusive classroom noted not having sufficient methodological knowledge and collections of assignments for children in inclusive classrooms. Therefore, the provided answer concerns the lack of methodological knowledge on organizing English lessons in a way that would involve children with special educational needs in the educational process to the same degree as other students and allow them to complete the same assigned tasks at their own level or with the help of assisting tables and other materials.

Thus, the continuing education courses that are currently being conducted do not meet teachers' need in knowledge necessary for the organization of educational process in the conditions of inclusive education. Meanwhile, the regulatory documents of the Republic do not specify the requirements for teachers of inclusive schools.

Approximate requirements can be found in various scientific works on this topic. In particular, L.A. Shkutina, A.R. Rymhanova, N.V. Mirza, G.S. Ashimhanova, G.K. Alshynbekova, (Shkutina et al., 2017) indicate friendliness to children with special educational needs, knowledge of changes in inclusive education trends, knowledge of the individual characteristics of a child's psychophysical development; knowledge of special methods of teaching a subject in an inclusive learning environment, adaptation of a typical curriculum to special educational needs.

I.S. Horn, B. Garner, B.D. Kane, J. Brasel (Horn et al., 2016) and U.A. Satybaldiyeva (Satybaldiyeva, 2017) believe that such a teacher also has to be able to work in collaboration with other specialists (special education teachers, psychologists, speech therapists, etc.) providing psychological and pedagogical assistance to children with special educational needs and their parents. It should be noted that the list of specialists whose collaborative work has a positive impact on teachers' mutual professional training is individual for every child with special educational needs.

Nevertheless, such requirements are impossible to meet in the present conditions identified in our study without fundamental changes in the approach to the organization and implementation of inclusive education.

The surveyed teachers indicate the lack of methodological knowledge and the knowledge of specific characteristics of learners of inclusive classrooms. This presents a serious flaw that needs to be addressed since, as E.L. Indenbaum (Indenbaum, 2013) indicates, the organization of inclusive education requires supplementing standard teaching methods with the elements of special correctional education methods. Even though some authors like A.Iu. Shemanov and E.V. Samsonova (Shemanov, Samsonova, 2019), Jonathan Rix (Rix, 2020) and Roger Slee (Slee, 2019) argue that it contradicts the major politics of UNESCO (UNESCO, 2013) since it only generates more sophisticated forms of separate education in the framework of a general education institution.

It is difficult to determine whether an educational environment adapted to the individual needs of learners exists in schools. Forty-six respondents out of the whole sample believe that their

classroom is not equipped for inclusive education of children, three of them found it difficult to answer what specific equipment they need for the organization of inclusive education. Ten survey respondents reported their classroom being ready for teaching in the conditions of inclusive education yet only three of them left the question on what their classroom lacks unanswered. None of these respondents worked in inclusive or special correctional classrooms.

A significant range of problems in creating an inclusive educational environment is found at the school level as well. Twenty-five of all survey respondents indicated that schools lack modern material and technical equipment for the organization of inclusive education while 28 teachers noted the lack of modern program and methodological equipment. The lack of special education teachers and psychologists was indicated by 33 surveyed teachers. The insufficient improvement of the system of advanced training for teachers to work in inclusive education conditions was indicated by 30 respondents. Twenty-six more teachers reported that schools lack the development of programs for learners of general education schools and their parents to overcome negative attitudes towards inclusive education. Three respondents found it difficult to answer this question.

Of all surveyed teachers, only four noted being ready to work in inclusive classrooms since they had adequate training in psychology and possessed the necessary amount of pedagogical knowledge. All four of them worked in inclusive classrooms but none completed refresher courses in inclusive education. However, it should be noted that all of these respondents previously reported lacking methodological knowledge on teaching English in the conditions of inclusion. Therefore, the complete readiness reported by teachers should not be accepted as corresponding to reality.

However, according to Susanne Schwab, Ghaleb H. Alnahdi (Schwab, Alnahdi, 2020: 321), C. Breyer, K. Wilfling, C. Leitenbauer and B. Gasteiger-Klicpera (Breyer et al., 2020), M. Krischler, J.J.W. Powell and I.M. Pit-Ten Cate (Krischler et al., 2019) opinion, teachers' positive attitude towards inclusive education and belief in high self-efficiency lead to a wider use of inclusive teaching methods. This indicates that education teacher performance in a classroom with special needs students will be high if they are trained properly from methodological viewpoint.

Five of all survey respondents noted having adequate professional skills but not being psychologically ready for such work. Twenty-six teachers noted the opposite, i.e. being psychologically ready but lacking certain necessary professional skills. Four of those teachers have completed inclusive education courses and two were working in inclusive classrooms.

No teachers reported their school having methodological literature covering the principles of working with special needs children.

### 4. Conclusion

We reached the goal of our study and found that using statistical analysis tool, such as the Chi-square test, showed a range of problems currently existing in teaching the English language within the inclusive education. In particular, these problems include English teachers' insufficient knowledge of the general principles of teaching in an inclusive classroom; low coverage of teachers with cross-curriculum and subject-specific refresher courses on inclusive education, the knowledge obtained in such courses being insufficient; the lack of teachers' knowledge of the methods and psychology of teaching the English language in inclusive classrooms determined by a low coverage at refresher courses and the lack of special methodological literature; poor material and technical equipment of classrooms for children with special educational needs.

Based on the obtained survey results and the conducted analysis of scientific and methodological literature and publications, we can conclude that the access to quality education within the inclusive education calls for:

- developing the program of courses on teaching the English language in the conditions of inclusive education explaining the principles of designing and adjusting long-term, middle-term, and short-term plans accounting for the educational needs of all categories of students with special educational needs learning in each specific class;

- making adjustments to teacher's books for English language textbooks in accordance with the renewed education conditions providing recommendations on organizing the process of teaching students with special educational needs, indicating the characteristics of each category of such students, and citing various special and universal methods and techniques;

- tracking the results of teachers' learning in said refresher courses with mandatory methodological support from the authors of the course by visiting and analyzing the conducted

lessons, testing the obtained knowledge, and analyzing the achievements of both the students with special educational needs and normally developing students;

- developing methodic recommendations (a special method of teaching) on teaching the English language in the conditions of inclusive education accounting for the special educational needs of each child.

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# Formation of Group Creative Thinking When Working with Virtual Walls

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**Abstract**

The problem to be solved by the research is due to the need to prepare a graduate capable of creative thinking, working in a team, managing changes, projects, teams of people within the modern educational environment, and insufficient degree of development of the methodological base for training specialists of the future that meets these requirements.

The aim of the study is to theoretically substantiate and experimentally test effectiveness of using virtual walls for formation of group creative thinking, as an important skill that corresponds to conditions of uncertainty of the future.

The research methodology is the analysis and generalization of scientific works on the problem of determining the essence of group creative thinking, the virtual wall, clarifying requirements for training of highly qualified specialists of the future. Methods of group interactive learning (demonstration in the distant form of interaction, online discussion, defense of projects, and work on a virtual team wall) are used to enhance cognition, create favorable conditions for creativity when working in a team. The Trello service is a software tool for supporting online collaboration and group creative discovery. The pedagogical experiment is presented on the example of assessing changes in the levels of skills that constitute the essence of group creative thinking.

Research results. The work clarifies the essence of the concept "group creative thinking" and describes the directions of group work on a virtual wall, which is most effective when forming it. The authors formulated the conditions under which the group activity on a virtual wall contributes to formation of group creative thinking: awareness of the meaning and motives of activity; the need for self-expression, active participation in the discussion, etc. Specific materials are proposed to

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improve the quality of education by means of supporting students' group activities, focused on their creative development and preparation for future professional activities.

In the conclusion findings that confirm the inclusion of group activities on a virtual team wall in the training of specialists of the future contributes to formation of skills and abilities that make up the essence of group creative thinking are given.

**Keywords:** creativity, insight, group activity, team wall, team, online learning, interaction.

### 1. Introduction
### 1.1. The relevance of the problem
The relevance of the presented study is due to the following factors:

1. The ability for creative thinking, insight and discovery, as it was noted in the studies of the international program for the assessment of educational achievements (PISA project), is the basis for development of spheres of culture: science, technology, philosophy, art and other areas (Avdeenko et al., 2019). Socio-economic progress is directly dependent on the emergence of innovative ideas, on the creation of new knowledge and technologies.

2. Training of a creative specialist who can work on solving a problem in a team, is open to accepting a new theoretical fact and its immediate application in practice, uses modern digital means in his/her intellectual activity is an urgent direction of modernizing education.

3. The ability to work in a team, implementation of group research activities in the context of the spread of COVID-19, self-isolation of developers and introduction of the distant interaction mode has intensified development of digital technologies that support virtual communication and collaboration.

B. Sánchez-Barbero, J. M. Chamoso, S. Vicente, J. Rosales convincingly prove that the ability to creative, innovative thinking is more or less inherent in every person (Sánchez-Barbero et al., 2020). Including in training the practice of developing mobile applications (Soboleva, Perevozchikova, 2019), 3D models (Aljarrah, 2020), storytelling (Smyrnaiou et al., 2020), comics (Permata et al., 2020), musical accompaniment (Fritz et al., 2020), decorative type design (Dolgikh, Dolgikh, 2019), design competitions (Abrahamson et al., 2020). is proposed for supporting creativity and imagination. Researchers propose holistic methodological developments that detail the organization of group learning activities, teamwork and collaboration in the digital educational environment (Abdullah et al., 2021). At the same time, studies devoted to development of group creative thinking by means of modern information software tools are single (Plotnikov, Volkova, 2019). For the most part, they are devoted to the brainstorming technology implemented in the traditional classroom-lesson system (Parker et al., 2017).

However, the changed sanitary and epidemiological conditions determine for the in-demand specialist of the future the need for the experience of creative team problem solving in the distant mode and digital virtual space. The effectiveness of such activities depends on the quality of the following components: teamwork experience, digital tools for virtual collaborative search, formation of group creative thinking.

For developing creative thinking (of an individual and a group) within the digital educational space, obtaining collaboration skills, increasing information literacy and the quality of education, a relatively new and effective cloud services, in terms of functionality, is a virtual sticker board. An interactive cloud application, as noted by A. H. Abdullah et al., allows maximizing all didactic opportunities that digital technologies provide for training highly qualified specialists for group research work in the distant form and in the face of uncertainty of the future (Abdullah et al., 2021).

For such cloud services in foreign scientific and methodological literature various terms are used: "wall for collaboration", "virtual board", "canvas for collaboration", "sticker online board", etc. Further, for the sake of consistency of terminology, we will call this interactive cloud service a "virtual team wall".

Thus, there is a practical need of: changes in the organization of educational activities by the teacher, focused on development of group creative thinking in professionals of the future; active use of virtual cloud services in collaboration for integrating sustainable development goals into real projects, promoting them in science and industry.

### 1.2. Goals and objectives of the research

The purpose of the study is determined from the need to realize possibilities of virtual team walls when training highly qualified specialists and forming group creative thinking, as an important skill that meets the requirements and challenges of the future.

Research objectives:
– to clarify the essence of the concept "group creative thinking" in the context of the digitalization of society and the current sanitary and epidemiological situation;
– substantiate the potential of virtual team walls for formation of group creative thinking;
– to formulate principles, directions of support by the mentor of the research activities of students with the help of the virtual team wall;
– to introduce a system for work on the virtual team wall;
– to experimentally confirm effectiveness of work the virtual team wall for formation of skills and abilities that form the basis of group creative thinking.

### 2. Relevance
### 2.1. Literature review
### 2.1.1. Analysis of Russian scientific and pedagogical literature

The use of cloud services, virtual tools and technologies in education is a relevant direction in development of the modern educational (Soboleva et al., 2020). To confirm the objective need for formation of skills of group creative thinking in graduates of the digital school by means of interactive resources, the authors analyzed, firstly, fundamental works devoted to defining the essence of the concepts of "creative thinking", "group activity", "digital technology"; secondly, scientific researches aimed at identifying the didactic potential of online services, software and hardware for teaching and learning.

The ability for creative thinking, insight and discovery is the basis for development of all spheres of human culture: science, technology, philosophy, art, humanities and other areas (Avdeenko et al., 2019). Today, as never before, both social development and development of material and spiritual culture, development of production depend on the emergence of innovative ideas, on the creation of new knowledge and new technologies (Soboleva, Perevozchikova, 2019). The ability to think creatively is based on knowledge and experience and, therefore, can be the subject of purposeful formation (Dolgikh, Dolgikh, 2019). In the work of M.N. Dolgikh, N.N. Dolgikh, a detailed analysis of the currently available researches on the problem of concretizing the concept of "creative thinking" is carried out. When summarizing the authors substantiate that the habit of "creatively acting and thinking will help graduates achieve better results in transforming the surrounding reality", effectively and competently respond to the challenges of civilization.

According to M.V. Plotnikov, E.V. Volkov, group thinking is a psychological feature that arises in a team of people, within which conformism or a desire for social harmony leads to incorrect or irrational decision-making (Plotnikov, Volkova, 2019). S.M. Maltseva et al. highlight both positive and negative aspects of this phenomenon (Maltseva et al., 2019). The positive is that in a social group with one team view of things, it is easier to make a decision. The negative side of group thinking is that most often its formation occurs during formation of the personality, that is, during acquiring basic general education (compulsory).

Solving the problem of researching creative thinking involves identifying a set of individual characteristics of thinking, qualities of the mind, on which the ease of mastering new knowledge, the breadth of transfer, and the application of this knowledge in practice depend. As such basic personality traits, which form the basis of creative thinking, E.V. Kharunzheva et al. distinguish: the originality of judgments; the ability to receive answers that differ from the usual; "susceptibility" to the problem, its unusual solution; fluency of the thought; the ability to find new, unusual functions of the answer or part of it; the speed and smoothness of the appearance of unusual (Kharunzheva et al., 2020).The ability to think outside the box and generate interesting ideas helps not only in a career, but also in solving everyday issues (Bushmeleva et al., 2020). According to E.V. Soboleva et al., the use of digital technologies should support receiving feedback, analyzing results of activities (including group ones), work of all participants in the interaction (Soboleva et al., 2020). This requirement is introduced by the authors because the active use of

virtual interactive services (LearningApps, mind maps, online tests, and memory cards) is aimed at improving the quality of learning due to the emotional attractiveness of the tools themselves. At the same time, the strength of the assimilation of fundamental theoretical facts, gaining experience in solving socially significant problems and formation of basic personality traits fade into the background. Moreover, collaboration in the virtual environment makes it possible to develop soft skills that are most in demand in society: communication skills, self-management and effective thinking skills, experience in change management, etc. (Kharunzheva et al., 2020). M.V. Ivshin, S.A. Yurkov substantiate that in the process of team development of stocker boards, additional conditions for development of creativity, curiosity, and important professional competences are created (Ivshin, Yurkov, 2020). They also clarify that there are objective methodological difficulties, which are expressed in the need to implement capabilities of virtual resources for formation of these qualities and competences.

Thus, due to the fact that formation of group creative thinking of a highly qualified and competitive specialist is a priority of the modern educational (Pasport natsionalnoy...), there is an objective need to realize the didactic potential of interactive cloud services (including virtual boards for teamwork) for development of skills and abilities that determine the essence of the corresponding thought process.

### 2.1.2. Analysis of foreign studies

Analytical work in this part of the study was also carried out in two directions. Within the first direction the works devoted to the identification of the didactic potential of virtual walls were studied. Important conclusions in this regard were formulated by M. Hamada, M. Hassan. Researchers note that the use of interactive technologies to support independence and creativity of students is a trend in global educational practice (Hamada, Hassan, 2017). E.J. Kang highlights the tools of digital applications for organizing assessment of students' achievement using the example of virtual testing systems (Kang, 2020). In the course of the research, they manage to collect facts proving that communication supported by online resources contributes to an increase in cognitive activity, intensifies the educational process.

B.S. Palupi, S. Subiyantoro, R. Triyanto consider the functionality of virtual walls for organizing teaching using flip class technology in various learning formats (Palupi et al., 2020). They substantiate the fact that development of a system of tasks that will guide students along the path of cognition in the virtual space should be designed taking into account specifics of e-learning, principles of didactics and according to exact assessment criteria.

R. Salas-Rueda, J. Ramírez-Ortega, A. Eslava-Cervantes believe that resources of virtual team walls allow creating additional conditions for development of thinking (Salas-Rueda et al., 2021). Researchers argue that for students to gain experience of productive group participation when developing evaluating and improving ideas aimed at obtaining new knowledge and/or effective solutions, virtual team walls have a significant didactic potential. Within the second direction, when working with literature, studies devoted to the essence of the phenomena of "group thinking", "creative thinking" and the problems of forming the corresponding personality traits in modern society were analyzed. In particular, H. Kapoor, J.C. Kaufman, note that one of the challenges for the new educational space that determines activities of the person, individual organizations and entire states is the spread of COVID-19 (Kapoor, Kaufman, 2020). The changed circumstances contributed to the emergence of original ideas, the search for non-standard solutions for important socially significant problems (distant work, limited resources, isolation, etc.). B. Sánchez-Barbero, J.M. Chamoso, S. Vicente, J. Rosales argue that the process of learning to search for non-standard solutions should begin at school and should be built on the basis of interactive means of interaction (Sánchez-Barbero et al., 2020). Organization of appropriate cognitive activities supports development of cooperation skills, creativity, and independent reasoning (Rudyshyn et al., 2020). S.F. Permata, S. Nikmah, H. Kuswanto, R. Wardani propose to use media comics in mathematical education for development of creative thinking (Permata et al., 2020). A. Aljarrah complements their research, developing ideas for the use of innovative pedagogical technologies in teaching mathematics to form team creative thinking (Aljarrah, 2020). Group work in the lesson is necessary to maximize the effect of individual efforts of the participants to achieve the goal.

Innovative methodological developments are presented by the team of authors Z. Smyrnaiou, E. Georgakopoulou, S. Sotiriou. They contain materials for development of creativity, originality of

thinking through the use of digital means for writing stories (Smyrnaiou et al., 2020). Scientists prove through experiment that the use of graphics, animation, virtual services supports the study of theoretical material through interactive immersion into the problem. Interactive interaction develops imagination, the ability to empathize, and involvement. The design of the story contributes to formation of artistic and aesthetic skills.

In the course of the analysis of the literature it was revealed that the solution of many socio-economic problems is based on the ability of students to sympathize, feel empathy for the needs of others, as well as identify and assess these needs, identify options for development of the problem and put forward constructive ideas, offer innovative and at the same time functional actions. Development of appropriate personality traits can be the result of both individual and group efforts (Irwansyah, Hardiah, 2020). Therefore, studies aimed at identifying and developing means that contribute to development of group creative thinking are of particular interest in pedagogy and informatization of education.

So, to support the teacher's activities for development of group creative thinking in students, it is proposed to use mobile applications, cyber-physical systems, engineering prototypes, educational projects by means of innovative technologies. Cloud technology for creation of virtual team walls is reasonably noted as one of them.

It is the use of virtual team walls that is, firstly, a tool for searching and processing information, discovering a new idea, making a socially significant decision; secondly, an important condition for formation of future specialists' skills and abilities that form the basis of group creative thinking.

### 3. Materials and methods
### 3.1. Theoretical and empirical methods

The following methods were used in the study: theoretical analysis and generalization of scientific literature on formation of creative thinking of an individual and a group, using virtual walls in teaching, the potential of teamwork practice to prepare the professionals of the future. The system-activity approach is implemented when the mentor plans stages of group work, organization of information interaction with the virtual team wall, formulation of educational problems and search for a team solution, at the stage of discussion of the results and reflection.

Methods of group interactive learning (brainstorming, discussion, defense of projects, and work on a virtual team wall) are used to enhance cognition, create favorable conditions for creativity and insight. The demonstration method allows to study functionality of an interactive service online, to form a general idea of rules for working on a virtual team wall. The method of frontal laboratory work is used at the stage of obtaining the skills and abilities of information interaction with a virtual team wall when solving specific educational problems. The method of independent laboratory work supports organization of students' research activities.

Empirical methods (observation, analysis of the results of work on an educational problem using a virtual team wall) were used to obtain relevant information about formation of skills and abilities that form the basis of group creative thinking. These methods made it possible to obtain information about real qualitative changes in the students' knowledge, curiosity, imagination, visual self-expression, self-confidence, and focus on achieving the goal.

The Trello service is used as a software tool to support online collaboration and group creative discovery. The main didactic advantages of Trello: intuitive interface; almost unlimited free access; ease of use and possibility to integrate with other software environments for distant work. Trello is used by experiment participants to study the technology of a graphic editor on the example of Paint3D. At the stage of statistical processing, the $\chi 2$ (chi-square) Pearson test was used.

### 3.2. The base of research

Assessment of effectiveness of students' educational and cognitive activities in development and use of virtual team walls for formation of skills that constitute the essence of group creative thinking, was carried out in the course of the pedagogical experiment.

As part of the experiment, a systematic educational work was organized in the graphic editor to study various objects, to obtain qualitatively new knowledge. Virtual team walls were used at all stages of cognitive activity (from goal-setting, choice of means and methods of action, implementation of the intended goal and set tasks, to the analysis and assessment of the obtained

result). The main goal of the experiment was to test the didactic potential of virtual team walls for development of group creative thinking, professional skills in the field of innovative e-learning technologies.

To use virtual team walls as tools for searching and processing information, discovering a new idea, making a socially significant decision, 66 seventh grade students studying at gymnasium №2 in Kirovo-Chepetsk, the Kirov region, were involved. The average age of the respondents was 14 (58 % of girls and 42 % of boys).

To ensure conditions for group homogeneity, when working online and organizing creative activities, one and the same teacher gave lessons to all students. Development of virtual team walls was carried out in the same classrooms, on the same hardware and software. To carry out control activities, the authors developed test tasks. All questions comply with the requirements of the current state federal educational standards.

### 3.3. Stages of research

The research was carried out in three stages.

At the preparatory stage of the experiment, a list of criteria for formation of group creative thinking was selected, which were subsequently assessed: ease, fluency, flexibility, originality, degree of development. Then the tasks corresponding to this set were developed, they were the basis for the entry test activity. The tasks were carried out in mini-groups of three people, which were formed according to the free will of the participants in the experiment. Based on the selected criteria, educational tasks for the technology of processing graphic images were formulated. All questions and tasks were developed by the authors in accordance with the requirements of state federal educational standards.

As a result of the control event, the participant of the experiment (exactly as a member of the group) could score from 0 to 14 points. As a result of the entrance control testing, almost the same initial level of preparedness of students-participants in the pedagogical experiment was revealed. We can consider them as a total sample of 66 people. Then the participants were divided into groups (33 in the experimental group and 33 in the control group) in order to ensure the presence in each group of the same skills and personality traits that form the basis of group creative thinking, their equal distribution. Characterizing the sample, we note that in the experimental group there were 58 % of girls and 42 % of boys.

The second stage was devoted to determination of principles, directions of support by the mentor of the research activities of students in solving the educational problem using the "virtual team wall". A methodological system for work on virtual team walls was developed, highlighting the skills and abilities that are significant for formation of group creative thinking.

The third stage of the research was connected with organization of students' educational and cognitive activities when studying theory and doing practical tasks on the topic "Computer graphics. Graphic editor". To ensure conditions for group homogeneity, one and the same teacher used the Paint3D environment when working with computer graphics throughout the experiment. The educator held an "introductory meeting" with all members of the experimental group to teach using Trello virtual wall tools and principles.

### 4. Results
### 4.1. Clarification of the essence of basic concepts

The following scientific position was taken as the basis: the basis of creative thinking is the free play of the mind, a "flash", and an insight, which turns into the creative discovery of an individual.

We will consider group thinking as a psychological feature that arises in a team and manifests itself in thoughts, words and actions of each participant. It takes time, team discussion and the mentor's competent methodological guidance for a new idea to be accepted by the group, used when solving a problem. Criteria for formation of group creative thinking are: ease of understanding the problem; fluency when highlighting all kinds of connections and manifestations; flexibility when abandoning the old and making a new decision; originality of the idea; degree of development (detailing the constituent parts of the object under study).

Group creative thinking is a socio-psychological phenomenon, which consists in the following: a properly motivated social group, with a certain organization of its work, which is capable of intellectual breakthroughs that cannot be provided by individual creative thinking.

Further, the essence of the concept of "group creative thinking" was concretized in the context of the system-activity approach, implemented by means of technology for processing graphic images and a virtual team board. In the presented study, the virtual team wall is the environment in which all members of the group "are" and interact.

Group creative thinking when working on a virtual team wall is used in the classroom to study the initial object of cognition (obtaining information, processing it, presenting it in a certain way for further study); experiences of the stage of team insight; reaching a new level of the creative activity; to assess the result obtained from the point of view of its use in qualitatively different conditions.

**4.2. The educational activity when developing and creating the content of virtual team walls**

The Trello software tool (https://trello.com/) was chosen to form skills and abilities that make up the essence of group creative thinking by means of interactive technologies in team activities. The tools of this service allow to create teams when training, teams for hobbies, in time management. Teams allow virtual walls and participants to be brought together in one digital educational space. The activities of the mentor when using virtual team walls in the study of graphic image processing technology include the following stages (didactic component):

1) the use of functionality of the virtual board to systematize fundamental theoretical information (the concept of computer graphics, purpose, classification), historical facts, recent discoveries;

2) presentation of a system of educational tasks and mini-projects for researches. Moreover, each team member has the opportunity to upload his/her solution, express opinion, add comment;

3) formulation of a series of questions/tasks for control;

4) tracking the progress of tasks (activity indicating the latest changes, date of execution);

5) assessing activities of each participant and the group (using the calendar, user fields, lists and tags, search and voting functions);

6) visualization of results of work and preparation for the oral defense of projects (the calendar allows to structure the sequence of actions; each stage of the work is placed in the description of the card; a wall element can "fade" if the information becomes irrelevant; you can easily switch between different cloud applications; when discussing, everyone gets quick access to all wall materials).

One of the research projects that was implemented using virtual team walls in the course of studying a graphic editor was the project "Smart Home". Statement of the socio-economic problem. In the modern world, any person strives to make his/her home more functional, comfortable and safe. Indeed, returning home after a hard day at work, anyone wants to feel protected and relax. Imagine that you come home, sit on the sofa to relax and watch your favorite movie or program, but suddenly you notice that the TV remote control is not nearby. However, you are already very comfortable on the sofa, covered with a warm blanket. You don't want to get up and look for the remote control at all.

Or a situation: you turned on your favorite movie and suddenly you had to go into another room. You don't want to miss the most interesting or to stop the film at the most interesting place. Can sound follow you? Is this a dream or a reality?

If you assess a house from the side of security? You sleep at night in your bedroom, and a pipe bursts in the bathroom. You sleep soundly, you hear nothing. The water runs down the ceiling of the neighbors, who begin to knock on the doors of the apartment. Water is everywhere. Could this be avoided? Of course, all this is no longer a dream, but a reality. Such a system is embodied in the work of a smart home. You can explore other possibilities of a smart home by following the link: https://domoticzfaq.ru/principle-work-smart-home/

The first task for the group: to select other information materials on the project topic; identify the most important and useful functions for each team member.

Study of the theory of graphic processing technology. It is assumed that in the 5th grade, students can work with computer graphics in Paint, have a general idea of its purpose. Theoretical facts for this level of study: determination of graphic image processing technology, graphic editor, classification of computer graphics (by area of use, by way of presentation in computer memory), basic functionality of the technology. Further, using Paint 3D as an example, the functionality was

refined for specific tools and interface. The organization of the relevant activities of the mini-groups is supported by a specially developed instruction.

The second task for the group: to study the interface of the software environment. Step 1. In the "Start" menu or using the search, start the Paint 3D program. Display the results of the group work on the virtual wall.

Step 2. Study the basic functionality of the program. Add a description card on the virtual team wall. For example, in the course of team work, the mini-group has a list of cards:

Card №1. In the middle of the program screen there is a working area where all objects are created. The working area can have a two-dimensional and three-dimensional representation. The change of these two modes is carried out with the help of the "3D view" button in the upper menu of the program. Next to the 3D view button there is a slider for adjusting the scale.

Card №2. The menu which is at the top of the program window has the following sections (from left to right in order): brushes, 2D and 3D shapes, stickers, text, etc.

1. Brushes: after opening this menu, you can choose a tool for drawing, line thickness, transparency, color and texture. In creative search, the brush and its settings were studied, the differences and features of the work were described (photos of the screen were taken and saved on the virtual wall).

2. 2D shapes: the section provides the ability to create lines by several points and flat shapes. While creative working, 2D shapes were created. An additional menu and the ability to "Create a three-dimensional object" were used. Questions which members asked in the virtual wall comments: What's going on? What is this function for?

3. "3D Shapes": the section allows inserting both ready-made three-dimensional shapes and creating them. The tool "3D Sketch" was used. The color and texture of the shape was changed. Group creativity was manifested when participants, using the "3D Sketch" function, created their own model, chose color and additional effects for it. The result was also on the virtual team wall.

4. Stickers: This section has several subsections to make the shapes more realistic. A smile, eyes to the subject can be added. In the "Textures" subsection, it is convenient to choose from the proposed realistic coloring for the object, load any custom texture.

5. Text: allows adding text inserts to objects.

6. Library of three-dimensional objects: the possibility to download from the Internet various models, which are not originally in the software environment.

The third task for the group: using available (ready-made or independently found) information sources, own ideas about the smart home and its innovative possibilities in the future develop and implement an appropriate project. In the following cards, the group members planned activities, assigned responsibilities, worked with the model.

Thus, a variant of the use of virtual team walls for formation of group creative thinking of students is described. An obligatory element is team activities to solve a socially significant problem (project) of a research nature, supported by interactive online technologies. The project involves not only the team implementation of students' activities in the environment of the graphic editor, but also the visualization of all stages, including the result, on a virtual team wall. Although the experiment is presented for image processing technology, similar teamwork can be organized and carried out for various topics and subjects of the digital school. Interdisciplinary projects and competitions are possible. It is this synthesis of engineering and technical practice in the software environment and the didactic component (in accordance with the described areas of pedagogical support) that is maximally focused on formation of group creative thinking. When describing the work of the mentor, we identified specific tools of the virtual wall, the use of which contributes to development of required qualities of both the personality and the group as a whole.

When performing frontal and independent laboratory work, students applied skills and abilities that form the basis of creative thinking, as follows:

– for memorizing (concepts, theoretical facts, tools of the software environment, methods of manipulation and functionality);

– for understanding (at the scientific-theoretical, practical, methodological level);

– for using (when working in the graphical editor environment and creating the content on a virtual team wall);

– for analysing (the results of own activities and work of other users with the virtual service);

–for assessing information, sources of information, software, the possibilities of using the obtained technical and creative results;

–for supporting creative inspiration, obtaining an original idea of a solution in order to test it in practice.

When working on a virtual team wall, four directions of online interaction were implemented: "participant – the whole group", "participant – participant", "participant – virtual wall", "virtual wall – group".

The resources of virtual walls support the work of the team at the stages of presenting a system of educational tasks and mini-projects for research, formulating a series of questions/tasks for control; tracking the progress of tasks; assessing the work of each participant and the group; visualizing of results and preparing for oral presentation of projects.

### 4.3. Experimental assessment
### 4.3.1. The ascertaining stage of the experiment

At the first stage of the experiment, to assess the entry conditions, materials of specially organized testing were used, taking into account the priorities of the digital society, the competence of the atlas of new professions. All questions and tasks were developed by the authors in accordance with the requirements of state federal educational standards.

Task 1 (maximum 2 points). From the list of presented software tools, select those that best suit the goals and purpose of using graphic image processing technology.

Task 2. Using the experience of searching on a computer for files with the extension "jpg" created last month and containing the symbol "s" in the file name, organize the search according to the following criteria:

2. 1 (maximum 1 point). The file name starts with the character "a", the file was created last year and has the extension "bmp".

2.2 (maximum 2 points). The file name contains exactly 7 characters.

For the second task each group member could get 3 points.

Task 3. Using the experience of constructing a graphic image of one electric train carriage, assemble the train. For completing the third task, each group member could receive maximum 4 points.

Hint 1 (maximum 3 points). The train must include a carriage for the driver. The finished image is presented on paper.

Hint 2 (maximum 4 points). List links to information resources, where the description of various electric trains is presented.

Task 4. Analyze information sources on the research problem and develop a graphic model of the interior item. For completing task 4 each member of the group could receive maximum 5 points.

4.1 (maximum 4 points). Information sources for analysis are selected by the mentor.

4.2 (maximum 5 points). The group is independent in finding information sources and working with them.

Thus, according to the results of the control event, the participant of the experiment (as a group member) could score from 0 to 14 points. The marks were given as follows: "excellent", when the student scored 12 points or more; "good" if the number of points was from 9 to 11 points inclusive; "satisfactory" for the interval 5 to 8 inclusive. In all other cases, the student got "unsatisfactory". The mark "excellent" corresponds to a high level of group creative thinking, "good" and "satisfactory" – to average, in other cases the level was defined as low.

It was possible to collect experimental data on 66 students studying in the seventh grades of the gymnasium. As a result of the entry control event, almost the same initial level of preparedness of students-participants in the pedagogical experiment was revealed. We can consider them as a total sample of 66 people. The experimental (33 students) and control (33 students) groups were formed. Characterizing the sample, we note that in the experimental group there were 58 % of girls and 42 % of boys.

### 4.3.2. Forming stage of the experiment

At the forming stage of the experiment the teacher analyzed requirements of modern society for preparation of students in a digital school. The provisions of the current state federal educational standards determine that the main task of a modern school is to reveal abilities of each

student, to educate a person ready for life in the high-tech, competitive world. In the new conditions of socio-economic development of Russia, the role of a person's ability to plan and implement life strategy on the basis of an adequate self-assessment of possibilities and conditions for self-realization in society is increasing. Positive and stable motivation for active life of a growing person, desire for achievements in labor and creative activities, striving for success in life on a moral and legal basis is needed.

In connection with the indicated requirements for the level of skills and abilities, most of which constitute the essence of group creative thinking, the following levels were determined.

High level of group creative thinking: the student takes the initiative in distribution of functions in the team for development of a virtual object; suggests using various tools, color effects and demonstrates their effectiveness to achieve the goal by own example; is independent in search for information sources and actively participates in the discussion on the fact of identifying their reliability; is attentive to suggestions of other participants and clearly formulates additional questions for reflection; monitors compliance with the sequence of actions of team work (consistency, integrity, degree of detail); critically assesses the result of own and group activities; independently determines options for improving the virtual model and offers them to the team; when defending the project, quickly responds to comments and questions, supports speakers.

The average level of group creative thinking: the student does not always take the initiative in distribution of functions in the team for development of a virtual object; can use various tools, color effects in practice, but does not tell other team members about them; prefers to use already known and proven information sources; often inattentive to participants' suggestions and wary of their additional questions; monitors compliance with the sequence of actions (consistency, integrity, degree of detail) only in own work; not in all cases critically assesses the result of own and group activities; can independently determine options for improving a virtual model, but prefers not to offer them to the team; when defending the project, reacts to comments and questions with little delays and supports speakers but depending on own emotional state.

Low level of group creative thinking: the student does not show initiative in distribution of functions in the team for development of a virtual object; cannot use tools, color effects in practice without assistance; uses only suggested information sources; is inattentive to proposals of the participants and ignores their additional questions; does not monitor compliance with the sequence of actions (consistency, integrity, degree of detail); cannot critically assess the result of own and group activities; does not think about improving a virtual model; when defending the project is sullen, if there are any comments and questions, shifts the presentation of the teamwork on other speakers.

Further, classes on the study of theory and implementation of practical tasks on the topic "Computer graphics. Graphics editor" were given in the control and experimental groups. The educator conducted an "introductory meeting" with all members of the experimental group exploring Trello's virtual wall tools and principles. Particular attention was paid to possibilities for organizing team activities (providing access by link and email, team visibility, review of progress, comments). Mini-groups for working in a software environment were formed, the choice of topics for the implementation of the team project was made taking into account cognitive interests, educational achievements and social attitudes.

The students of the experimental group were offered possible topics of projects for development of virtual team walls ("Smart House", "Robot Dog", "Policeman of the Future", etc.), from which they chose those that corresponded to their professional aspirations, cognitive interests, abilities, educational achievements.

For the control group, training was carried out in the traditional form: studying the basic concepts of graphic image processing technology, the interface and functionality of Paint 3D, and performing practical tasks according to instructions. The analysis and discussion of results were an obligatory stage of the work.

### 4.3.3. Control stage of the experiment

At the fixing stage of the experiment, the test was also carried out. The types of tasks, principles of assessment corresponded to the tasks and the procedure of the entry control event.

The statistical analysis of the reliability of the results of the pedagogical experiment was assessed using the $\chi 2$ (chi-square) Pearsen test.

The following hypotheses were accepted:

H0: the level of formation of group creative thinking in the experimental group is statistically equal to the level of the control group.

H1: the level of the experimental group is higher than the level of the control group.

The results of the measuring before and after the experiment for the students of the control and experimental groups are presented in Table 1.

**Table 1.** The results of the test

| Level | The number of tested (people) | | | |
|---|---|---|---|---|
| | Experimental group (33 students) | | Control group (33 students) | |
| | Before | After | Before | After |
| High | 2 | 7 | 2 | 3 |
| Average | 11 | 19 | 12 | 13 |
| Low | 20 | 7 | 19 | 17 |

In the online resource (http://medstatistic.ru/calculators/calchit.html), the values of the criterion are calculated before ($\chi2$ obs. 1) and after ($\chi2$ obs. 2) the experiment. For $\alpha = 0.05$ according to the distribution tables $\chi2$ crit. is 5.99. Thus, we get: $\chi2$obs. 1 $<\chi2$crit. (0.07 $<$5.99), and $\chi2$obs. 2$>$ $\chi2$ crit. (6.89 $>$ 5.99).

Consequently, the shift towards an increase in the level of formation of group creative thinking can be considered not accidental.

**5. Discussion**

The sample of students was not probabilistic, since the experimental and control groups were formed in such a way as to guarantee the presence in each group of the same skills and personality traits that form the basis of group creative thinking, their similar distribution. For diagnostics the results of the entry control event were taken into account.

The selection of participants for the experiment and the sample size are justified by the specifics of the study: mastering the technology for processing graphic images and implementing its capabilities in 2D and 3D projections involves an in-depth study of certain topics of the school computer science course. Throughout the experiment, creative activity in the Paint 3D environment was carried out by the same teacher, using the same software in special classrooms.

In general, the dynamics of values by levels indicates a qualitative improvement in learning indicators and formation of the monitored personality traits in the experimental group (see Figure 1).

The quantitative analysis of the above results makes it possible to conclude that after finishing the experiment, 21 % of the students in the experimental group had a high level of indicators showing the degree of development of group creative thinking (7 students out of 33), while initially this percentage was 6 % (2 participants out of 33). The number of students with having a low level significantly decreased, from 61 % to 21 %. This indicates a qualitative improvement in the learning indicators of the participants in the group. Moreover, the most significant changes occurred for the change from "low" to "average" and "high".

In the control group, the changes in the "high" level are not so significant: the indicator increased from 6 % to 9 %. After finishing the experiment, 39 % of students in the control group had an average level of qualities and skills that form the basis of group creative thinking (13 students out of 33), while initially this percentage was 36 % (12 participants out of 33). The indicator for the level "low" changed from 58 % to 52 %.
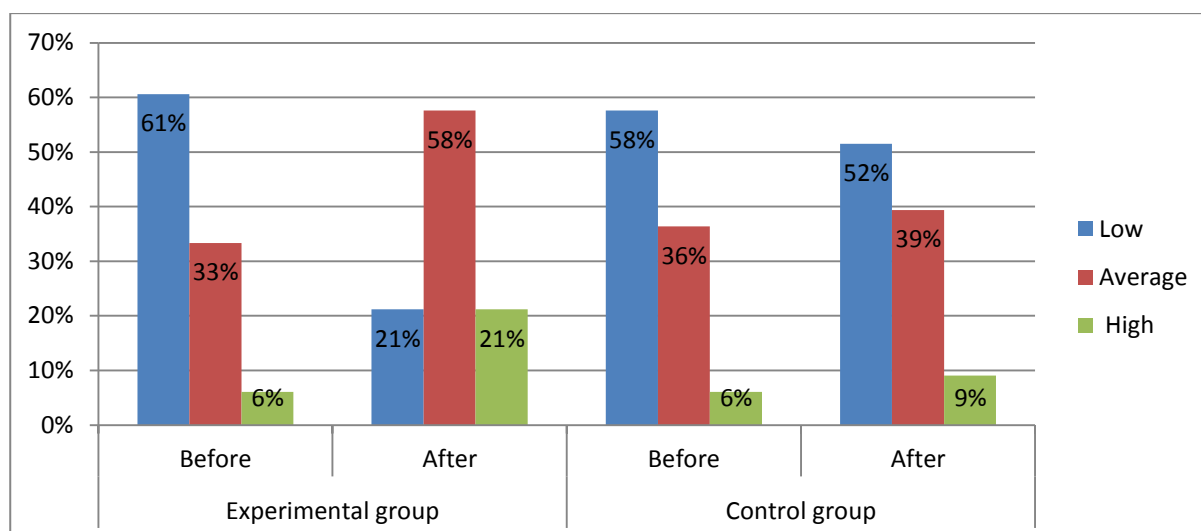
**Fig. 1.** Dynamics of changes in the level

So, there is also the dynamics in the levels in the control group, but it is less significant. In general, the pedagogical experiment allows us to conclude that the use of virtual team walls in teaching improves the quality of teaching in terms of formation of skills that form the basis of group creative thinking.

## 6. Conclusion

The study presents a solution to the problem caused by the need for additional research of possibilities of digital technologies and virtual services for development of creative thinking.

The skill "thinking creatively or being creative" is highlighted in many educational systems as one of the main learning outcomes. Every year there are more and more innovative technologies for development of creative thinking (mobile applications, educational robotics, programming, augmented and virtual reality, STEM technology, smart cards, etc.). In the context of the global transformation and spread of COVID-19, society's requirements are changing not only for the quality of training graduates of a digital school, but also for the form of education. Virtual communication, online collaboration, working with 3D objects, the use of software and hardware tools have become an indispensable element of social, pedagogical and methodological researches. In addition, creativity is a type of activity, a method of transforming reality. The group work methods in the study are used together with other teaching methods (experiment, comparison, classification, etc.).

For successful implementation of the proposed directions, it is recommended to use virtual team walls at the following stages of creative activity: obtaining theoretical information about the research object; organization of practice-oriented actions in an interactive online environment; creating conditions for creative insight in the group through presentation of a system of socially significant tasks; organization of group reflection and defense of team projects.

Earlier the idea that group creative thinking is manifested in words, thoughts and activities was noted. Therefore, the most significant are the following learning outcomes: to be aware of the meaning and motive of group activities; to form a need for self-expression through active participation in group discussion; to establish links between the goal of the team's activity and its result; to work according to a team plan; to express assumptions, stimulating the creative insight of the group; to analyze the progress of an individual task and the entire team project; to implement control and self-control; to express thoughts in direct interpersonal communication and virtual communication; to understand information culture.

Effectiveness of the proposed approach was tested during the pedagogical experiment. The research materials can be used to improve the quality of education through specially organized areas of support for group activities of students, focused on their creative development and preparation for future professional activities.

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# Is Gender-Based Approach Applicable to the Development of Medical Students' Emotional Intelligence and Empathic Abilities as Key Professional Competences for an Aspiring Physician?

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**Abstract**

Emotional intelligence (EI) and empathy are important for doctor's work. But is there a place for a gender approach to develop the qualities? The aim of the research was to evaluate EI and empathic abilities (EA) in medical students through their gender to streamline the learning process and to develop professional competencies more effectively. The research included 104 medical students, 34 men and 70 women. Analysis of gender, cumulative and partial EI and EA was done by Bem, Hall and Boiko self-questionnaires respectively. IBM STATISTICA 8.0 was used for statistical analysis. Regardless of gender, most of the students had an average and a low level of EI with "managing your emotions" found to be the weakest. Males had higher cumulative EI and significantly better developed "managing your emotions" and "self-motivation". Females had higher empathy level. All students had understated cumulative EA level. Rational channel, emotional channel, intuitive channel were the weakest. Cumulative EA level was significantly higher in females as well as levels of rational channel, emotional drip, intuitive channel, attitudes that promote empathy. All respondents have a potential to develop EI and EA by the weakest components improvement such as "managing your emotions", rational, emotional and intuitive channels. Gender differences determine the need to develop self-motivation in females and empathy in males at high medical school. Gender approach may promote universal and professional competencies of aspiring physician.

**Keywords:** gender, professional competencies, emotional intelligence, empathic abilities, medical students, higher medical education.

## 1. Introduction

Higher medical education is undergoing considerable changes that include an important shift of focus from the learning process, i.e., tuition proper, to its resultant competences (Harden, Lejdlou, 2021). Outcome-based education (OBE) is "a method for elaborating, developing, implementing and documenting educational recommendations in the perspective of the goals set

and outcomes expected" (Spady, 1994). As regards medical education, this means forming competences that contribute to being a "good doctor" and include not only clinical skills but what is called 'soft skills' and personality traits that one needs to be a professional.

A high level of emotional intelligence (EI) and empathic abilities is especially needed for clinical disciplines that involve not only communication with the patient and their relatives but also multi-disciplinary teamwork and engagements with junior and medium-level medical personnel, the managers and others, for it is instrumental to efficient communication and, consequently, to the patient's adherence to the therapy prescribed and to its ultimate success. Importantly, successful communication may become the keystone of the assessment of the physician's efficiency as part of the patient-oriented approach that is now gaining ground in modern health systems.

Professional training of medical students usually aims to develop certain level of knowledge, skills, and abilities, while emotional aspects are only indirectly covered by the tuition process, as the student watches the behaviour and emotions of medical teachers, physicians, nurses and the patient and his/her relatives during clinical externship classes and analyses the information thus obtained. Consequently, developing the medical student's emotional may become a most relevant objective of contemporary higher medical education, and studies of aspiring physicians' emotional intelligence and empathic abilities become especially important.

Various authors have found EI emergence and improvement to depend on various biological and social factors, including gender (Saeed et al., 2020; Malinauskas et al., 2018; Cabello et al., 2016).

Gender is a definition of men and women based on their social roles in the family and society (Gender equality guidelines…, 2019). In social science perspective, the gender approach aims to create a situation that promotes equal opportunities and life chances for both men and women, particularly in the field of health care. Thus, since 2002 WHO-initiated conferences are regularly held to assess the influence of gender on health personnel's careers, social status and psychological well-being; WHO used their findings to formulate lists of key gender competences of a physician and healthcare manager (Integrating gender…, 2006).

Gender approach more narrowly understood has long been used in clinical medicine, as men's and women's physiological features affect their predisposition to certain diseases and their course. Besides, the gender aspects of diseases and their treatment have been included in medical university curricula both in Russia and worldwide. However, the gender approach remains insufficiently studied in higher education generally and medical education in particular, while having shown its efficiency in schooling and pre-school education (Baurova, 2010).

Notably, one's gender is of paramount personal importance for health workers. Thus, it has been proved to play a role in medical students' professional orientation, with male students preferring surgical specialities and females choosing therapeutical ones (Pagotto et al., 2020). Some authors establish a link between gender and some mental health issues, including emotional burn-out, depression, and suicide among doctors of various specialities. Thus, a largest-scale survey by S. Pospos et al. (2019) that covered 450 physicians and medical residents found male respondents to have experienced suicide thoughts, anger, and alcohol abuse more often, while female doctors usually cited anxiety, annoyance or depression (Pospos et al., 2019). Gender thus has a considerable effect on both social responses and on the realisation of medical workers' social roles. However, the necessity and efficiency of gender approach to the development of psychological personality aspects that are professionally important for physicians (emotional intelligence and empathy in particular) have almost never been studied.

Empathy, or compassion, is understood to mean emotional responsiveness, attention to other people, their feelings and problems, (Meshcheryakov, Zinchenko, 2004), i.e., reflects a desire to assist and support. Clinical empathy is the physician's ability to: (1) understand the patient's situation and feelings; (2) show an understanding of their feelings and emotions; and (3) render medical assistance taking into account the patient's concerns and anxiety (Mercer, Reynolds, 2002). S. Steinhausen and al. (Steinhausen et al., 2014) found that patients who believed their doctors to be highly empathic had a 20-fold higher probability of better medical treatment outcomes.

To understand others' emotions and to control one's own, to be sympathetic, to listen and hear are all abilities of professional importance to doctors. A high level of EI and empathic abilities is directly correlated to building the patient's confidence which, in turn, has an influence on prognosis and on the patient's satisfaction with the medical service provided (Weng, 2008). In this connection, leading accrediting agencies of the U.S., British, Canadian and Chinese health systems

rate successful communication, characteristic of persons with a high level of EI, as a key professional competence of a highly skilled physician. (Core Committee..., 2002). The Royal College of Physicians and Surgeons of Canada emphasizes the physician's functions of a communicator ("communicates effectively with patients, families, physicians and other colleagues in the health care profession") and collaborator (works effectively in a medical professionals' team) on an equal footing with such roles as being a medical expert, health advocate, leader, scholar, and professional (Frank et al., 2015). In Russia, this competence is mentioned in the new Federal State Educational Standard, FSES3++ (2020) that lists "Teamwork and leadership" and "Communication" among a specialist physician's universal competences. (Federal'nyj gosudarstvennyj..., 2020).

Awareness of EI importance for a physician prompted active research into this phenomenon with respect to medical students. In their study, to which this paper is a sequel, M.V. Vetluzhskaya et al. showed medical students aged 19 to 30 to generally have a low level of EI, which suggests it must be developed (Vetluzhskaya et al., 2019), while high EI was shown to be correlated to excellent academic performance at the medical university (Aithal et al., 2016; Ranasinghe et al., 2017) and to predict a successful medical career, in therapeutical and surgical specialities alike (Urquijo et al., 2019; Thacoor et al., 2020). On the other hand, most authors report a decrease of medical students' EI in the course of their studies, (Triffaux et al., 2019; Papageorgiou et al., 2018), probably resulting from overload and emotional burn-out and from insufficient psychological and paedagogical support at higher medical schools (Hill et al., 2018).

D. Lin et al. (Lin et al., 2016) found resident surgeons with high EI to have a veritably lower incidence of de-personalisation, depression or emotional burn-out. EI is thus directly related to a medical student's, resident's or physician's mental and physical health (Sataloff, 2020).

Notably, EI formation passes through some age-related stages that coincide, to an extent, with Erikson's age periods (Orenstein et al., 2021). Thus, the young adulthood or early maturity stage that 3rd year students enter features an emerging ability to trust others and reach a compromise, while empathy remains dominant as an adequate emotional response to external influences – which essentially lays a foundation for the individual's emotional culture that will manifest itself in mature age. Research into this age group's EI and empathic abilities is thus of the greatest interest, especially because EI structure can be corrected in the process and under the influence of continued studies at the university.

The available information about gender-related specifics of EI and empathic abilities in general, and medical students in particular, is rather contradictory. According to most studies, medical students' integrative EI level was unrelated to gender (Shahin, 2020; Imran et al., 2013; Vasefia et al., 2018; Sundararajan et al., 2018), while students aged 17 to 25 showed low or medium EI no matter what higher school (medical, technical, or humanities) they were studying at (Alaeva et al., 2016). However, some authors found gender distinctions in EI structure. Studies done in Great Britain, Ireland, and India found female students' EI to be veritably higher (Saeed et al., 2020; Wijekoon et al., 2017; Arora et al., 2010; Kumar et al., 2016), while Australian researchers showed the same for male students (Doherty et al., 2013). That may result from some specifics of culture, education and social status of men and women in different countries. In some papers, veritable gender differences in EI structure were established. Thus, O.V. Gribkova (Gribkova, 2014) and N.V. Bibarsova (Bibarsova, 2017) showed male students aged 17 to 25 to have a veritable higher level of "control of their own emotions", which might result from the society's gender precepts, with more reserved manifestation of feelings expected of men. However, the relation of Russian medical students' EI components to gender has almost never been studied.

The information is more uniform regarding gender-related empathy. Women generally show a higher level of empathy, which is their leading ability in EI structure (Yu et al., 2020). Also, according to Calzadilla-Nunz A. and others, female students' level of empathy decreases less markedly than males' as they study at a medical university (Calzadilla-Núñez et al., 2017).

Contradictory information about the influence of gender on Russian medical students' EI and empathic abilities make it relevant to study those parameters in order to improve the quality of aspiring physicians' professional training.

The purpose of this study is to inquire into medical students' emotional intelligence and empathic abilities in gender perspective in order to improve the learning process and to efficiently shape their professional competences.

## 2. Materials and methods

The survey involved 104 3rd year students of the Sechenov Medical University, aged 20,5±1,6 on average. The participants were recruited between 2018 and 2020 inclusive. All the students agreed to participate and consented to the analysis and use of the data obtained. Their gender identities were found out using S. Bem's Sex Role Inventory consisting of 60 questions (Oprosnik…, 1974). All the students were divided into two gender groups (34 males and 70 females) and had their emotional intelligence and empathic abilities levels established through self-polling. The medical students' emotional intelligence status was assessed using N. Hall's technique (as adapted by Ye.P. Ilyin (Ilyin, 2001)) that consists of 30 questions and includes five scales: Emotional awareness, Managing your emotions, Self-motivation, Empathy, and Managing the emotions of other people. Analysed were both integrative EI (on the following scale: 70 or more points – high, 40 to 69 – medium; 39 or less – low), and partial (i.e., component) EI levels: 14 or more points – high, 8 to 13 – medium; 7 or less – low. Empathic abilities were assessed using V.V. Boyko's technique (Ilyin, 2011) that consists of 36 questions for analysis of empathy in general and its individual parameters: rational, emotional or intuitive channel, attitudes that promote or inhibit empathy, penetrability of empathy and identification of empathy. The results of the survey were used to establish and rank the consolidated figure depending on the score: 30 or more points – very high, 29–22 – medium, 21–15 – lowered, 14 or fewer – very low, and the significance of each specific parameter in the structure of empathy on a 0 to 6 points scale.

The impact of EI and empathic abilities on professional orientation, i.e., choices among clinical or non-clinical disciplines, were studied separately.

Statistical analysis of the data obtained was performed using STATISTICA 8.0 software. Based on the sample size the value of alpha was set 0.05. Categorial variables were described with absolute values and percentages. The Chi-Square statistic was used to evaluate relationships between categorial variables. Statistical analysis of independent groups was done using the Mann–Whitney U test. The differences were considered significant with $p < 0,05$ probability.

## 3. Results

S. Bem's questionnaire showed most of our respondents, 81,4 % of female and 76,5 % of male students, to be androgynous type. 23,5 % of the men were diagnosed with masculine personality type, and 18,6 % of the women had feminine type. No discrepancy between gender and biological sex was thus found among the respondents.

The demographic profile of the groups being compared is shown in Table 1. The male and female students surveyed were of comparable age, and similar percentages of both groups combined their studies with employment and were willing to practise their profession after graduation. More female students than male ones were married (5,7 % and 0 % respectively), rented housing (22,9 % and 14,7 % respectively), lived in the city where they studied (90 % and 73,5 % respectively), and had better academic performance. The men were freer than female students to choose their professional orientation ("own choice" made by 100 % and 91,4 % respectively) and made a firmer/ more decided choice between clinical and non-clinical disciplines (5,9 % and 11,4 % "undecided" men and women, respectively).

**Table 1.** Demographic characteristics of the 3-year medical students

| Characteristics | Men (n=34) | Women (n=70) |
|---|---|---|
| Age, years (M±δ) | 20,4±0,9 | 20,6±1,8 |
| Marital status | Single – 34 (100 %) | Married – 4 (5,7 %)<br>Single – 66 (94,3 %) |
| Currently living | With parents – 25 (73,5 %)<br>In hostel – 4 (11,8 %)<br>Rent – 5 (14,7 %) | With parents – 40 (57,1 %)<br>In hostel – 13 (18,6 %)<br>Rent – 16 (22,9 %)<br>Own apartment – 1 (1,4 %) |

| | | |
|---|---|---|
| Place of living | Moscow – 25 (73,5 %)<br>Moscow region – 9 (26,5 %) | Moscow – 63 (90 %)<br>Moscow region – 5 (7,1 %)<br>St. Petersburg – 2 (2,9 %) |
| Employment status | Employed – 11 (32,4 %)<br>Unemployed – 23 (67,6 %) | Employed – 23 (32,9 %)<br>Unemployed – 47 (67,1 %) |
| Choice of high school | Own choice – 34 (100 %) | Own choice – 64 (91,4 %)<br>Parents' choice – 5 (7,1 %)<br>Set of circumstances – 1 (1,4 %) |
| Future career choice | Medical-oriented – 31 (91,2 %)<br>Other- oriented – 2 (5,9 %)<br>I don't know – 1 (2,9 %) | Medical-oriented – 66 (94,3 %)<br>Other- oriented – 1 (1,4 %)<br>I don't know– 3 (4,3 %) |
| Academic performance | Excellent marks - 4 (11,8 %)<br>Good marks - 7 (20,6 %)<br>Satisfactory marks - 17 (50 %)<br>Bad marks/retakes – 6 (17,6 %) | Excellent marks - 17 (24,3 %)<br>Good marks - 26 (37,1 %)<br>Satisfactory marks - 22 (31,4 %)<br>Bad marks/retakes – 5 (7,1 %) |
| Choice of speciality | Clinical speciality – 27 (79,4%)<br>Non-clinical speciality –<br>5 (14,7 %)<br>Haven't decided yet – 2 (5,9 %) | Clinical speciality – 50 (71,4 %)<br>Non-clinical speciality –<br>12 (17,1 %)<br>Haven't decided yet – 8 (11,4 %) |

No statistically significant difference was detected between male and female 3rd year medical students' integrative emotional intelligence. Most students presented with medium or low EI levels as shown in Table 2.

**Table 2.** Gender differences in components of emotional intelligence among 3rd year medical students by Hall technique (Me [25-75 ‰]):

| Component | Men (n=34) | Women (n=70) | z | p-level |
|---|---|---|---|---|
| EA | 11<br>[6-13] | 11,5<br>[8-14] | -0,86205 | 0,388660 |
| MYE | **7,5**<br>**[2-12]** | **-1,5 ***<br>**[-7-7]** | **3,33576** | **0,000851*** |
| SM | **10**<br>**[8-14]** | 7 *<br>[3-11] | **2,44456** | **0,014503*** |
| E | 9<br>[6-13] | 12<br>[7-14] | -1,64081 | 0,100837 |
| MEOP | 10<br>[4-13] | 10,5<br>[6-14] | -0,77460 | 0,438579 |
| Integrative (total) indicator | 46<br>[31-57] | 34<br>[26-51] | 1,44508 | 0,148436 |

Note: EA – emotional awareness, MYE – managing your emotions, SM – self motivation,
E – empathy, MEOP – managing the emotions of other people; * - p < 0,05.

However, male students had a higher integrative score of 46 points and included a higher percentage with medium EI and smaller with low EI as compared to women (52,9/28,6 % and 41,2/62,8 %, respectively) (Figure 1).
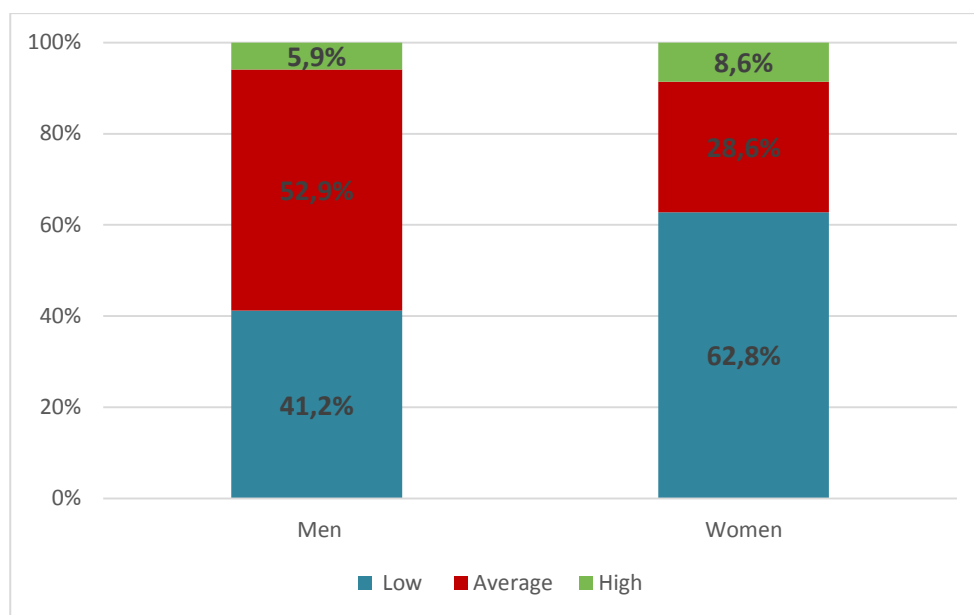
**Fig. 1.** Gender differences between of total cumulative EI levels among
the 3rd year medical students

Research into the gender differences between 3rd year medical students' EI structures found the following features (Table 2). The average values of each of the five EI components did not exceed 12, i.e., failed to reach a high level, while women showed low levels of two parameters (MYE and SM). When ranked, women's "top three" components were E, EA and MEOP that scored 12, 11,5 and 10,5 points, respectively, and men's "top three" were EA, SM and MEOP with 11, 10 and 10 points, respectively. Women's least developed EI components were MYE and SM (-1.5 and 7 points, respectively), and men's – MYE and E (7,5 and 9 points, respectively). Respondents of either gender had a comparable average level of emotional awareness (11 points for men and 11,5 points for women) and management of the emotions of other people (10 points for men and 10,5 points for women), while women's empathy level was somewhat higher and men's level of management of their own emotions and self-motivation was veritably higher (p < 0,05).

Comparative analysis of the levels of EI components in the two groups showed that low EA is somewhat more frequent among men – in 32,4 % of cases as compared to 21,4 % of women, while medium to high levels are more often recorded among women (Figure 2). The relationship between gender and EA was not statistically significant. At a significance level of p=0,0483, the critical value of χ2 was 1,457. Most of the women (78,6 %) and only 50 % of the men showed lower levels of MYE, while men had a higher percentage of medium and high levels of MYE. The relationship between gender and MYE was statistically significant. At a significance level of p = 0,011, the value of χ2 was 9,082. By paired comparison of low and average as well as low and high levels of MYE the values of χ2 were 5,611 (at a significance level of p=0,018) and 5,761 (at a significance level of p=0,016) respectively. Low self-motivation (SM) was characteristic of 54,3 % of women and 23,5 % of men; medium, of 31,4 % of women and 47,1 % of men; and high, of 14,3 of women and 29,4 % of men. The relationship between gender and SM was statistically significant. At a significance level of p = 0,010, the value of χ2 was 9,147. By paired comparison of low and average as well as low and high levels of SM the values of χ2 were 6,228 (at a significance level of p=0,013) and 7,473 (at a significance level of p=0,006) respectively. The percentage of men and women with low levels of empathy (E) was comparable, 29,4 % and 28,6 % respectively; however, low levels of this EI component were more frequent in men, 55,9 % (compared with 44,3 % of women), and high levels were found in 27,1 % of women (compared with 14,7 % of men). The relationship between gender and E was not statistically significant. At a significance level of p = 0,336, the critical value of χ2 was 2,180. The incidence of low, medium and high levels of MEOP was virtually the same among both genders. The relationship between gender and MEOP was not statistically significant. At a significance level of p = 0,862, the critical value of χ2 was 0,297.
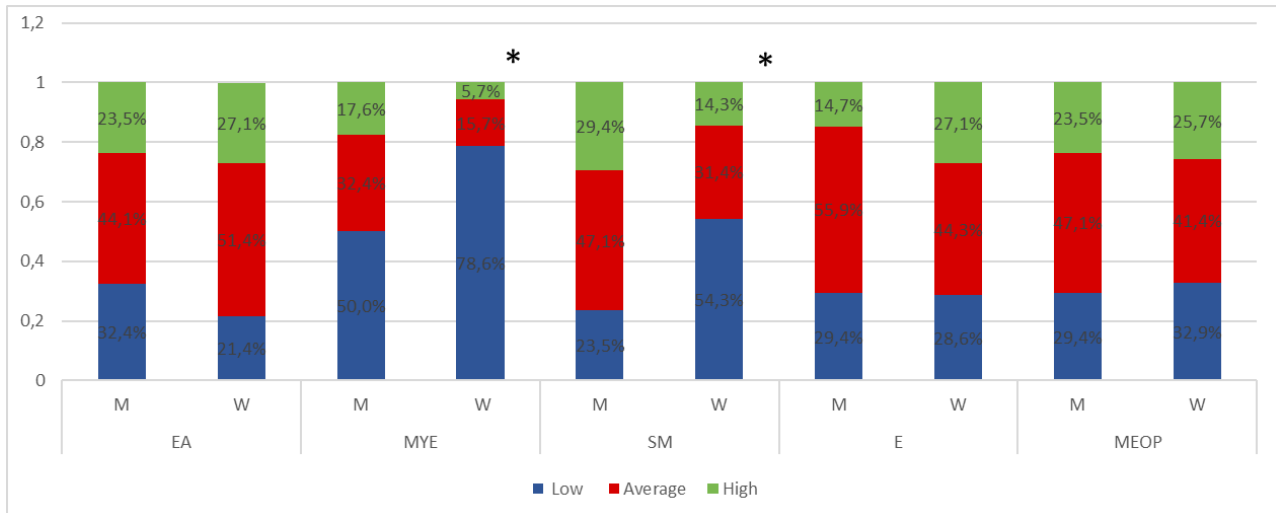
Note: M – men, W – women, EA – emotional awareness, MYE – managing your emotions, SM – self motivation, E – empathy, MEOP – managing the emotions of other people; * - p < 0,05.

**Fig. 2.** Gender differences of partial EI levels distribution among 3rd year medical students (by Hall technique, %)

Medical students of both groups had a reduced average level of consolidated empathic abilities according to V.V. Boyko (Figure 3), but women's level was veritably higher (p<0,05) than men's: 21 and 15,5 points, respectively (Table 3, Figure 3B).

**Table 3.** Gender differences between levels of empathic abilities among 3rd year medical students as per V.V. Boyko's questionnaire (Me [25-75 ‰]):

| Component | Men (n=34) | Women (n=70) | z | p-level |
|---|---|---|---|---|
| RC | **2** [2-3] | **3** * [2-4] | **-2,46693** | **0,013628*** |
| EC | **2** [1-3] | **3** * [2-5] | **-3,46133** | **0,000538*** |
| IC | **2** [1-2] | **3** * [2-4] | **-3,07674** | **0,002093*** |
| APE | **3** [2-4] | **4** * [3-5] | **-2,87578** | **0,004031*** |
| PE | 3.5 [2-4] | 4 [3-4] | -0,80037 | 0,423498 |
| IE | 3.0 [2-4] | 4 [3-5] | -1,57302 | 0,115716 |
| Total cumulative level | **15.5** [13-21] | **21** * [18-24] | **-3,86325** | **0,000112*** |

Note: RC – rational channel, EC – emotional channel, IC – intuitive channel, APE – attitudes that promote empathy, PE – penetrability of empathy, IE – identification in empathy;
* - p < 0,05.
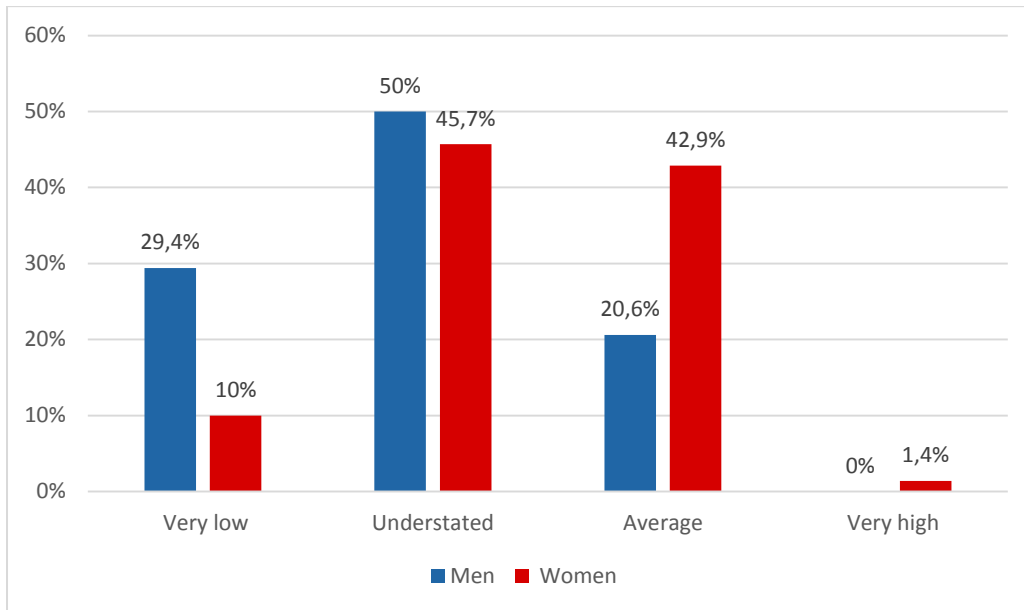
A)
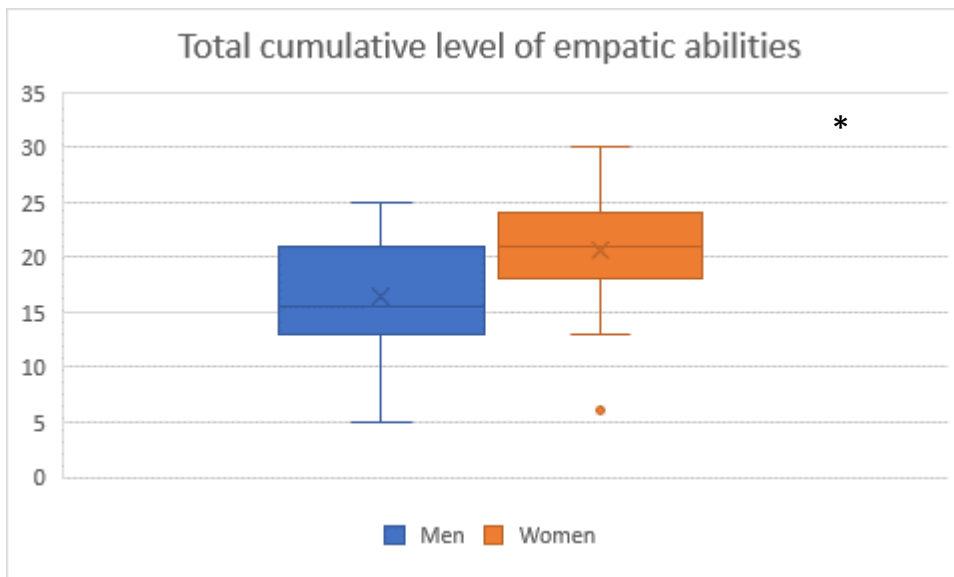


B)

**Fig. 3.** Gender differences between total cumulative levels of empathic abilities among 3rd year medical students (as per V.V. Boyko's questionnaire)

The most significant parameters in the structure of both men's and women's empathy were their attitudes that promote empathy (4 and 3 points, respectively), penetrability of empathy (4 and 3,5 points, respectively), and identification in empathy (4 and 3 points, respectively). And women's rational, emotional and intuitive channels and "attitudes that promote empathy" were veritably ($p < 0,05$) more developed than men's (Figure 4 A-D).
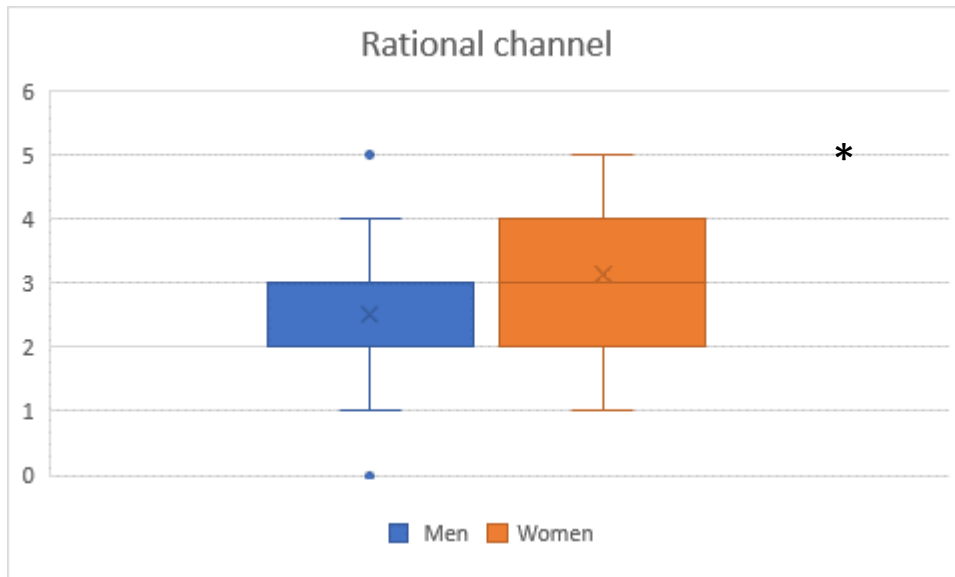
A)
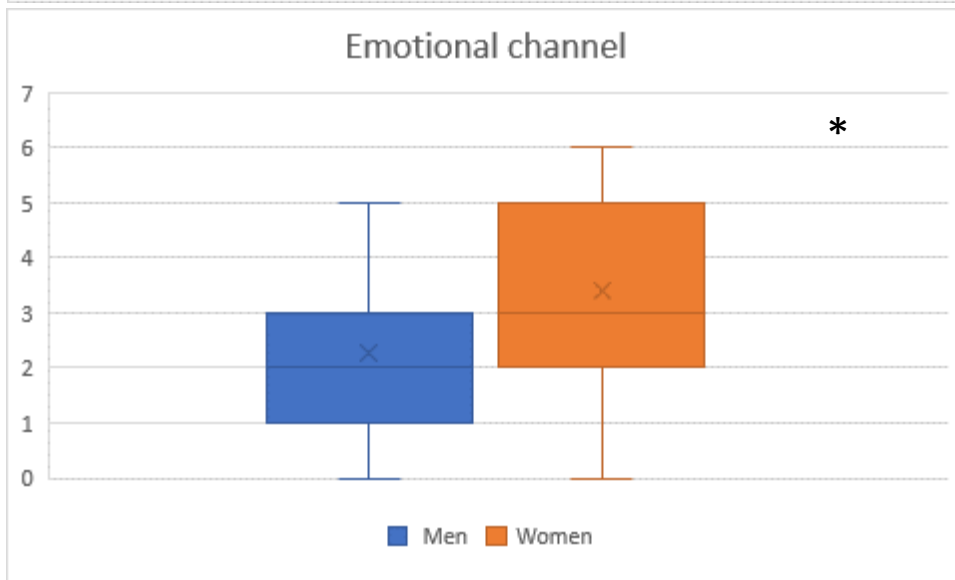


B)
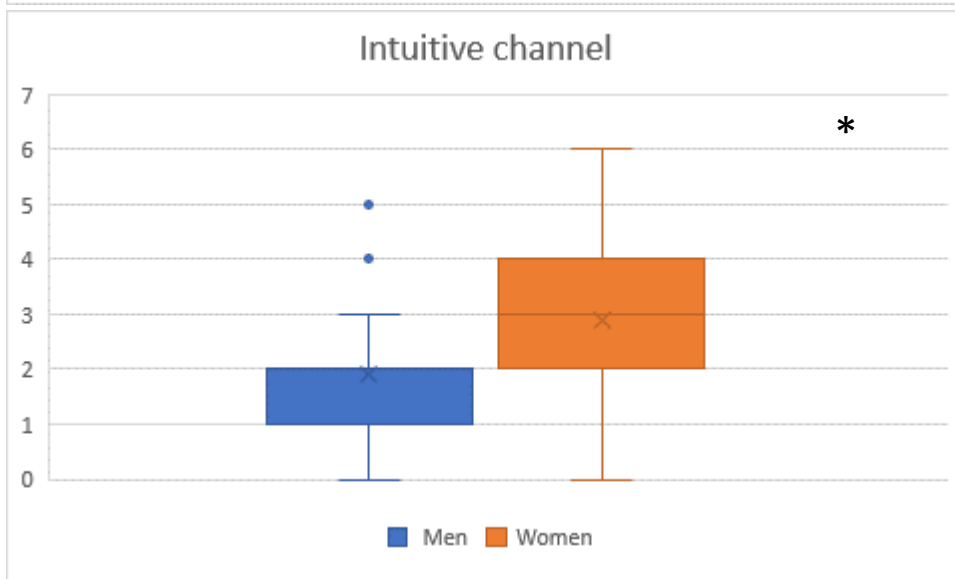


C)
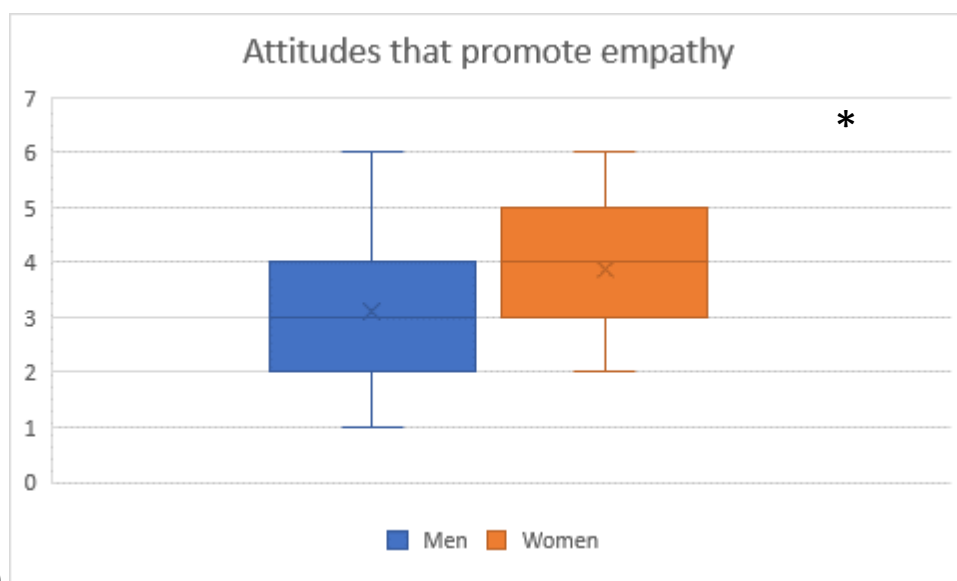
D)

Note: * - p < 0,05.

**Fig. 4.** Gender differences in empathic ability components as per V.V. Boyko's questionnaire among 3rd year medical students

Fewer women had very low integrative levels of empathic abilities (10 %) and more had medium levels (42,9 %) as compared with 29,4 % and 20,6 % of men, respectively (Figure 3A). Very high empathy was found among women only, in 1,4 % of cases.

Analysis of the influence of EI and empathic abilities on the choice of the profession returned the following results. 90,4 % of those surveyed had made their choice, with 81,9 % of them choosing a clinical discipline and 18,1 % choosing a non-clinical one. At the time of the poll, 9,6 % of the students could choose neither speciality. The relationship between choice of the profession and integrative indicator of EI was not statistically significant. At a significance level of $p = 0,201$, the critical value of $\chi 2$ was 5,974. However, as we compared Hall's integral EI, we found students who chose a non-clinical discipline to include fewer persons with medium EI level (29,4 %) and more with low EI level (64,7 %) than among those who had chosen a clinical speciality (40,3 % with medium and 50,6 % with low EI). Students who had difficulty choosing their speciality had even lower emotional intelligence levels (see Table 4), with 80 % showing low and 20 % showing medium EI. None of the respondents who had difficulty choosing their speciality had a high EI level.

**Table 4.** Distribution of integrative EI indicator levels among 3rd year medical students depending on their choice of future speciality (by Hall's technique, %)

| Component | Choice of clinical specialty (n = 77) | Choice of non-clinical specialty (n = 17) | Haven't decided yet (n =1 0) |
|---|---|---|---|
| Integrative (total) indicator | Low – 39 (50,6 %) Medium – 31 (40,3 %) High – 7 (9,1 %) | Low – 11 (64,7 %) Medium –5(29,4 %) High – 1 (5,9 %) | Low – 8 (80 %) Medium – 2 (20 %) High – none |

**4. Discussion**

Thus, 3rd year medical university students mostly demonstrated the androgynous type, i.e., a harmonious combination of masculine and feminine features. This is indicative of a high potential for adaptation in the social environment, which is particularly important in medicine and other professions that require interpersonal communication. These results correlate with the global trend for the spreading of androgynous type in the overall population (Lopukhova, 2013). No gender types were identified that were not typical of the biological sex of the respondents.

All the students involved in the survey, regardless their gender, demonstrated a medium or low EI level, which correlates with the findings of international and domestic researchers.

A medium EA level reflecting the awareness of the existence of various emotions and the ways they can manifest themselves, and overall understanding of own and others people's emotions shows that medical university students irrespective of their gender are capable of understanding and interpreting outward display of emotional reactions, which is critically important in interpersonal communications. The high frequency of high-level EA in females may be related to better identification of emotional non-verbal signals vs males (Bertakis et al., 1995), including the more developed brain areas responsible for emotional information analysis (Gur et al., 2002).

The medium and low levels MYE shown by men and women demonstrate an insufficiently developed habit of controlling, checking and regulating one's emotions. Similar findings were made in other surveys of this age group (Valiullina, 2020) irrespective of the university, which may be related to the psychological state of this age where the ability to handle one's emotions is only forming. At the same time, in our survey men showed a veritably better-developed EI. This may be caused by the influence of gender stereotypes formed in the family and society because boys/men are usually expected to be more reserved in displaying their feelings (Hentschel et al., 2019).

The medium and low self-motivation level in men and women demonstrate that medical university students need to improve their ability to control self-motivation in order to attain their goals, work on their self-discipline and on the ability to withstand temporary setbacks. Men had a veritably higher level of self-motivation, which reflects their ability to demonstrate willpower and perseverance in solving the problems and tasks at hand and their desire for self-control as part of gender role realization.

All the survey participants demonstrated a medium level of empathy that reflects the ability to feel and understand emotions of the people around and to relate to them. At the same time, female students demonstrated this particular EI component more often than males, which corresponds the results of Russian and international surveys (Yu et al., 2020; Hojat et al., 2018; Zhdanov et al., 2015). This phenomenon may be related both to the traditional upbringing of girls focused on developing empathy from an early age (playing dolls, helping with little brothers and sisters etc.) and to a certain gender expectation which a woman attempts to match and which implies that a higher demonstration of care in particular and empathy in general is a criterion of femininity.

Medical university students, both males and females, demonstrated a medium level of managing the emotions of other people, which shows the need for correct understanding of other people's feelings, interpretation of emotions displayed both verbally and non-verbally, and the ability to manage them in an effective manner.

The reduced total indicator of empathic ability according to Boyko in both groups under review demonstrates somewhat limited emotional responsiveness and empathy. These findings might reflect a certain trend for empathy lowering in course of the studies at the medical university, which corresponds to the results of 14 out of 30 surveys included in the largest of empathy in medical students (Andersen et al., 2020). The causes of the negative empathy trends may include a high stress level and sleep debt in medical students as factors increasing the emotional burn-out risk (Ludwig et al., 2015; Park et al., 2015). Also, reducing the level of empathic abilities may be a mechanism of defence against emotional overload in course of clinical practice and contacts with severe ill patients and their families, and reflect the predominant focus of clinical training on diagnosis and treatment tactics with no account for the doctor's psychological work (Morse et al., 2008), i.e., the insufficient formation of communication skills.

The rational channel that reflects spontaneous interest and focus on the partner along with the emotional channel demonstrating emotional intelligence and the ability to "tune in" to the emotions of the other person, and with the intuitive channel showing one's ability to interpret emotional reactions in a context of insufficient information (i.e., by intuition) proved to be the least important in the empathy structures both of male and female students, but the levels of these components were veritably higher in the latter group.

The attitudes promoting empathy that have a positive or negative effect on all the empathy channels were also better developed in women. Thus, the level of emotional responsiveness and empathic reactions in the female students involved in the survey depends significantly on their personal attitudes and own emotional background, and this can decrease the total empathic ability level significantly in the case of a low level of control over emotions.

Penetrative empathic ability that reflects a person's ability to elicit trust and willingness to communicate, and identification in empathy, which reflects one's ability to put oneself in the other's shoes, were the most significant parameters in the structure of medical students's empathy irrespective of their gender, although their mean score did not exceed 3,5-4 points, which shows a high potential for successful empathy and communication in future doctors.

In our work, empathy levels did not influence the respondents' future career choice, which may be due to the small sample size. However, it should be noted that some studies have found a correlation between the choice of future profession and the level of empathy: students with a higher empathy level preferred clinical disciplines, in which successful communication with patients and their relatives is of extreme importance (Teng et al., 2017; Li et al., 2018).

This may be one of the reasons for the higher share of female doctors in specialties such as paediatrics and family medicine (general practice), where greater patient care is expected: women have higher levels of empathy as an EI component and empathic abilities in general, so they show greater interest in the patient and their family, which contributes to better understanding and a closer empathic patient-physician relationship (Bertakis et al., 1995).

## 5. Conclusion

Thus, 3rd year medical students can, under favourable conditions, increase the integrative EI and empathic ability indicator and compensate/develop their individual components during their professional training at the university. Considering the differences in particular EI components between men and women that the survey found, it is essential to pay attention to raising the level of "managing your emotions" irrespective of the participant's gender. Furthermore, it would be advisable to hold classes aiming to develop self-motivation for female students, and to develop empathy for male students. This approach is in line with the current standards of student-oriented training, and it will not only raise the students' satisfaction with the quality of educational services but also improve the learning process efficiency. Considering the role of EI and empathic abilities in the doctor's work, we can recommend analysing these features in students coming to and then studying at the medical university so as to adjust one's individual learning trajectory with account for gender aspects and, possibly, one's need for psychological help in the diagnostics-based choice between clinical and non-clinical disciplines.

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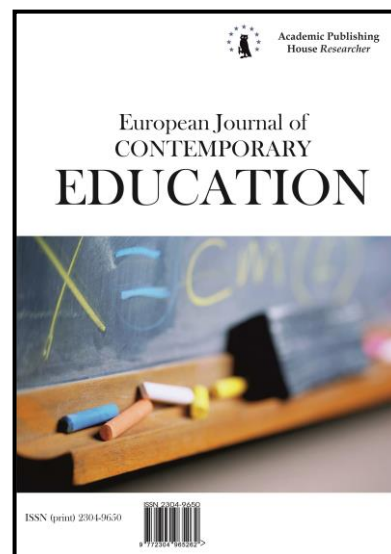
## Teachers' Authority in the Postmodern Era

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**Abstract**

The authority given to teachers within the school setting is vital to any educational work. According to its most widely accepted meaning, this concept signifies teachers' legal and social right to teach, counsel or guide that derives from a formal recognition of their ability to do so. As a concept, authority in the education system has undergone changes throughout history and is seen as a meaningful part of the educational process. The postmodern era presents us with an erosion of authority within the school system in general and teacher authority in particular. The goal of this study was to evaluate teachers' authority among teachers in Israel and to find out whether there are differences in this authority between distinct groups of teachers. Research was conducted using the quantitative approach. One hundred and eight male and female teachers participated by completing a questionnaire. The data were analyzed statistically, as is customary in quantitative research. The findings show that within the education system teachers display an average amount of authority. A significant difference was found between male and female teachers' ability to wield authority, whereby male teachers displayed greater self-confidence than female teachers in their ability to do so. This finding might be explained by gender viewpoints; namely that female teachers in the classroom use qualities such as caring, concern and sensitivity. In contrast, male teachers use male characteristics such as dominance, assertiveness, ambition, aggressiveness and competitiveness.

**Keywords:** teacher authority, postmodernism, teachers in Israel, education system.

### 1. Introduction

The authority granted to teachers within the school setting is essential to any educational endeavor. According to its most widely accepted meaning, this concept signifies teachers' legal and social right to teach, counsel or guide that derives from a formal recognition of their ability to do so (Shermer 2004). The concept of teacher authority, in particular, has undergone many changes throughout history, from traditional, power-based authority given the status of person wielding it,

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where teachers received autonomy to teach and students obeyed, to the postmodern era where education is more open; the spaces where one can practice autonomy are growing, children are at the center, and it is no longer clear who wields the authority and who submits to it (Tobin, Lis, 2013).

Over the last decade, more and more teachers have been complaining about losing their authority within the education system. The proliferation of discipline problems, a gradual erosion of the status of the teacher, growing lack of respect for teachers and an increase in parental intervention (Tovin, Lis, 2013) have been undermining teachers' standing and authority (Goskov, 2016; Mayseless, 2005).

**Authority – definitions**

The most common attitude to the concept of authority stems from the social and legal recognition that an authority figure may act, when this recognition puts the authority figure at an advantage over everyone else. According to Jewish thought and tradition, authority is an achievement that feeds off of one's personality and positive traits and grants one the power to instruct others, while consciously understanding the limits of one's control (Shermer, 2004). According to Lev-On and Prince-Meller (2018), educational authority is a hierarchical relationship between the one wielding the authority who sets the rules of conduct and the one under that authority. In Jewish educational thought, the source of teacher authority is the position itself; this authority is granted by the very fact that they are licensed to teach the content of the Jewish tradition, commandments and values and pass them on to the younger generation (Yarchi, 2001).

The Latin origin of the word 'authority' (*auctoritas*) comes from the time of the Roman Empire and it means the ability to get people to respond willingly to one's leadership. In its various historical forms, authority took on different tones and biases in accordance with the social ideologies which differed in liberal, conservative or fascist societies (Goskov, 2016). Based on Max Weber, Goskov (2016) suggested the following classification:

**Rational-legal/bureaucratic authority**: Authority that comes from the regime and its legal mechanisms. The ones in authority are the government ministries and the legislative branch, while the public accepts this authority, is required to obey the laws and pay taxes, and those who violate this are liable to punishment. Within the education system, the administration and teaching staff are the ones wielding hierarchical educational rational-legal authority. Students accept teachers' authority, teachers accept principals' authority and principals accept their supervisors' authority. But this does not ensure that those accepting the authority, the parents and students, always obey the rules and solutions to this are varied and change according to place, context and time.

**Traditional authority**: Authority which is passed down through to the next generation and functions in accordance with authoritarian religious and secular rules. With religious authority, in the Jewish context the rabbis and Kabbalists are the ones wielding authority and setting rules on the basis of Holy Scriptures, and the community of believers accept their authority and trust them. The secular side of traditional authority is founded in the modern legal system, for instance, which acts in accordance with traditions of jurisprudence such as legal precedent, or academia, which follows traditional authority-based rules. With traditional authority, the ones accepting authority do so willingly and therefore there is no need for sanctions.

**Charismatic authority**: This is granted to one person, due to a unique attribute such as a sense of sanctity, certain personality traits, or an idea the person offers to people who decide to accept this authority. In education, charismatic authority can be expressed in a principal or teacher who constitutes a role-model to be imitated for students or other teachers who accept their authority due to their charisma. Rabbis may become spiritual personalities whose authority is accepted by admiring believers. In a more negative context, this person could also be a cult leader who deprives people of their freedom.

**Expert authority**: Authority granted to experts in their field that is usually anchored in a certificate or formal degree, or exceptional expertise displayed in a distinct field of knowledge. This authority is not uniform. The different kinds can be completely mixed put and found in an 'impure' state, wherein a certain authority may stem from a blend of authorities such as in the case of educational authority. Such authority in schools originates in the government and the laws amending the Compulsory Education Law. Educational authority is hierarchically structured where the ones wielding the authority set the rules and the ones accepting the authority are expected to follow them. Authority within the school is dynamic and can be changed by educational bodies and may differ from school to school, based on location and educational ideology.

Authority is the power given to those who hold positions according to the hierarchical structure of an organization. In school, teachers are the ones who have authority over students, and they need it to maintain order and be able to teach. This is how the definition of authority is usually presented. In their educational environment there are five types of authority which can be used respectively in the educational system. Legal authority is granted to teachers due to their job, and they are permitted to make decisions and address discipline problems. Unique authority is afforded by their expertise, only teachers who are experts in their field are allowed to teach that subject and provide students with professional knowledge. Authority is given to charismatic teachers by students who respect and admire them, that is to say their authority stems from their personality and their investment in their job. Reward-based authority is granted, based on teachers' ability to reward good behavior, excellence, appreciation. Punitive authority is based on teachers' ability to punish students according to school rules (Avinun, 2005).

**Authority in the postmodern era**

According to Plato's educational approach (Hare, 1989), education is a process of learning and acquiring knowledge and teaching is the means used to arouse students' curiosity to learn. Besides imparting knowledge, one of the teachers' most important roles is to teach students to be good and moral, and thus the philosopher ascribes tremendous importance to educators and thereby grants them their authority. Plato saw educators as part of a wider system and as bound by a policy of laws which guide children towards a single opinion that the law to declares to be true. This is a state compulsory education law which parents are also bound by as the ones responsible for sending their children to school. Teachers are employees hired by the government.

Plato saw the government as the branch responsible for education, which changed the teachers' standing to that of a government employee, an inferior social position. Their authority becomes formal and stems from the powers of the establishment and is far from being educational or professional. Teachers were always under the supervision of political bodies which granted them their authority. In contrast, Dewey (1902/1990) claimed that people require organizational authority within which they find their liberty. Dewey revolutionized educational thought and placed the children at the center of the educational process, while the educators' job was to lead students and mold their moral character as democratic citizens, and thus Dewey placed teachers' educational authority at a high level, but preferred it not to be overt and explicit, but that it maintain teachers' status (Rosenow, 1993).

The traditional authority of the past relied on the status of being a figure of authority. Within families, parents chose the methods of education and punishment, and any attempt at intervening was considered a challenge to their authority. Teachers in school were given autonomy in teaching and students were supposed to obey without challenging what was asked of them, with the full support from parents, for whom teachers were of the highest value. Corporal punishment, obedience and inflexibility were common in traditional authority (Omer, 2008). Gradually, over the years, traditional authority has weakened over time and concepts such as 'authority' and 'authoritarian' were considered aggressive. During the 1960s and 1970s, an ideology developed that wanted to do away with the use of authority in children's education. According to the new ideology, parents and teachers should educate children through love, understanding, support, freedom of expression, while removing boundaries and enforcement. The new ideology became commonplace and influenced educators and psychologists who believed that this was the way to educate the students of the future generation (Omer, 2008).

In modern Israeli society, the education systems place the child at the center and encourage the development of student autonomy. The biblical verse "teach a child in his own way and even when he is old, he will not depart from it" (Proverbs, 22: 6), has become a slogan which expresses the need for educators to adapt themselves and their curriculum to their students, to their personality, age and scholastic level. A diachronic examination shows that this verse has been interpreted in different ways at different times. The interpretation that places children in the center in no way resembles the past interpretation, neither in Jewish nor Christian society (Hed, 2011).

Omer (2008) claimed that in the 1980s, the concept of a 'new authority' was created. This is the kind that does not want traditional authority, but still wants to educate children in a way that sets boundaries, create coping situations with challenges in a manner acceptable to society. The new authority requires the presence of parents at home and of teachers in the classroom to demonstrate authority figures who maintain the differences in status, but show caring, resilience

and confidence and act with full transparency. The support for the teacher does not come from the teachers' job or qualifications; rather it is built on a process of trust and complete avoidance of violence towards children.

The postmodern era in the West (the latter half of the 20th century and into the 21st century) reflects the approach that nothing is absolute or definite anymore as it was in the modern era, including science, and that democratic expression and criticism should be allowed. The organizational structure is more dynamic and less hierarchical and the belief in letting employees and professional staff in on ideas and decision making is growing. Information flows and travels rapidly between continents thanks to the internet, emails and mobile phones. Society is more varied and multicultural; it is more open to a variety of lifestyles, accepting those are different and striving for equality of opportunity (Goskov, 2016). In the postmodern era, schools aspire to establish authority that is not based on forceful control, threats, obedience and punishment. At the same time, schools today try to create a safe place where the staff care about their students, listen to them and are present and involved (Omer, 2008) and it seems that they can't make up their mind.

These significant changes taking place in the postmodern era are directly influencing the quality of education. Educational policies are adapting themselves to societal, religious and class-based diversity, no longer presenting a unified curriculum for everyone without addressing these differences. Rather, they aim for more personalized adaptation. There is a lot of information and it is readily available on social media, and virtual learning allows people to purchase courses on the computer at home or any other physical location. Schools' organizational structure is more democratic, where the staff is committed to professional development while adapting to an ever-changing reality. The blurring of hierarchies in the postmodern era has diminished the social standing and authority of teachers and teaching. During the modern era, authority was granted according to hierarchical ranking, and this was supported by the public. In the postmodern era, the hierarchical structure is no longer clear and there is no definite side that wields authority or that accepts it, which is the general principle in defining the concept of authority. The current general state of authority directly impacts the hierarchical structure in schools and psychology research indicates a weakening in parental, legal and teacher authority over young people (Abinun, 2005; Goskov, 2016).

Wilf (2012) claimed that one of the things the weakened teachers' authority was the Students' Rights Law passed in 2004, designed to 'protect' students against teachers through legislation. The law's very name teaches us that it recognizes the fact that students have rights and that is enough to make it worthy of criticism.

The law states: children have the right to an education, students' rights and obligations should be displayed in schools; students should not be discriminated against for various reasons; students and their parents have a right to a fair hearing before said students are permanently expelled from the school they attend; students have the right to write matriculation exams; discipline in schools will be managed in a manner that befits human dignity; students may not be punished for anything their parents do or do not do; students should be encouraged to establish a student council, and information pertaining to students should be kept confidential and be disclosed only if necessary for professional reasons (Ayalon, 2012). The law, which is meant to protect students' rights, is unbalanced, since it doesn't codify their obligations. The various sections of the law enable a wide range of definitions which students sometimes take advantage of by casting teachers' behavior in a light which makes it seem they have violated the law. 'Strong' parents brandish the law any time teachers use an authoritative tool on their children who need boundaries. Teachers are not entitled to legal protection due to their job and tend to give up on trying to educate the children whose parents tend to complain about every little authority-based step taken against their children (Wilf, 2012).

Abinun (2005) wishes to mark out boundaries within the school system in a democratic society, as is customary today. Children should be placed at the center and their needs and uniqueness should be taken into account. According to him, freedom is an important value but it should be adapted to education and only on condition that this does not come at the expense of other important values such as hurting oneself or others.

The research aim was to evaluate the existence and level of teacher authority.

The research questions were: Is there a difference among teachers in the context of teacher authority? How is this difference expressed?

Research assumptions:

There will be differences in teacher authority between different groups of teachers.

Operational assumptions:

Male teachers will display a higher level of authority than female teachers due to their socialization as men.

Homeroom teachers will display greater authority than subject teachers since they know the students and parents better.

Elementary school teachers will display greater authority than secondary school teachers due to their students' younger age, which enables them to accept authority more readily than teenagers in high school.

Religious teachers will display greater authority than secular teachers since there are religious commandments pertaining to the authority of one's elders.

Veteran teachers will display greater authority than young teachers as a result of their experience and their established standing within their teaching subject.

## 2. Methodology
### The method and why it was selected

In the frame of evaluation research, I used a quantitative method to examine the attitudes of male and female teachers about using their authority on their students.

In a quantitative study, the researchers have no control over the independent variable and thus cannot manipulate it. Quantitative studies stem from a theory, a data set that undergoes analysis and interpretation to see how it measures the research questions and assumptions (Friedman, 2013). This approach is better suited to the studied issue both for the researcher (time, skills and preferences) and for the scope of the study and the research questions.

### Research tools

The tool used in this study was an independently constructed attitudes questionnaire. A questionnaire was deemed appropriate for this study as a tool that allows examination of numerous participants. In order to get the broadest possible picture of teacher authority within a certain time frame, one must examine as many teachers as possible and questionnaires help one do this. The questionnaire in this study contained 17 statements concerning teacher authority and how it is expressed in the postmodern era with a six-point Likert scale (I don't agree at all, I don't agree, I tend not to agree, I tend to agree, I agree, I very much agree). Respondents were also asked to give personal details related to age, gender, years of teaching, role, the level of the school in which they teach, and degree of religious observance (see Appendix A).

**Table 1.** Four categories of the questionnaire after Factor Analysis and reliability testing

| Factor name | Relevant statements | Reliability |
|---|---|---|
| F1. Setting boundaries for students and parents | 1-6 | 0.812 |
| F2. Teachers' high self-confidence in their ability to cope | 7-10 | 0.781 |
| F3. Teachers' helplessness when trying to cope | 11-13 | 0.852 |
| F4. Sense of anxiety with students and parents | 14-17 | 0.708 |

### Participants

This quantitative study examined the opinions of male and female teachers who work in elementary and secondary schools from the secular and religious sectors, from the south of Israel and its central coastal plains; homeroom and subject teachers, novice and veteran teachers. Of the 108 participants, 77 were female teachers and 31 were male.

**Table 2.** Research population

| Gender | Seniority (Years) | Role | School | Religious observance |
|---|---|---|---|---|
| Male: 31<br>Female: 77 | 1-3<br>4-7<br>8-15<br>Over 15 | Homeroom teachers: 53<br>Subject teachers: 55 | Elementary: 64<br>Secondary: 44 | Secular: 33<br>Traditional: 13<br>Religious: 62 |

**Data analysis method**

In this study the findings were analyzed statistically. The statements were divided into four factors and their reliability was checked as shown in the chart below.

After the division, the factors underwent a T-test to compare the independent variables. The test checked whether it was possible to distinguish clearly between the categories and a number of group pairs: male and female teachers, homeroom and subject teachers, elementary and secondary teachers. An ANOVA test examined differences between groups that included more than one variable: degree of religious observance and teaching seniority. A Pearson test was also conducted to examine the correlations between the factors

**3. Results**

The findings were discovered through analyzing the questionnaires filled out by 108 male and female teachers (N = 108). These elementary and secondary school teachers were asked to express their opinions on teacher authority. Of the 108 respondents, 31 were male and 77 were female. About 50 % of the respondents had been teaching for up to 15 years while about 50 % had been teaching for more than 15 years seniority. Approximately half of the respondents (49.1 %) were homeroom teachers and approximately half (50.9 %) were subject teachers. More than half the teachers (50.9 %) teach in elementary schools and about 40 % teach in secondary schools. Over half the respondents defined themselves as religious (57.4 %), 12 % as traditional and about 30 % as secular.

**Table 3.** Descriptive statistics of group averages: F1 and F2 – high teacher authority, F3 and F4 – low teacher authority

|  | Mean | Std. Deviation | N |
|---|---|---|---|
| F1 | 4.1651 | .87408 | 108 |
| F2 | 4.2847 | .98497 | 108 |
| F3 | 2.0278 | 1.04928 | 108 |
| F4 | 2.0972 | .90806 | 108 |

**Table 4.** Pearson correlations between factors

|  |  | F1 | F2 | F3 | F4 |
|---|---|---|---|---|---|
| F1 | Pearson Correlation | 1 |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |
|  | N | 108 |  |  |  |
| F2 | Pearson Correlation | **.325**[**] | 1 |  |  |
|  | Sig. (2-tailed) | .001 |  |  |  |
|  | N | 108 | 108 |  |  |
| F3 | Pearson | - | - | 1 |  |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
|  | Correlation | **.367**\*\* | **.455**\*\* |  |  |
|  | Sig. (2-tailed) | .000 | .000 |  |  |
|  | N | 108 | 108 | 108 |  |
| F4 | Pearson Correlation | -.170 | **-.330**\*\* | **.568**\*\* | 1 |
|  | Sig. (2-tailed) | .078 | .000 | .000 |  |
|  | N | 108 | 108 | 108 | 108 |

The correlation table above revealed five statistically significant correlations between the following pairs of variables:

1.      statistically significant positive correlation was found between F1 – Setting boundaries for students and parents and F2 – Teachers' high self-confidence in their ability to cope (rp = .325, p < 0.01). The higher the average for F1, the higher the average for F2.

2.      A statistically significant negative correlation was found between F1 – Setting boundaries for students and parents and F3 – Teachers' helplessness when trying to cope (rp = -.367, p < 0.01). The higher the average for F1, the lower the average for F3.

3.      A statistically significant negative correlation was found between F2 – Teachers' high self-confidence in their ability to cope and F3 – Teachers' helplessness when trying to cope (rp = -.455, p < 0.01). The higher the average for F2, the lower the average for F3.

4.      A statistically significant negative correlation was found between F2 – Teachers' high self-confidence in their ability to cope and F4 – Sense of anxiety with students and parents (rp = -.330, p < 0.01). The higher the average for F2, the lower the average for F4.

**Table 5.** Gender differences in teacher authority

| Gender | Males | | | Females | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  | N | Mean | Std. Deviation | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) |
| F1 | 31 | 4.2688 | .62757 | 77 | 4.1234 | .95605 | .928 | 83 | .356 |
| F2 | 31 | 4.6855 | .91508 | 77 | 4.1234 | .97132 | \*\*2.837 | 59 | .006 |
| F3 | 31 | 1.8925 | .82725 | 77 | 2.0823 | 1.12670 | -.849 | 106 | .398 |
| F4 | 31 | 1.9516 | .86221 | 77 | 2.1558 | .92484 | -1.058 | 106 | .292 |

p<0.01

The t-test for independent samples deals with the differences between the two groups that are independent of each other.

A statistically significant difference was found between male and female teachers for the F2 factor average, namely, their high self-confidence in their ability to cope. The average among men was higher than among women, indicating that male teachers have greater self-confidence.

**Table 6**. Teacher authority according to school role

| School role | Homeroom teacher | | | Subject teacher | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  | N | Mean | Std. Deviation | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) |
| F1 | 53 | 4.3428 | .78543 | 55 | 3.9939 | .92683 | \*2.106 | 106 | .038 |
| F2 | 53 | 4.6604 | .87856 | 55 | 3.9227 | .95242 | \*\*4.179 | 106 | .000 |
| F3 | 53 | 1.8994 | .95538 | 55 | 2.1515 | 1.12732 | -1.252 | 106 | .213 |
| F4 | 53 | 2.0236 | .91102 | 55 | 2.1682 | .90785 | -.826 | 106 | .411 |

p<0.01

Statistically significant differences were found in the F1 and F2 averages, namely, homeroom teachers have a clearer ability to set boundaries for parents and students as well as higher self-confidence in coping than do subject teachers.

Analysis of the factors among teachers working in elementary and secondary schools showed no statistically significant differences in the averages of the four factors.

Analysis of the factors among teachers according to years of teaching showed no statistically significant differences in the averages of the four factors for any of the seniority groupings.

Analysis of the factors among teachers according to degree of religious observance showed no statistically significant differences in the averages of the four factors for any of the degree of religious observance groupings.

## 4. Discussion

This study has shown that the level of authority among teachers in general is little more than mediocre. The study supports the literature, which indicates a gradual decline in teacher authority in education systems that has become more noticeable over the past decade and hence disrupts the quality assurance of educational procedures. This loss of authority is expressed in the deterioration of student discipline, teacher burnout, and an increase in critical parental intervention (Tobin, Lis, 2013). Teachers complain about difficulties with classroom management, the rise in discipline problems, the lack of coping tools and the sense that they are working in an organizational structure that does not offer them sufficient support and coping tools (Mayseless, 2005). Shermer (2004) reported on the feelings of teachers who complain about their ever-decreasing status in the eyes of parents. He claimed that this was not a total collapse of authority, but rather a gradual erosion of students' trust in their teachers.

Omer (2007) also indicated the ongoing deterioration of teacher authority and social standing, citing disrespectful treatment from the public and parents who tend to intervene in the teachers' work and weaken their authority. Teachers work within a system that has demands that are incompatible with their work hours, there is stress and lack of backup from the principals when they come into to conflict with parents or students. He also mentioned lack of discipline and complete disrespect from students and sometimes verbal and physical violence towards the teachers. The boundary between freedom of expression and its limits is becoming increasingly blurred and with it, the teachers' authority in the classroom. In order to rehabilitate teacher authority, the official authority given them through their teaching certificate is clearly insufficient. They must nurture their personal and professional authority which will lead to an inner discipline that doesn't stem from aggression, threats or intimidation.

The gender issue

The study's assumption, which stated that male teachers would show more authority than female teachers was partially validated. Analysis of the findings reveals a distinct difference between male and female teachers' ability to use their authority only in terms of their self-confidence. In accordance with the factors examined, the higher teachers' self-confidence, the more they could set boundaries for students and parents. The greater the teachers' self-confidence, the less anxiety they have when facing students or parents. The feelings of anxiety and helplessness reveal a significant decrease in teachers' ability to cope and use their authority. The low self-confidence among female teachers when coping with students and their parents might indicate gender inequality within the education system. Most of those employed in the education system in Israel are women (74 % according to the Central Bureau of (2019), and yet, management, supervisory positons and other high-paying jobs are held by men. The same is true of those heading public organizations (Herzog, 2010). The salary offered for teaching jobs is relatively low, there is little chance of promotion and the long hours relative to the low pay do not contribute to the self-confidence of the female teachers comprising the lower ranks (Keynan, 2013). Given these inferior conditions, the teaching profession has undergone overwhelming feminization. This process has influenced the social standing of teaching as a profession during the last few years and some people think that male teachers use teaching merely as a springboard (Avissar, Dvir, 2009).

One explanation for the difference found stems from the prevailing notion that men and women differ because of their gender and this difference is expressed in how they teach, their style and their influence on students (Aelterman, Sabbe 2007). Another explanation stems from the feminist perspective that female teachers in the classroom use their authority through their unique personal characteristics such as caring, concern and sensitivity (Goskov, 2016). In contrast, male teachers use male characteristics such as dominance, assertiveness, ambition, aggressiveness and competitiveness (Keynan, 2013).

The role issue

The findings show that homeroom teachers display more authority than subject teacher. This stems from the fact that homeroom teachers show higher rates of self-confidence when setting boundaries for both students and parents. This can be explained by the fact that homeroom teachers have a more constant presence in the lives of the students and their parents.

The Israeli Ministry of Education defines the homeroom teachers' job as being the main ones responsible for their students' wellbeing (Ministry of Education, 1994). Homeroom teachers play a meaningful part in the students' developmental process and aside from their job as homeroom teachers, they are also responsible for other areas such as a familiarity with students' personal lives, ongoing communication with students and their parents, connections between students and subject teachers, and being attentive to students' needs and development (Dor, 2014). Homeroom teachers are seen as managers of a microsystem burdened with several managerial tasks: making a year-long plan, organizing social and cultural activities, chairing pedagogical meetings, reporting to the principal, complying with Ministry of Education directives, being responsible for addressing discipline problems reported by subject teachers (Tzidkiyahu, 2008). In comparison, the subject teachers' job focuses on teaching their subject material and updating homeroom teachers on any pertinent information about the students (Dor, 2014). Homeroom teachers are more involved and play a more dominant role in the educational process. In the Israeli education system, homeroom teachers are expected to have a more personal relationship with their students and their parents. They know them better than any subject teacher who meets them for a few hours a week (Eilam, 2008). Consequently, the difference between homeroom teachers and subject teachers can explain the homeroom teachers' place at school in relation to the students and their parents as the one being better able to use authority.

The issue of seniority

The findings show that the number of years of teaching has no influence on the level of teacher authority. Even though it would makes sense to think that veteran teachers would have more authority, analysis of the findings shows that there is no correlation between the number of years of teaching and the ability to display authority with students and parents. Keynan (1996), who conducted research on staff rooms, described a hierarchical culture within the teachers' professional culture. Every teacher has his or her own social standing, consisting of external criteria such as education, discipline, seniority and social status within the school and in the staff room in particular. One of the interesting findings in the study is that seniority sets one's status, but it is not necessarily true that veteran teachers hold higher social status among their fellow teachers. Veteran teachers who do not get any promotion or more meaningful responsibility in addition to teaching have failed at their job. Since that is the case, seniority does not grant teachers an advantage when it comes to using their authority in class or with parents. Other studies even suggest that one of the reasons that teachers quit is the exhaustion from coping with discipline issues and their helplessness when confronting them. To a large extent, quitting also occurs among veteran teachers, who have been worn down by having to struggle for years and time hasn't necessarily given them an advantage in their ability to use their authority (Yariv, 2010).

The issue of religious observance

When analyzing the findings concerning different levels of religious observance, no difference was discovered in terms of levels of authority or the ability to cope with difficulties that demand authority with students or parents, between teachers with differing degrees of religious observance. Seemingly, a religious way of life is more totalitarian and establishes clearly defined behavioral guidelines for the individual. Within religious society, educators are granted authority based on their knowledge, specifically in the Torah, displaying exemplary personal behavior and having strong study skills are a good enough and necessary basis for educators. When authority, respect and power are given to a person by society, any disrespectful treatment is an insult to all of society (Shermer, 2004). The research literature suggests several reasons for the gradual erosion in teacher authority in the education system, regardless of the degree of religious observance of the teacher or the school. Overcrowded classrooms, the weakening of the social standing of teachers, a curriculum that neither interests nor challenges the students – all of these weaken a teachers' social standing regardless of their degree of religious observance. Another explanation attributes the trend of declining authority to Israeli culture in general, based on the general acceptance of impertinent behavior (*chutzpah*) as a national trait (Tobin, Lis, 2013).

The main research imitation lies in the research population, which consisted of 31 male teachers and 77 female teachers. The difficulty in finding male teachers derives from the fact that most teachers are, indeed, women. Given the fact that the review of the literature shows that most teachers are female, I would recommend examining a broader scope of schools across more areas in order to reach an equal number of male and female participants. Research data of this kind will constitute a stronger foundation for the conclusions one might draw as the source of differences in wielding authority among male and female teachers. Another direction that could be examined is that of ethnic differences. The review reveals the insight that authority is a concept that can change from one culture to another. One might examine how culture affects the use of authority and explore such differences in Jewish and Arab cultures.

## 5. Conclusion

Given the findings of this study, as an evaluator, I propose that the issue of setting boundaries in education should be introduced as obligatory and system-wide, and not something left up to the individual teacher. When boundaries are defined, there is order and each side in the educational setting knows their place, understands what is expected of them, and what they are aspiring to achieve. This gives everyone a sense of safety, understanding and protection. The education system must demarcate the boundaries of key concepts in education, encourage and cultivate quality education that is not based merely on obedience, threats and fear that certainly cannot create truly respectful any sustainable boundaries. Only these actions can improve the quality assurance in educational institutes.

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# Appendix 1

This is a research questionnaire. Your participation in the research is very important and so I will be most appreciative of your cooperation.

**Age**: _____

Please circle: **Gender**: M / F **Years of teaching**: 1-3 / 4-7 / 8-15 / over 15

**Role**: Homeroom teacher / Subject teacher **School**: Elementary / Secondary

**Religious observance**: Religious / Traditional / Secular. **Circle your choice:**

**Table 1.** Attitudes questionnaire

| | | *Do not agree at all* | *Do not agree* | *Tend not to agree* | *Tend to agree* | *Agree* | *Very much agree* |
|---|---|---|---|---|---|---|---|
| 1. | A student who disrupts/ objects/is rude knows I will use a deterrent and punishment. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. | Students know the drill! Anyone who interrupts will leave the lesson and face the consequences. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. | A parent who intervenes in my work will be called to order. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. | When a student is disruptive I put him/her in their place. | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. | In my lessons, students are always attentive. | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. | When I feel a parent is interfering with my job, I set boundaries. | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. | Whatever discipline problems there are, I can handle them. | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. | I am confident that I can handle a student who disrupts the lesson. | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. | I have all the tools that help me deal with discipline problems. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. | When there are discipline problems that disrupt the delivery of the lesson, I do not call for the principal. | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. | I have difficulty finding a way to deal with violations of discipline. | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. | There is nothing I can do when children interrupt an don't listen. | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. | When students disturb the lesson I give up. | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. | I answer parents who call me at any hour, because I don't want any trouble with them. | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. | I cannot manage the lesson when students disturb me. | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. | I become anxious when a student opposes me. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. | I feel I am losing control when students don't listen to me. | 1 | 2 | 3 | 4 | 5 | 6 |

# The Use of Practice-Based Assessments in Preparing Humanities and Social Sciences Specialists: The Case of Sumy State University (Ukraine)

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**Abstract**

This paper explores the potential for using practice-based assessments in higher education in preparing humanities and social sciences specialists. The authors tested a set of innovative methodologies for practice-based summative assessment of the progress made in learning certain disciplines by students majoring in Law, International Law, and History and Archaeology at Sumy State University (Ukraine). To assess the effectiveness of practice-based assessments, the authors employed anonymous surveying, tested students' level of mastery of key theoretical concepts, and carried out a comparative analysis of the performance of students who took part in practice-based assessments and those who took exams in a traditional way. The conducted pedagogical experiment indicates the advisability of employing practice-based assessments as part of teaching humanities and social sciences disciplines. It revealed a significant increase in the level of preparation of students on subjects summative assessment around which was based on practical assignments. Having students train their practical skills can help them assimilate theoretical knowledge better and for a longer time and become more confident in their preparedness for their future profession. Practice-based assessments can also serve as a yardstick for gauging the effectiveness of instructors' teaching methods and stimulate the quest for new ways of teaching and learning that can help meet the needs of the labor market and the interests of students pursuing a higher education as much as possible.

**Keywords:** learning through practice, learning by doing, work-based learning, practice-based assessment, case study, source study, debate, higher education, social science, arts and humanities, practical skills

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## 1. Introduction

Practice-based learning is one of the most popular trends in higher education in recent years. Researchers have identified "learning through practice" (Reese, 2011; Robinson, 2017; Strudwick, 2019) and "learning from practice" (Wortham et al., 2016; Brownell, 1948; Harvey, 2003; Little, 2000) as key areas for development in terms of preparing future specialists in both the technical and natural sciences and humanities and social sciences domains.

Researchers have been joined in advocating the use of a practice-based approach to learning by developers of regulatory documents and strategies for reforming the education system. For instance, Ukraine's law On Higher Education defines higher education as "a collection of systematized knowledge, *abilities and practical skills* [italicized by the authors], ways of thinking, professional, worldview, and civil qualities, moral and ethical values, and other competences acquired at an institution of higher learning (an academic institution) in a particular field of knowledge and in pursuit of a particular qualification at a level that surpasses the complete general secondary education level" (Law on Higher Education, 2014).

This approach fully aligns with the 2018 Paris Communiqué of the European Higher Education Area (EHEA), which encourages educational institutions "to provide interdisciplinary programmes as well as to combine academic and work-based learning" (Paris Communique, 2018). Note that Article 51 of the above-mentioned Ukrainian law provides the basic principles for the conduct of practical training, which, it says, must be conducted "at a company or organization based on an agreement entered into by a higher education institution" (Law on Higher Education, 2014).

Similar provisions are also found in the legislation of many other countries. For instance, Paragraph 3 of Article 39 of Lithuania's law On Higher Education and Research states that "the unity of higher education and research at colleges must be ensured through close contact with practice" (Law on Higher Education and Research, 2009). Elsewhere, Article 62 of Poland's law on Higher Education and Science empowers institutions of higher learning to "implement dual degree programmes which are practical programmes conducted with the participation of the employer" (Ustawa, 2018). Article 38 of Kazakhstan's law On Education states that "vocational practical training for students must be an integral part of higher education curricula" (On Education, 2007). These provisions stand as testimony to the reflection in educational policy in different countries of the significant role played by practical skills in the development of the essential competencies of future employees and their ability to perform competently the tasks associated with the occupation.

As noted by various researchers, requirements associated with learning through practice have long been in place in certain professional spheres. Graduates will be permitted to work in certain occupations only after completing lengthy practical training – and, normally, doing so in an actual work setting (e.g., hospitals, accounting firms, etc.). Preparatory practical training, which normally is conducted under the guidance of qualified professionals, provides the student with an opportunity to try out their competencies in the actual work environment. There is a growing contemporary interest in using practice-based learning in more extensive contexts (Billett, 2010). Whereas in the past practice-based learning was a mandatory component in the preparation of employees whose activity requires a set of practical skills (e.g., doctors), many educational institutions now try to see to it that the curriculum envisages that students will involve themselves with certain tasks outside the school setting (Kennedy et al., 2015: 1-13). This trend is governed by the following two intercomplementary factors: (1) the influence of the government in regulating employment and unemployment and (2) the wishes of graduates, for whom the transition from the educational process to work becomes smoother if they undertake practice-based learning.

It is also worth noting the fact that currently the primary focus both in government strategies and in research is specifically on either having students undergo practical training on the employer's premises or on implementing the dual learning system, which combines theoretical learning at the university with practical training in a company-based setting.

Using practical training and dual learning formats has a number of proven benefits. It helps boost the preparedness of future employees for their professional activity by helping develop their social and communication competencies (Lebid, Shevchenko, 2020a: 577) and reduce the time it takes them to adapt to a new workplace. As a result, the employer gets a more competent employee, and the employee has the ability to do their job more efficiently. However, it may be argued that learning through practice alone cannot be regarded as the ultimate way to go – at least not in certain fields. For instance, the spectrum of professions with which we could associate the activity

of a person with a legal education is quite broad (e.g., attorneys, notaries, prosecutors, employees of judicial institutions, etc.). Practical training for one single type of activity cannot give one a comprehensive idea of the legal profession as a whole. For instance, undergoing practical training in a lawyer's office will hardly add to one's knowledge of the job of private bailiffs, while doing so with a court secretary will hardly provide one with additional skills required to practice the notarial profession. Students typically acquire at particular companies and organizations a core set of skills and abilities that will enable them to perform properly the tasks associated with the occupation. Yet, considering the dynamic nature of the labor market, there is no guarantee that graduates will stay in a particular field in the future after getting into it.

Therefore, it make sense to have students not only acquire a set of practical skills specific to their chosen occupation (e.g., working with the Inheritance Register, used by notaries, or adding cases to and searching the Unified Register of Pretrial Investigations, used by law enforcement officers and attorneys) but also develop a set of general competencies needed in the legal profession (e.g., argumentation, critical thinking, and the skills of determining the nature of legal relationships). The same can be said for other professions too.

Fostering in students a set of practical skills that are universal to a particular specialty is a priority objective for all institutions of higher learning today. It is to be achieved across various aspects of the educational process and various forms and methods of learning. It goes without saying that virtually all disciplines, even those of an inherently theoretical nature, ought to prepare students for carrying out practical tasks in the future and can serve to foster the above-mentioned general skills and abilities. The present work is focused on a particular area of practice-based training – assessments that conclude a module or a course offered by an institution of higher learning.

Based on the findings from an analysis of the experience of universities in Ukraine and other former Soviet states, assessments tend to be conducted in those countries in the form of tests or just open-ended questions to be answered in written or oral form, depending on the university and specialty. Both tests and open-ended questions are primarily aimed at assessing the student's level of mastery of theoretical knowledge. Even if in the course of learning a discipline students do work on practical cases or practical projects, what remains a priority in the consciousness of most students who seek to achieve a good grade in the course is just memorizing most of the material as opposed to applying some of that knowledge in actual practice. Consequently, a paradoxical situation arises: working on a case serves to help the student master the theoretical material, but the theoretical material does not serve to help them acquire the skills and abilities needed to perform real-life professional work.

Although methodologies for conducting practice-based examinations (assessments) have long and successfully been tested in the area of training engineers, health professionals, chemists, biologists, and other specialists focused on the exact and life sciences (Amida et al., 2020; Boulet, Murray, 2010; Kristinayanti et al., 2018; Stephanchick, Karim, 1999), the humanities and social sciences education sector continues to lag behind significantly in this respect. In conjunction with the above, the aim of the present work was to explore the potential for transforming traditional forms of assessing the academic performance of humanities and social sciences students into practice-based ones and assess the effectiveness of such forms via a pedagogical experiment.

## 2. Materials and methods

The authors tested several summative assessment methodologies designed to help achieve the following two key objectives: (1) reinforce the skills and abilities acquired through learning in college and (2) properly measure the level of mastery of those skills and abilities in terms of achievement of the prescribed curriculum objectives. For law students, use was made of case study (classic legal cases, i.e. those with an unequivocally right resolution to them, and value cases, i.e. those founded on the need to balance competing values and interests and permissive of varying decisions depending on how well-founded a particular position is) and mooting. For students majoring in History and Archaeology, use was made of an assessment method focused on having one describe a real historical artifact and determine its scientific and historical-cultural value.

Focusing the conducted pedagogical experiment on the above two areas was based on the objective to assess the potential of practice-based assessments for the humanities and social science domain as a whole, taking into account modifications made to the methodologies based on the characteristics of a particular specialty.

To gauge the effectiveness of practice-based assessments, the authors employed anonymous surveying, tested students' level of mastery of key theoretical concepts, and carried out a comparative analysis of the performance of students who took part in practice-based assessments and those who took exams in a traditional way.

The survey and test results (the performance of students who took part in practice-based assessments and those who did not) were processed using StatPlus Pro. The significance of differences was established using the Chi-square test ($p<0.01$ and $p<0.05$).

The study's theoretical basis was a set of publications sharing the findings from research on practice-based learning in higher education (Billett, 2010; Brownell, 1948; Harvey, 2003; Kennedy et al., 2015; Lebid, Shevchenko, 2020a; Little, 2000; Reese, 2011; Robinson, 2017; Strudwick, 2019; Wortham et al., 2016; Wrenn & Wrenn, 2009). Due to the use of practice-based assessments in preparing humanities and social sciences specialists being an underresearched subject, the authors relied to a significant degree on works by researchers focused on the exact and life sciences (Amida et al., 2020; Boulet, Murray, 2010; Kristinayanti et al., 2018; Stephanchick, Karim, 1999).

### 3. Discussion

While the advisability of implementing practice-based learning in the educational process has been the subject of extensive discussion, there is, as yet, no consensus on the issue, not even across Europe, testimony to which is the development of national strategies for higher education by various nations. For instance, one of the main results expected from the implementation of Ukraine's National Strategy for Education to 2021 was "improvements in the effectiveness of the education of graduates from all levels of education and boosts in the competitiveness of domestic education, to be achieved by ensuring the fundamentality and practical orientation of curricula" (Natsional'na stratehiya, 2013). Item 2.2.3 of Ukraine's Draft Strategy for Higher Education for 2021–2031 lists among the key strategic and operational objectives "improving the level of practical training of learners" (Stratehiya rozvytku, 2020).

Similar objectives have been set by the government of Ireland, with the need for more collaboration between business and colleges stressed in the National Strategy for Higher Education to 2030: "Employer-academic partnership could also facilitate high-quality internships and work-placements for students and could be particularly useful as a way of enabling employer feedback on graduate employability and in facilitating employer input into curriculum design and development as well as course supply" (National Strategy, 2011).

On the other hand, the authors of Estonia's Strategy for Higher Education for 2006–2015 suggest drawing a line between educational institutions that provide theoretical knowledge and those that provide practice-based education. Specifically, the Strategy states the following: "the university education and higher vocational education systems will be oriented differently – education in universities will be theory-based, and applied skills will be acquired based on theoretical principles. Higher vocational education curricula will be focused on practical training, and theoretical knowledge will be acquired mainly based on practical need" (Estonia Higher Education, 2006). While there is little wrong with this conceptual approach, it is hard to deny the advisability of any type of educational institution implementing practice-based learning as a whole and employing practice-based assessment in particular.

There has mostly been a consensus among researchers on the issue. Implementing practice-based learning in higher education has been recognized as a necessary measure, with discussions mainly centered around how to implement it. Given that one of the key objectives in higher education is to help students develop as professionals who are capable of solving problems in real life (Wrenn & Wrenn, 2009), the use of elements of practice in the learning process is something there can be hardly any objection to. In this context, researchers have noted that people tend to learn better when they rely on immediate experience combined with critical reflection and analysis. This means that experience (immediate practice) alone is not enough to learn. Experience ought to be accompanied by reflection and inner fine tuning, which connect experience to previous learning, altering in a certain way the student's preliminary understanding of course content (Hornyak et al., 2007). Many researchers focused on the analysis of the effectiveness of teaching methodologies have stressed the need to alter traditional approaches to learning and synchronize general and

special competencies in alignment with the needs of the economy and the labor market (Lebid, Shevchenko, 2020b: 61).

All the above statements hold true for practice-based assessments as well. A number of researchers have noted the critical importance of assessment in higher education as a factor that helps shape the experience of learners and influences their behavior to an even greater degree than actual teaching (Boyd, Bloxham, 2007: 3; Parker et al., 2021). It is during the processes of preparing for assessments and doing assessment assignments that most students tend to become seriously immersed in the learning material, systematizing and assimilating it via the thinking and/or activity process. A tenet that confirms the experience of the authors of this work is that it is quite hard to convince learners to engage in a particular activity that has no direct impact on their grade (Boyd, Bloxham, 2007: 3). Therefore, the success of the entire educational process and the ability to achieve the prescribed curriculum objectives will largely depend on the degree to which assessment assignments are close to real-life professional tasks.

With that said, as already noted above, current approaches to summative assessment in universities appear to be heavily misaligned with the needs of practice, especially in the area of training humanities and social sciences specialists. This issue has been observed not only in the post-Soviet space, where higher education remains fairly conservative and overly theorized. Researchers have pointed out the predominant use of traditional, tried and trusted, methods (tests or written closed-book exams) in Western universities too, which by any means is not always effective (especially in the current climate of having to distance learn due to the COVID-19 pandemic) (Johanns et al. 2017; Parker et al., 2021). It can be argued that the quality of humanities and social sciences education can be improved significantly via the implementation of practice-based assessments specifically. Methodologies for and forms of such assessments can be highly diverse and can both be applied to particular areas of training (particular academic disciplines) and be universal to the humanities and social sciences sphere, with allowance for relevant subject adaptations.

## 4. Results

The authors' employed practice-based assessments in their pedagogical experiment for the following two purposes: (1) having law students (those majoring in Law and in International Law) and history students (those majoring in History and Archaeology) reinforce their general and professional skills and abilities; (2) carrying out an objective assessment of their prior learning. For law students, the authors used simplified mooting and solving practical cases. For history students, who were taking the Source Studies and Archival Studies discipline, the assessment assignment consisted in preparing as comprehensive a characterization of an artifact as a historical source as possible. The assessment was conducted on the premises of the Sumy Regional Local Studies Museum (the city of Sumy, Ukraine), with relevant pieces from the museum collection used for the purpose.

The authors' specific methodology for assessing students' practical skills was adopted with several important considerations in mind and pretty much regardless of the fact that they had already worked with certain kinds of practical assignments as part of their core curriculum.

Firstly, as the final stage in students' mastering of the discipline, assessment makes it possible to ensure as much variation as possible in terms of both the subject matter and types of practice-based problems. Assessment assignments must fully reflect course content and encompass as many aspects covered as possible. The degree of complexity and problematicity of these assignments depends, above all, on the level of anonymity of higher education seekers in the educational process. A learner's anonymity level is determined by their education level (bachelor's, master's, and PhD degrees) and year of study. Specifically, with first-year students pursuing a bachelor's degree, it makes sense to use assignments that are similar to those given to them during the term. It, for instance, will suffice to change a few facts in a legal case whose model has already been studied as part of their regular classes. When it comes to senior bachelor's, master's, or PhD degree students, assessment must envisage a number of challenges that require making decisions in complicated situations characterized by novelty and uncertainty.

Secondly, questions and problems used in assessments are perceived by students as more important, which helps ensure a special emphasis on practical skills and abilities. Specifying in the syllabus for an academic discipline from the beginning that the exam will be in the format of a

practical case (for lawyers) or a source-studies experiment (for historians) helps tune the student into a certain approach for working on the learning material, including asking relevant questions when consulting with the instructor.

Thirdly, it can be possible to achieve as effective a practice-based assessment as possible via using individualized assignments for a student or a small group of students (if the focus is on teamwork).

Finally, fourthly, practice-based problems can be combined with measuring theoretical knowledge. The use of this approach is critical for a number of humanities and social sciences disciplines that, apart from being important from theoretical and practical perspectives, can serve to shape one's worldview as well.

Specifically, as part of the European Union Law discipline (taught to second-year students majoring in International Law and fourth-year students majoring in Law), an exam was offered consisting of the following two stages: (1) taking an online test designed to determine the level of students' general theoretical knowledge and (2) solving a practical case. Whereas the exam's first part involved closed-book testing and assignments with strict time limits, the second part, on the contrary, permitted consulting pertinent legal materials and case law. However, students were to look for such materials on their own and within the time limits established by the examiner.

Below are a few examples of cases tested by the authors in conducting the assessments.

**Case 1** (offered to second-year students). In the spring of 2018, the European Parliament and the Council of the EU, acting through legislative procedure, introduced via a special document dealing with the protection of consumers of financial services a set of mandatory rules regulating the activity of certain types of financial institutions (e.g., being obligated to fully inform consumers and be transparent about their assets). Given the freedom of movement of capital in the EU, activities at the level of particular countries in this area ended up failing. Specifically, the government of Slovakia refused to follow the above rules based on the argument that, in adopting them, the EU institutions were not respecting the principle of subsidiarity. Provide a legal assessment of the situation.

**Case 2** (offered to fourth-year students). Some time ago, the French government established a set of special rules for the sale of beer and related beverages. In particular, a requirement was introduced for retailers to have a special quality certificate for beer they sell and a special license for the sale of beer. The authorities explained this move as an effort to protect public health, pointing to the latest research indicating that beer alcoholism, which is considered incurable, develops faster and is developed 35% more frequently than alcoholism caused by the consumption of hard liquor. Conduct a legal analysis of the situation. Will the government change its decision if it turns out that they do not produce beer and related beverages in France and that it has a robust wine industry? What are the criteria to use to determine the similarity between the two items? Are the two items interchangeable?

In addition, the exam sheet contained brief instructions on how to work with the cases:

1. Carefully read the text and determine the factual circumstances of the case. Determine the key participants in the case. Analyze the time and place of the situation and the status of the parties involved.

2. Give a preliminary assessment of whether or not the law has been violated. Determine and carefully inspect the regulation that may have been violated. [Note that second-year students were provided with the specific sources on EU law (e.g., Treaty on European Union, Treaty on the Functioning of the European Union, Charter of Fundamental Rights of the European Union, etc.). Fourth-year students, who expectedly tend to exhibit a higher degree of autonomy when it comes to solving practical problems, were to find relevant sources on law on their own.]

3. Provide a detailed answer (approx. 500 words) using the following template:

– State the factual circumstances of the case (time and place of the incident; parties involved).

– Describe what happened.

– State the specific law violated in the situation (cite relevant regulatory documents).

– Provide conclusions as to whether or not an infraction of the law has occurred, and, if yes, state what the infraction is and what the consequences may be.

As can be seen, the exam sheets included fairly typical and simple cases solving which requires just a few logical operations. Note that the assessment problems given to participating undergraduate

students were intentionally made simpler compared with those posed to them as part of their regular classroom learning, which was done considering the high levels of stress experienced by students during exams. With that said, it is to be kept in mind that the degree to which assignments are simplified must be based directly on the level of learners' autonomy. This kind of simplification is hardly advisable when it comes to assessing postgraduate and doctoral students.

As part of the Values of the European Union discipline, the authors tested another assessment methodology, designed not for summative but interim assessment – it is to be used at the conclusion of a module covering 50 % of the learning material. The interim assessment was conducted in the form of simplified mooting. The authors utilized a modified Karl Popper format*, whereby two opposing teams take turns presenting their positions in a value case, exchange questions and answers, and deliver concluding statements. A distinctive characteristic of the chosen format is that it is designed to help both reinforce students' individual practical skills and foster in them a set of competencies associated with teamwork, leadership, and effective communication. Since the final student grade for each discipline must, above all, embody students' individually achieved results, the authors suggest using this form of assessment exclusively as an interim one or as a component of the overall assessment used in combination with other forms of assessment.

Below is an example of a value debate case for students.

**Case 1.** Upon learning of her pregnancy, Ms V registers with a healthcare institution and wishes to find out the sex of her future child. After having an ultrasound scan in the 13th week of gestation, she is told that she is going to have a girl. Ms V asks the general practitioner for a repeat scan, as it is a matter of great significance to her. The thing is that her father had Duchenne muscular dystrophy, a genetic incurable lethal disease. While Ms V does carry the gene responsible for a recessive form of the disorder, the disease primarily affects males. Ms V is referred for an ultrasound, but when she visits the clinic, she finds out that the ultrasound machine is out of order. That is the only ultrasound machine in town. She ends up waiting for 10 weeks for the machine to get fixed.

In the 23rd week of gestation, Ms V has an ultrasound and finds out that it definitely is a boy. Ms V considers an artificial termination of pregnancy, but she is refused it, as the timeframe for doing it has already expired.

Ms V goes to court demanding that an accredited healthcare institution carry out an artificial termination of her pregnancy despite the missed deadline. On top of that, Ms V demands that the clinic compensate her for the moral damage she has suffered due to the poor medical service she received there. The clinic objects to the plaintiff's demands, claiming that the timeframe to carry out an artificial termination of her pregnancy has expired and that Ms V is discriminating against her unborn child based on sex. In addition, the clinic is of the view that it has yet to be proven that her unborn child will have Duchenne muscular dystrophy, although there is some probability of that.

A distinctive characteristic of interim assessments in the form of debate is that students are provided upfront with a list of cases that they will have to work on. With that said, it makes sense to include in this list at least twice as many situational assignments as there will be used as part of the actual activity. The case, team lineup (three students), and side (the applicant or the respondent) for the proceedings will be determined at the start of the activity by draw. Thus, while students know at the stage of preparing for the assessment activity what practical situations can potentially be offered to them and what materials (legislation and case law) they need to study, up until the start of the activity it remains unclear what the case (one case will be selected out of around 20 possible ones), their team lineup, and their side in the debate (the applicant or the respondent) will be. In addition, each team will need to assign roles to each of its members and decide on the order in which they will be presenting the team's position in the debate.

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* Under the Karl Popper Debate Format, a debate involves two teams of three speakers each. The teams know the topic but do not know which role will be assigned to them: the role of the affirmative party (herein referred to as 'Applicant') or that of the negative one ('Respondent'). Therefore, both teams get to prepare arguments for both sides of the debate. Each debater is given some time to prove the validity of their own team's position or challenge the opposing team's one. The affirmative party starts the debate. The speech of the first speaker from each team lasts 6 minutes. The second and third speakers each gets 5 minutes. The first and second speakers also each gets 3 minutes to answer the opposing team's questions. The third speaker just gets to summarize their own team's presentation and does not get to answer questions.

Table 1 lists the parameters used to assess the performance of the teams in the debate.

**Table 1.** Protocol for Evaluating the Debate Teams

| Criterion | Team 1 _____ ("The Applicant") | Team 2 _____ ("The Respondent") |
|---|---|---|
| Quality of argumentation (maximum 50 points) | | |
| Discussion (maximum 30 points) | | |
| Rhetorical means (maximum 10 points) | | |
| Adherence to the rules (maximum 10 points) | | |
| Total (maximum 100 points*) | | |

To conduct a final assessment on the same discipline, the authors employed a methodology that combines elements of the two described above. The students are offered upfront a list of cases, and there are as many cases as there are students in the groups. Unlike situational problems offered as part of the assessment around the European Union Law discipline (a few examples are provided above), these are value cases without an unequivocally right resolution to them. This sets up the potential for two sides clashing and for legal determination being performed based on a variety of regulations, which is conducive to a variety of legal consequences and suggests a need to balance the interests of the applicant and the respondent based on legal values and principles.

During the assessment, the student learns which case to work on and which side (the applicant versus the respondent) to represent, which is determined in a random manner. The students draw up a written memorandum (a document that presents a team's position in the debate), in which they provide all their logical and legal arguments in support of the side they represent. Table 2 displays the criteria for evaluating the memorandum.

**Table 2.** Criteria for Evaluating the Memorandum

| | Criterion | Points |
|---|---|---|
| 1. | The quality of the arguments presented in the memorandum, the availability and appropriateness of references to national legislation and acts of international law, materials of law enforcement practice of national courts, and jurisprudence of international courts | 0–50 |
| 2. | The position presentation (precise statements, rationality, logic and consistent position) | 0–20 |
| 3. | The interpretation of the circumstances of the case, legal qualification, lack of factual errors and manipulation of the circumstances of the case | 0–20 |
| 4. | Correctness of presentation, absence of spelling, grammatical, lexical, punctuation errors | 0–10 |
| Total | | 100 |

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* '100 points' hereinafter will mean the overall maximum grade that students can obtain on a particular type of assessment assignments.

The practice-based assessment engaged the entire student body to whom the European Union Law and Source Studies and Archival Studies disciplines were taught in the 2020–2021 school year. The Values of the European Union discipline was simultaneously taught to two groups of students, with only one of the groups taking part in a practice-based assessment as part of the pedagogical experiment. The second group took part in an interim assessment in the form of computer-based testing and in a summative assessment in the form of a written exam with open-ended theoretical questions. On all the other aspects (lectures, practical classes, and individual assignments for independent work), the same teaching methodology was used. Based on these conditions, the effectiveness of practice-based assessments was measured using several different methods.

To assess the results of the pedagogical experiment around the Values of the European Union course, the authors conducted entrance testing (before the course started) and subsequent testing (in the next term), both aimed at measuring student ability to legally interpret key axiological-legal concepts, like equality, nondiscrimination, honor, dignity, fairness, freedom, and pluralism, i.e. categories already familiar to law students from the disciplines they had studied earlier (Theory of the State and Law, Constitutional Law, and Civil Law), which in this course were examined in a broader European legal context using an axiological approach (Zavhorodnia et al., 2019).

Table 3 displays the results of the entrance testing on the discipline and the testing conducted in the next term, subsequent to the completion of the Values of the European Union course.

**Table 3.** Results of the Entrance and Subsequent Testing on the Values of the European Union Discipline

| Grades | Testing before taking 'Values of the EU' | | Testing after taking 'Values of the EU' | | χ2 (for 3 & 4) |
|---|---|---|---|---|---|
| | The group with practice-oriented assessments | The group without practice-oriented assessments | The group with practice-oriented assessments | The group without practice-oriented assessments | |
| | 1 | 2 | 3 | 4 | |
| A (90–100) | 2 (7.4 %) | 1 (4 %) | 4 (14.8 %) | 2 (8 %) | 4.934 p > 0.05 |
| B (82–89) | 8 (29.6 %) | 7 (28 %) | 9 (33.3 %) | 8 (32 %) | |
| C (74–81) | 7 (25.9 %) | 7 (28 %) | 8 (25.9 %) | 7 (28 %) | |
| D (64–73) | 4 (14.8 %) | 3 (12 %) | 4 (14.8 %) | 3 (12 %) | |
| E (60–63) | 3 (11.1 %) | 4 (16 %) | 2 (7.4 %) | 3 (12 %) | |
| F (59 –0) | 3 (11.1 %) | 3 (12 %) | 0 | 2 (8 %) | |
| Total | 27 | 25 | 27 | 25 | |

As can be seen, after completing the course, students who took part in practice-based assessments exhibited an overall better level of mastery of course material and a higher level of progress than those who did not.

Another important objective that may be resolved thanks to practice-based assessments is preparing law students for the unified state entrance exam for entry into the master's program

(the GELCT (General Educational Legal Competence Tests) block*). Based on the results from occasional drills conducted using the material from the previous year's tests (publicly available on the official website of the Ukrainian Center for Education Quality Assessment (https://testportal.gov.ua/materialy-yevi-yefvv/)), students who took part in practice-based assessments have posted overall higher results than those who did not. Table 4 displays the results from one such activity, which was conducted using a group of 20 students who took part in practice-based assessments and a group of 17 students who did not. The table only lists the numbers of students who scored over 60 %.

**Table 4.** Mock GELCT Exam Results

| Test Unit | The group with practice-oriented assessments | The group without practice-oriented assessments | χ2 |
|---|---|---|---|
| Analytical Thinking | 16 (80 %) | 11 (64.7 %) | 6.227 p < 0.05 |
| Critical Thinking | 15 (75 %) | 10 (58.8 %) | |
| Logical Thinking | 15 (75 %) | 11 (64.7 %) | |
| Average, % | 76.6 % | 62.7 % | |

Suppose the null hypothesis is that practice-based assessments have no effect on students' capacity for analytical, logical, and critical thinking. In this case, the control group is those of the student body who did not take part in the practice-based assessment. With that said, the χ2 value for the group of students who took part in the practice-based assessment is 6.227, which indicates that practice-based assessments *can* have a positive effect on student preparedness for the GELCT.

Practice-based assessments are quite a relevant method for enhancing the quality of training of humanities and social sciences students, which is also confirmed by the experience of employing them as part of a bachelor's degree program in History and Archaeology. One of the program's key objectives is "to prepare students for educational, methodological, and organizational work in general education institutions, practical and auxiliary activity in museums, archives, civil society organizations, and local studies organizations" (Profil′ prohramy). It goes without saying that it is hardly possible to achieve this goal without using practice-based teaching and assessment methods.

Therefore, most academic disciplines required by the curriculum involve the use of such methods. Specifically, a whole raft of subjects under the History program are concluded with practice-based assessments of student knowledge. Of definite interest in the context of the present study is the experience of assessing students on the Source Studies and Archival Studies discipline, which is taught in the first year.

At the beginning of the course, students were familiarized with general theoretical aspects of source studies, its role in historical research, terminology, typology, methods for searching for, processing, and utilizing historical sources, etc. Separate attention is devoted to source studies criticism (a method for critical study of sources). Next, students were presented with a block of topics devoted to existing types of sources (e.g., material, graphic, oral, linguistic, and written sources) and were provided with an insight into the classification of sources.

Following a relaxation of lockdown restrictions in 2021, certain lecture classes and most practicals were conducted not in the classroom but on the premises of the History Museum and at the Research Center for Historical Local Studies at Sumy State University. This helped immerse students in the environment of historical artifacts. Students could not only receive information

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* The GELCT is a part of the Unified Entrance Exam for entry to a master's degree in law in Ukraine that tests students' general learning competencies. It consists of the following three blocks: critical thinking, logical thinking, and analytical thinking. Each block contains 9–12 assignments with a time limit of 25 minutes.

about historical sources and share it but also explore the artifacts through visual and tactile contact. The use of this work format was aimed at helping students meaningfully grasp the learning material and helping instructors assess current student knowledge as objectively as possible.

The Source Studies and Archival Studies course was concluded with a summative assessment comprised of two sections. The maximum number of points on each section equaled 50 % of the assessment grade.

**Section 1.** To test students' theoretical knowledge, the final assessment includes multiple-choice assignments (4–6 answer options to choose from). Students could answer the questions in written form in the classroom in a special class held for the purpose or through their user account on the university's online platform.

**Section 2.** Assignments in this section are aimed at testing students' practical ability to work with historical sources. This part of the assessment is conducted on the premises of the Sumy Regional Local Studies Museum or of the History Museum of Sumy State University using relevant pieces from the collection (Zanyattya). Each student is picked an artifact at random. Normally, use is made of whole or fragmented ceramic items, coins, paper money, small metal objects, agricultural implements, old photographs, handwritten and printed documents, books, etc. Students are to provide as comprehensive a characterization of an artifact as a historical source as possible. Essentially, they have to put their current theoretical knowledge to use to generate as much information as possible about the source. The information obtained is to be grouped into three blocks.

**Block 1.** Describing the source's external characteristics (e.g., depending on what type of artifact it is, the time and place it was created, the material it is made from, its form, structure, authorship, etc.).

**Block 2.** Critically conceptualizing the source (determining the historical conditions in which the source was produced or acquired its particular external characteristics; determining the possible purpose behind the creation of the source; assessing the completeness, accuracy, and veracity of the information contained in the source; etc.).

**Block 3.** Making a forecast about the source (identifying the thematic areas of historical science the study of which the source will be most useful for and formulating suppositions on how to enrich the existing body of knowledge on the source (e.g., via isotope analysis or the use of additional sources).

Table 5 displays the assessment criteria used for the Source Studies and Archival Studies discipline.

**Table 5.** Assessment Criteria Used for the Source Studies and Archival Studies Discipline

| Section | Content | Points |
|---|---|---|
| Section 1 | Theoretical assessment | 0–50 |
| Section 2.1 | Main formal characteristics of the historical source determination | 0–10 |
| Section 2.2 | Complex analysis of historical source | 0–25 |
| Section 2.3 | Reasoned substantiation of the historical value of the source and determination of the areas of its application | 0–15 |
| Total | | 100 |

At the end of the school year, all the participating students were asked to take part in an anonymous survey on their self-assessment of how they had done on the development of their skills and abilities. The findings found those who took part in practice-based assessments to be more

confident in their knowledge and abilities at the conclusion of the school year. Comparing the results for participating law students who studied the disciplines with practice-based assessments being used (20 respondents) and those who did without such assignments being used (17 respondents) revealed that the former rated their capacity for practical work overall higher and had less fear of their future professional activity.

Table 6 outlines the key findings from the survey.

**Table 6.** Results from the Survey of Law Students on Their Preparedness for Practical Activity

| Assertion | The group with practice-oriented assessments | | | The group without practice-oriented assessments | | | χ2 (for 1 & 4) |
|---|---|---|---|---|---|---|---|
| | Yes | No | I don't know / No answer | Yes | No | I don't know / No answer | |
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| I know how to qualify legal relations | 15 (75 %) | 2 (10 %) | 3 (15 %) | 11 (64.7 %) | 5 (29.4 %) | 1 (5.8 %) | 9.132 p < 0.05 |
| I am ready to work with clients of law firms | 13 (65 %) | 4 (20 %) | 3 (15 %) | 10 (58.8 %) | 4 (23.5 %) | 3 (17.6 %) | |
| I feel confident in my professional knowledge | 14 (70 %) | 4 (20 %) | 2 (10 %) | 9 (52.9 %) | 4 (23.5 %) | 4 (23.5 %) | |
| I can work with databases | 12 (60 %) | 5 (25 %) | 3 (15 %) | 10 (58.8 %) | 5 (29.4 %) | 2 (11.7 %) | |
| I know how to search for legal acts or case law | 16 (80 %) | 1 (5 %) | 3 (15 %) | 10 (58.8 %) | 5 (29.4 %) | 2 (11.7 %) | |

Participating history students who were taught the Source Studies and Archival Studies discipline in their first year in 2020 were unable to visit the museum to take part in an assessment due to COVID-19 restrictions. An anonymous survey of this group (11 respondents) was conducted in June 2020. In 2021, it became possible to assess first-year history students at the museum. An anonymous survey of the second group (11 respondents as well) was conducted in June 2021. The surveys were to gauge students' confidence in their practical skills and abilities and determine their assessment of their preparedness to carry out professional tasks, including those of a research and source-studies nature.

The key findings from the survey are outlined in Table 7.

**Table 7.** Results from the Survey of History Students on Their Preparedness for Practical Activity

| Assertion | The group with practice-oriented assessments (2021) | | | The group without practice-oriented assessments (2020) | | | χ2 (for 1 & 4) |
|---|---|---|---|---|---|---|---|
| | Yes | No | I don't know / No answer | Yes | No | I don't know / No answer | |
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| I know how to characterize historical sources | 9 (81.8 %) | 2 (18.1 %) | – | 7 (63.6 %) | 2 (18.1 %) | 2 (18.1 %) | 1.714 p > 0.05 |
| I am ready to work with professionals | 8 (72.7 %) | 1 (9 %) | 2 (18.1 %) | 8 (72.7 %) | 1 (9 %) | 2 (18.1 %) | |
| I feel confident in my professional knowledge | 8 (72.7 %) | 2 (18.1 %) | 1 (9 %) | 7 (63.6 %) | 3 (27.2 %) | 1 (9 %) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| I can work with historical databases | 10 (90.9 %) | – | 1 (9 %) | 8 (72.7 %) | 1 (9 %) | 2 (18.1 %) |
| I know how to search for professional literature and other sources | 10 (90.9 %) | 1 (9%) | – | 8 (72.7 %) | 1 (9 %) | 2 (18.1 %) |

## 5. Conclusion

The authors' experience implementing practice-based assessments indicates a significant increase in the level of preparation of students on subjects summative assessment around which is based on practical assignments. An analysis of the statistical data performed using StatPlus Pro revealed significant changes in at least two areas. Firstly, it is the quality of one's assimilation of the material. Secondly, it is greater confidence in oneself and one's communication potential within a professional environment. Having students train their practical skills helps them assimilate theoretical knowledge better and for a longer time. Based on the findings from the authors' experiment with two groups of students, which involved each group being taught the Values of the European Union discipline, students who took part in practice-based assessments exhibited a higher level of mastery of the course's key concepts and demonstrated some real headway in terms of the development of the skills of critical, analytical, and logical thinking. Specifically, the $\chi 2$ value for students who took part in practice-based assessments as part of a mock GELCT exam was 6.227, which indicated a positive effect with regard to the achievement of the prescribed curriculum objectives and the development of relevant general and professional competencies.

The study also revealed an increase in students' self-concept and confidence in themselves when it comes to solving practical problems characterized by complex and uncertain conditions. Specifically, as evidenced in Table 6, students who underwent preparation for the practical part of the summative assessment and then completed it were found to feel better prepared for practical activity associated with their future profession ($\chi 2$ – 9.132). These learners reported greater confidence in their knowledge and abilities, as well as their skills of communication within a professional environment. Note that, in assessing this parameter, one has to take into account the number of students in the target group. It was quite small in the case of the Source Studies and Archival Studies discipline (the authors compared the performances of two groups, each composed of 11 students (Table 7)), which does not permit one to speak of a statistically significant result – but still suggests positive dynamics in terms of achieving the objectives of the educational process. The authors intend to continue and engage more students in the experiment in order to obtain results that are more valid statistically.

Practice-based assessments ought not to be confined to only the preparation of specialists in the areas of medicine, engineering, etc. They can well be employed in the educational process with allowance for variation in forms of assessment, assessment methodologies, and the characteristics of a particular specialty.

In addition, it is worth noting that the true value of practice-based forms of assessing student learning should be viewed not only through the lens of preparing specialists for solving practical problems in a climate of real-life professional activity. Practice-based assessments can also serve as a yardstick for gauging the effectiveness of instructors' teaching methods and stimulate the quest for new ways of teaching and learning that can help meet the needs of the labor market and the interests of students pursuing a higher education as much as possible.

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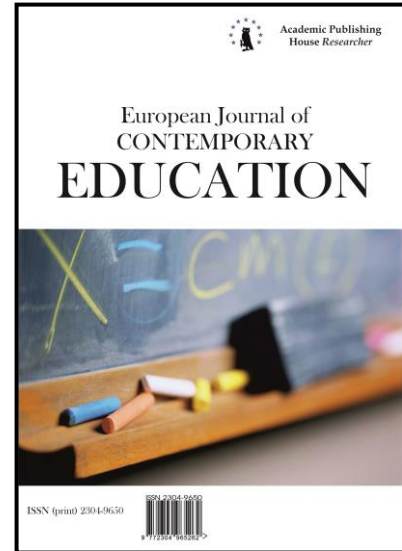
## Short Communications

## Generation Alpha: Understanding the Next Cohort of University Students

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**Abstract**
Technology is changing at a blistering pace and is impacting on the way we consider knowledge as a free commodity, along with the ability to apply skills, concepts and understandings. Technology is aiding the way the world is evolving, and its contributions to education are not an exemption. While technology advances will play a crucial part in future teaching-learning approaches, educators will also be challenged by the next higher-education generation, the Alpha Generation. This entrepreneurial generation will embrace the innovation, progressiveness, and advancement with the expectation that one in two Generation Alphas will obtain a university degree. In anticipating the educational challenges and opportunities of the future higher education environment, this research reflected on Generation Alpha as the next cohort of university students, considering their preferred learning styles, perceptions and expectations relating to education. The research employed a theoretical analysis based on the characteristics and traits that distinguishes Generation Alpha, spearheaded by technology advances. The empirical investigation considered three independent studies that were previous conducted by authors from Slovakia, Hungary, Australia, and Turkey to understand the challenges and opportunities pertaining to Generation Alpha. The research identified the influence of social media, social connections, high levels of perceptions and the Generation Alpha's ability to interpret information as strengths to consider in future teaching-learning approaches in the higher education environment. This research concluded with recommendations on how universities could be transformed to ensure a better learning experience for Generation Alpha students, aligned with their characteristics, perceptions and expectations.
**Keywords:** Generation Alpha, demographic cohort, youth, technology, social media, social connections, future learning, higher education, experiential learning.

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## 1. Introduction

1. *Generation Alpha* is composed of individuals who were born at the crossover of *Generation Z* and the new age (Tootell et al., 2014). This is the new generation that will soon fill classrooms and universities and demand unique approaches to teaching-learning, based on their unique skillsets and requirements.

According to the model proposed by Howe and Strauss (1991), a generation change occurs approximately every 20 years, with certain signs of cyclicality. *Generation Y*, composed of people born in the 1980s and the 1990s, were described with the label "*MTV Generation*" mainly due to the influence and relevance of the music channel during their time. Meanwhile, there is Generation Z, the first-ever generation to have technology and social media as a vast part of their day-to-day lives.

As it is known, Generation Alpha, the succeeding generation, are no strangers and soon to be frontiers of this highly digitized world. Technology is aiding the way the world is evolving, and its contributions to education are not an exemption. The recent COVID-19 pandemic outbreak resulted in a global uptake in distanced learning, which was forcefully implemented to continue education amidst lockdown restrictions and stay-at-home orders. In an attempt to foster social distancing and slow the virus's spread (Viner et al., 2020), students and parents turned to mobile devices such as smartphones, tablets and laptops to access classroom information (Nadeak, 2020). Parents had to take on a role in guiding their children, particularly Generation Alpha, through their education during the distance learning set-up, more than they usually did during face-to-face classes. In one particular study, parents had mixed responses regarding the struggles imposed upon by distance learning. Some of them included balancing responsibilities, learner needs, personal balance, lack of motivation both related and unrelated to remote learning, accessibility, learner content needs, lack of pedagogy, lack of connectivity and resources, and need for teacher communication among others (Garbe et al., 2020). The COVID-19 pandemic accelerated the debate on online teaching and related methodologies, and while academic institutions and universities are currently exploring delivery options, better student engagement and ways to enhance the student experience, it is clear that technology is heavily infused in the culture and environment of Generation Alpha, and it will just as greatly be incorporated into their education going forward. This paper aims to reflect on the differences between Generation Alpha and previous generations, particularly in regards to their education on the tertiary level pertaining to the teaching-learning experience, their perceptions and expectations.

The anatomy of Generation Alpha

Mark McCrindle, an Australian social researcher, futurist, and demographer, was the first to propose the term "*Generation Alpha*". The name marks newness and not a return or stay in the old. Generation Alpha is regarded as the twenty-first century's second true generation. It births date from 2010 and beyond, which implies most of these students are currently still in their school years (Amrit, 2020). According to Amrit (2020), Generation Alpha students have from a very young age, exposure to the marketing, technology, traveling, and priorities of their millennial parents. Ironically, the year that marks the birth of this generation is the same year that the word "app" has been declared the word of the year (Amrit, 2020). These youth have more access to technology, information, and external influences than any previous generation (McCrindle, Fell, 2020) and as a result this generation will be highly captured through app-based play, more screen time, shorter attention spans, and a lack of digital literacy combined with a lack of social formation (McCrindle, Fell, 2020).

Generation Alpha is quite different from the preceding generations, especially because their reality, and all aspects of life, has been dominated by technology. Generation Alpha is growing up in unprecedented times of change and rapid technology innovation, and they are part of an inadvertent worldwide experiment in which screens have been placed in front of them as pacifiers, entertainment, and educational aides since they were very small. (McCrindle, Fell, 2020). Generation Alpha has been labeled as generation glass, screenagers, digital natives, and the connected or wired generation because of their clear connection to technology and technological innovation (Tootell et al., 2014). Them being born in a highly digitalized world ultimately gives them an advantage, in engaging with the primary machineries that we have today, found in the form of hand-held gadgets such as smartphones, iPads, laptops, and the like. Naturally, they are faster and more in-depth when it comes to learning about what technology has to offer as opposed

to the previous generations. Through the day-to-day engagement they have with their gadgets, they can learn, even on their own, making them well-versed in interacting and living in this post-modern world. Generation Alpha is unlikely to carry a wallet, use single-use plastics, listen to the radio as a device, take a written exam, or set an analogue alarm clock (McCrindle, Fell, 2020).

The parents of Generation Alpha are being more aware of both advantages and disadvantages of early exposure of their children to technology (McCrindle, Fell, 2020). While these parents embrace the benefits of the technology advances, they are likewise aware of the skills that the Generation Alpha student would need in future, especially pertaining to social competencies, entrepreneurial skills, strength and coordination, financial literacy, innovation, and resourcefulness and (McCrindle, Fell, 2020).

### Reflection of studies conducted on Generation Alpha

This section provides a reflection of previous conducted studies by various authors to understand the challenges and opportunities pertaining to Generation Alpha in relation to teaching-learning in the higher education environment.

### Research piece 1: Generation Alpha, Marketing or Science?

The study by Slovakian and Hungarian researchers Nagy and Kölcsey (2017) used traditional desk research to create a generation paradigm. This study also mentioned the apparent similarities that Generation Alpha holds and shares with Generation Z. Included in the similarities is the fact that social media platforms have more influences on them, along with the vast changes in their learning styles, resulting in the need for innovative teaching methods. This is largely due to the fact that they are constantly flooded with information and have quicker access to it. Generation Alpha's criticisms were clear in their dislike of the sharing economy (shouting "Mine!" and "All mine!" and refusing to share anything). Generation Alpha appears to be unconcerned about privacy and rules, not confined to boundaries, and to live in the now. The study concludes that the label given to this generation is based on marketing rather than science. The study determined that Gen Alpha is similar to its predecessors, but that it carries on their "legacy" (Nagy, Kölcsey, 2017), despite the fact that further research is needed to fully comprehend this new generation.

### Research piece 2: A Generation Alpha case study

Research by Australian researchers Taylor and Hattingh (2019) critiqued and dissected the Four Resource Model (FRM) reading practices in playing Minecraft, a serial video game, as applied and implemented by Generation Alpha. The skills of code breaker, text participant, text user, and text analyzer were all considered in the FRM. Observations, field notes, semi-structured interviews, and a researcher reflective journal were used to support the research (Taylor, Hattingh, 2019) in terms of language and articulation; social and mentor integration; real-world linkage; and parent and child perspectives. The study identified that children were able to apply reading skills within Minecraft, even children with foundational reading skills were able to use words repetitively and interpret information (Taylor, Hattingh, 2019). It was also highlighted that the social aspect and option to interact with other players were received positively by the children. It was evident that the children were thoroughly engaged and ardent when it came to playing the game. The study's conclusion supports the ways that children, particularly Generation Alpha, learn through technology like Minecraft. In the study posed valuable information about learning about the ways Generation Alpha prefers to learn, especially in theorizing the way their tertiary education will be shaped.

### Research piece 3: Preschool Teachers' Views on Generation Alpha

The study of researchers from Turkey, Apaydin & Kaya (2020) investigated pre-school teachers' perceptions of Generation Alpha pertaining to the classroom setup and learning process. The research adopted a qualitative design and included the inputs from teachers of private kindergartens in Antalya from 2018–2019. The research acknowledged the digital environment which Generation Alpha has inhibited upon their birth and noticed the technology literacy that most teachers and educators lack, pondering over its possible impact on the quality of education that will be delivered and served to Generation Alpha. The research highlighted some negative characteristics of Generation Alpha including, technology addiction, the tendency to be egocentric, and the tendency to violence (Apaydin, Kaya, 2020). High levels of perception, tapping out with music, effective use of numbers, being meticulous, and emotional were all positive characteristics of Generation Alpha. In terms of comparing Generation Z and Generation Alpha it was evident that Generation Alpha are more open towards knowledge and the generality of things, have high numerical intelligence, but limited social intelligence. Both generations share the similarity of a

tendency towards technology (Apaydin, Kaya, 2020). According to the findings, Generation Alpha expects visual, aural, and kinesthetic methods to be used in classroom management, and they are more prone to distractions, which are crucial factors to take into consideration in creating a teaching-learning environment.

## 2. Discussion
### Future collegiate circumstances and expectations for Generation Alpha

Generation Alpha's education will be primarily influenced by technological advancements (Romero, 2017). Born from parents from the Millennial Generation, they are more tech-savvy, more entrepreneurial, and willing to create their own jobs (Romero, 2017). Their career choices and life decisions will also differ from those taken by former generations, simply because of the innovation, progressiveness, and advancement that is largely pervasive in the world they are currently living in. The amount that they are likely to conform to prejudices, biases, and norms established by society will significantly be less. Their formal education has never been equaled in the history of the world, with a predicted one in two Generation Alphas to obtain a university degree (McCrindle, Fell, 2020). Digital skills combined with creativity, curiosity, and adaptability can be expected as Generation Alpha's fortes and core competencies. On the other hand, Generation Alpha shall work upon improving their critical thinking skills and leadership skills (McCrindle, Fell, 2020).

### Implications for higher education

As the world continuously undergoes rapid shifts brought about by post-modernity, education is also advancing and adapting technology within its curriculum models. In the present day, academic institutions are already accepting the need for better integration of technology into education. Long a hallmark of academic study, technological innovation may now be transforming the way institutions educate and students learn (Glenn, 2008). Universities are embracing transformational benefits such as distance education, advanced learning management systems, and the ability to work with research partners from all over the world (Glenn, 2008). Various other studies confirmed that the inclusion of technology increases the learning and interactivity of students, and that modern students prefer to use technology for educational support (Raja, Nagasubramani, 2018). Interactivity, ease, convenience, and accessibility are prevalent factors that are steadily defining good education. In this perspective, technology has four roles in the sphere of education: 1) it is part of the curriculum, 2) it is used as an educational delivery system, 3) it is used to aid instructions, and 4) it is used to enhance the entire learning process, allowing education to be interactive rather than passive (Raja, Nagasubramani, 2018). The crucial challenges in this regard relates to teachers who might not be as technologically adept as the Alpha Generation (Prensky, 2001), and that changes in the current structures and mindset of institutions are usually slow, as is adoption of new pedagogical approaches (Romero, 2017). As such, the culture prevalent in academia will be greatly challenged. Universities would need to further diversify, not merely for social justice, but because students need to refer to more to people who can represent them (Romero, 2017). In prioritizing the student-centered and community-based learning model, experiential learning would need to be included in mainstream teaching-learning, enabling students to reflect on the learning process and even learning from failed experiments (Romero, 2017).

Experiential learning focus on learning-by-doing and the experiences gained through reflection on doing. It requires the student to take initiative, to make decisions, and be accountable for the outcomes. It is built upon actions of investigating, experimenting, problem solving, accountability, creativeness, and the integration previously developed through the process of doing (Itin, 1999).

New approaches to teaching, such as experiential learning, would need to be considered, approaches that will work for students who are vastly different from the typical in terms of culture, education and expectations (Romero, 2017). Universities would need to develop the soft skills that would be crucial in the modern world, including critical thinking, problem-solving, teamwork and communication abilities (Romero, 2017). Table 1 provides an analysis of the research findings and the associated implications for teaching that would need to be considered in future educational approaches.

**Table 1.** Analysis of research findings and implications for teaching

| Research | Findings | Implications for teaching |
|---|---|---|
| Nagy and Kölcsey (2017) | Social media have direct influence | Vast changes in learning styles needs to be incorporated in teaching-learning approaches. Social media's impact on learning effectiveness and student experience needs to be recognized. |
| | Quick access to information | Focus should be on knowledge development, not only accessing information. Interpretation of information is crucial. |
| | Detests sharing economy | Soft skill development should be prioritized sharing and public goods as shared commodity. |
| | Not confined to boundaries | Out-of-the box approaches and experiential learning will be essential for future learning activities. |
| Taylor and Hattingh (2019) | Apply reading skills online | Traditional learning methods can be subconsciously developed through online gaming portals. It is about keeping the students' interest and attention. |
| | Ability to interpret information | Translation of information to knowledge is essential in teaching the next generation. |
| | Highlight social connections | Social connections are possible in the online and virtual environment, it would need better planning and coordination to create a good student experience. |
| | Learn through technology | Technology is a tool for enhanced education. Through technology, teaching outcomes can be achieved, but it would require a unique design, interactive portal and continuous support base. |
| Apaydin and Kaya (2020) | Lack of technology literacy | The technology literacy gap between teachers and students are prominent and identified as the greatest challenge for online learning. |
| | High levels of perception | Students show high levels of perception that is developed from their interaction with technology from a young age. This should be considered an advantage to teaching. |

| | Visual, auditory and kinesthetic tools | Visual, auditory and kinesthetic tools will characterize the future teaching-learning environment in attempt to mimic the technology advances that are 'normal' to the Generation Alpha student within the educational space. |
|---|---|---|

Generation Alpha is a young generation and the body of research dealing with Generation Alpha is still relatively limited.

While technology is replacing jobs, it is also creating a slew of new ones, as evidenced by the current Fourth Industrial Revolution (McCrindle, Fell, 2020). Many students of today are garnering and honing skills in big data analytics, robotics, social media marketing, and app development (McCrindle, Fell, 2020). These skills will be crucial for jobs that are still yet to exist in the very near future, which will be saturated by today's learners and those to come. These jobs will both consider the changes witnessed by technology and demography. Careers in new industries such as cyber-security, software development, and cryptocurrencies will be available to Generation Alphas (McCrindle, Fell, 2020). They will be tenured in handling several jobs at once, continuously learning throughout their lifetime. They will also need to be adaptable, regularly upskilling and retraining to stay current with the changes they will face as they progress through their careers (McCrindle, Fell, 2020). The role of universities would be to harness these skills and prepare Generation Alpha students to embrace the digital world they know so well, to optimize skills and experience to co-create the solutions that our future will need.

## 4. Conclusion and recommendations

The Generation Alpha students' learning style will be largely dependent and connected to technology. Technology advances will likewise have an impact on their learning effectiveness and the overall student experience. Experiential learning will play a key part of the future teaching-learning approaches, especially to engage students and to enable them to co-create knowledge, and not just merely access information instantly. It will be about the translation of information, the interpretation information and adding of value. Visual, auditory and kinesthetic tools will support the future teaching-learning environment, to provide a real experience with supporting social connections. In this sense, the challenge would be to bridge the literacy gap between teachers and students to enhance the social connections and interactions, and to develop soft skills that will foster a sense of belonging, of community and of sharing. The lecturer stands central to creating a collaborative, critical-thinking, and co-creative classroom atmosphere (Steyn, 2015). This demands an educator with a robust academic point of departure; who is well-versed and educated; able to develop knowledge and transfer core disciplinary principles to a new generation of students; someone who understands educational theories as commons; and the role of the university within broader society and the knowledge community. The instructor must think critically and imaginatively in order to create a classroom environment that is conducive to thinking and creating (Steyn, 2015) that is based on the Generation Alpha student's perceptions and expectations.

Higher education will in future most likely involve technology-integrated learning programs and options, far more career engaging and career preparation events, and scarce skill development training and programs. The focus will shift from 'transfer of knowledge' to 'co-creation of knowledge', optimizing the skillset of the Generation Alpha student and their unique acceptance and understanding of technology advances.

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## The History of Education

## The System of Public Education in Volyn Governorate in the Period 1796–1917. Part 1

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**Abstract**
This work explores the system of public education in Volyn Governorate in the period 1796–1917. This part of the work examines the timeframe 1796–1885.

The key sources used in putting this work together are the Extracts from the Report of the Chief Procurator of the Holy Synod for the Department of the Orthodox Faith (1836–1885), the Military-Statistical Survey of the Russian Empire, and the 1887 Memorandum Book for Volyn Governorate.

The authors' conclusion is that in the period 1796–1885 the system of public education in Volyn Governorate had been developing in the light of the incorporation of this region into the Russian Empire. Attempts to keep in place the Polish education system led to a polarization of the local population and to student involvement in nationalist riots between 1830 and 1831. Only subsequent to this did the Russian government begin to take measures to unify the public education system based on the Russian Empire's standards.

By 1885, the network of the region's educational institutions numbered eight secondary schools, 28 lower schools, and 1,515 primary schools. Overall, Volyn Governorate had in operation 1,551 educational institutions, with a combined enrollment of 47,253 students. The region's

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education sector included secular, ecclesiastical, private, and national educational institutions. The process of the making of the region's public education system was pretty much over by 1885.

**Keywords:** Volyn Governorate, Russian Empire, public education system, Kiev Educational District, period 1796–1917

### 1. Introduction
Volyn Governorate was established in 1796 following the third partition of Rzeczpospolita. At that time, the governorate had in place a public education system of its own. As of 1789, the region had the following types of school in operation: Kremenets academic schools (six teachers; 463 students); Lutsk subdistrict schools (three teachers; 144 students); Olika subdistrict schools (six teachers; 54 students); Vladimir subdistrict Basilian schools (four teachers; 102 students); Ovruch Basilian schools (four teachers; 192 students); Zhitomir academic schools (519 students); Liubar Basilian schools (353 students); Mezhirechye schools (300 students). Volyn had a combined student body of 2,386 (Istoriya imperatorskogo, 1884: 7-8). Instruction in those schools was provided by members of the following Catholic religious orders: Jesuits – in Lutsk, Kremenets, Ostrog, Zhitomir, and Ovruch; Basilians – in Vladimir and Liubar; Piarists – in Dubrovitsa and Mezhirechye.

This part of the work is focused on the timeframe 1796–1885. Note that there are detailed statistics available on the state of the system of public education in Volyn Governorate in the period starting in 1886, whilst the amount of statistics available on its state prior to 1885 is limited.

### 2. Materials and methods
The key sources used in putting this work together are the Extracts from the Report of the Chief Procurator of the Holy Synod for the Department of the Orthodox Faith (1836–1885), the Military-Statistical Survey of the Russian Empire, and the 1887 Memorandum Book for Volyn Governorate.

Use was made of the statistical and chronological methods. The use of the statistical method helped gather and collate raw data on the region's educational institutions and students (including the student body's gender composition). The use of the chronological method helped examine the study's topic in chronological sequence. This helped identify some of the key characteristics of the development of the system of public education in Volyn Governorate and analyze some of its key weaknesses.

### 3. Discussion
Surprisingly, the system of public education in prerevolutionary Volyn Governorate has never been the subject of independent research, although attempts to explore it have been made. The first such attempt was undertaken in 1851, as part of an effort by a special commission at the University of St. Vladimir to generate statistical descriptions of education in governorates within the Kiev Educational District – Kiev, Volyn, Podolia, Poltava, and Chernigov (Plan…, 1851). There were plans to devote a section of the publication to the history of the system of public education in Volyn Governorate, but they never materialized.

In 1859, the Military Department released the Military-Statistical Survey of the Russian Empire. The publication's Volume 10 carried statistics on the system of public education in Volyn Governorate (Voenno-statisticheskoe obozrenie, 1859), with a significant focus on the region's ecclesiastical education, the educational contribution of its monasteries, and its system of secular education.

Some statistics on education in Volyn Governorate are also available in works on the history of certain educational institutions. Specifically, quite a large amount of statistical information was provided in a work by N.I. Teodorovich exploring the history of Volyn Ecclesiastical Seminary (Teodorovich, 1901) and a work by M.F. Vladimirsky-Budanov exploring the history of the University of St. Vladimir (Istoriya imperatorskogo, 1884).

During the Soviet period, the topic did not become the subject of dedicated research either. This must have been associated with ideological reasons, for it may have been believed that the Russian Empire's achievements in the area of public education would not comport well with the Soviet tenet about a significant portion of Russia's population during the prerevolutionary period being illiterate.

The topic of public education in the Russian Empire began to gain wider attention during the contemporary period, with historical-statistical research studies appearing on virtually all educational districts in the Russian Empire providing information on the numbers and quality of educational institutions and the student body, including its gender, religious, ethnic, and estate composition. The largest amount of research has been conducted so far on areas within the Caucasus Educational District, including Kars Oblast (Magsumov et al., 2020; Magsumov et al., 2020a), Stavropol Governorate (Natolochnaya et al., 2020; Natolochnaya et al., 2020a; Natolochnaya et al., 2020b), and Black Sea Governorate (Cherkasov et al., 2020; Cherkasov et al., 2020a). Among the areas within the Vilna Educational District, research has been conducted on Vilna Governorate (Natolochnaya et al., 2019; Natolochnaya et al., 2019a; Natolochnaya et al., 2020c), and among those within the Orenburg Educational District – on Orenburg Governorate (Magsumov, Zulfugarzade, 2020; Magsumov et al., 2020).

### 4. Results

In 1796, right after the incorporation of the Diocese of Volyn into Russia, the region became home to Volyn Ecclesiastical Seminary (May 14, 1796) (Teodorovich, 1901: 1). Two years later, they established a Russian school at the seminary. This facility, where the school day was divided into two shifts, remained in operation until 1817.

By 1803, Volyn Governorate had in operation 46 schools, including 10 uyezd schools (in Vladimir, Lutsk, Dubrovitsa, Olika, Kremenets, Mezhirechye, Liubar, Ovruch, Berdichev, and Zhitomir), 26 parish schools (in Porytsk, Vladimir, Zagorov, Turiysk, Lutsk, Zhidichin, Belostok, Duben, Derman, Berestechko, Annapol, Zaslav, Polyanka, Pochaev, Kremenets, Vishnevets, Radzivilov, Rovno, Shpanov, Teofilpol, Starokonstantinov, Zvyagel, Korets, Veledniki, and Troyanov), and six boarding schools (Istoriya imperatorskogo, 1884: 17-18). Instruction in all those schools was conducted in Polish. Russian was taught three times a week, with each class being an hour long. Although the issue of unifying education in Volyn Governorate based on the Russian Empire's standards had been raised back in the early 1800s, it had remained unresolved (Istoricheskii obzor, 1902: 24). This state of affairs persisted up to the November Uprising (1830–1831), in which students from different educational institutions took part too.

In 1832, Volyn Governorate and all of its educational institutions were incorporated into the newly created Kiev Educational District. By that time, the governorate had few public education institutions, which led the region's School Council to undertake significant effort to secure government funding for the purpose. In 1832, the region became home to several gymnasia (those in Lutsk, Kamenets-Podolsk, and Zhitomir) and a few uyezd schools (Istoriya imperatorskogo, 1884: 58). In 1834, the Kiev Educational District became home to the University of St. Vladimir in Kiev.

As of 1836, the Diocese of Volyn had the following ecclesiastical educational institutions: one ecclesiastical seminary, two uyezd schools, and six parish schools, with a combined enrollment of 1,269 students (Izvlechenie iz otcheta, 1837: 137, 146-147). The first ecclesiastical schools were established in the area back in 1817 (Ostrog Uyezd School and Ostrog Parish School) (Teodorovich, 1901: 47). In 1819, the area became home to another four ecclesiastical district parish schools – one in the city of Kovel, one in the township of Berdichev, one in the village of Zagaytsy, and one in the village of Klinets (Teodorovich, 1901: 48-49). Each parish school was a two-grade institution, with each grade attended for two years. In 1831, due to Ostrog's uyezd and district schools being overfilled, the local commission for ecclesiastical schools petitioned the Synod to open a couple of more uyezd parish schools in the area (Teodorovich, 1901: 58). In 1833, the village of Derman became home to one uyezd and one district ecclesiastical parish schools, and the township of Meltsy – to an uyezd ecclesiastical school (Teodorovich, 1901: 65-66). As early as 1834, Meltsy became home to a parish school too (Teodorovich, 1901: 73).

In 1837, they established 1,064 parochial schools at churches within the Diocese of Volyn (Voenno-statisticheskoe obozrenie, 1859: 103). In the late 1850s, these schools had a combined enrollment of 5,210 boys (Voenno-statisticheskoe obozrenie, 1859: 126).

In 1843, Belostok became home to one uyezd and one parish ecclesiastical schools (Teodorovich, 1901: 98).

By the 1850s, the region's system of public education was comprised of ecclesiastical (seminaries, uyezd parish schools, and parish schools) and civil educational institutions. Overall, the region had in operation one ecclesiastical seminary (in the city of Kremenets), four uyezd

parish schools, and two parish schools, with a combined enrollment of 1,315 students (Voenno-statisticheskoe obozrenie, 1859: 125).

As the number of uyezd parish schools in the region increased (they were transformed into uyezd schools in 1854), some of its parish schools gradually closed down (Teodorovich, 1901: 147). Specifically, in 1877 they closed down the uyezd school in Derman, in 1854 – the one in Klinets, and in 1853 – the one in Zagaytsy (Teodorovich, 1901: 167, 169, 174).

As regards the region's civil educational institutions, this segment was represented by gymnasia, uyezd schools for nobles, civil parish schools, and boarding schools for noble maidens. These schools were of two types – female and male, with females attending only a boarding school for noble maidens. By the mid-19th century, circa 1857, the region had in operation two male gymnasia (one in the governorate's capital, the city of Zhitomir, and one in the uyezd city of Rovno), five uyezd schools for nobles, and 17 civil parish schools. There were two boarding schools for noble maidens in operation (one, a model boarding school, in the capital (33 girls), and one in Rovno (35 girls)) (Voenno-statisticheskoe obozrenie, 1859: 125-126). Overall, the region's 24 male civil educational institutions were attended by a combined 1,511 boys, and its two female civil institutions – by a combined 68 girls. In addition, the region's five ecclesiastical educational institutions (one seminary and four schools) were attended by a combined 1,050 students (Izvlechenie iz otcheta, 1860: 70, 78-79). No data on the region's parochial schools were published in 1857 (Izvlechenie iz otcheta, 1860).

A significant role in terms of auxiliary education was played by libraries and museums in Volyn Governorate, most of which were based at its gymnasia and schools for nobles. In addition, the following libraries had large holdings: the library in the Derman Monastery, the library of Count Khatkevich (in the township of Mlynov), and the library of Count Mniszech (in the township of Vishnevets) (Voenno-statisticheskoe obozrenie, 1859: 126).

As of 1860, the Diocese of Volyn had in operation 1,055 parochial schools, with a combined enrollment of 10,183 students (10,086 boys and 97 girls) (Izvlechenie iz otcheta, 1862: 88). In addition, the area's five ecclesiastical educational institutions (one seminary and four schools) were attended by 1,089 students (Izvlechenie iz otcheta, 1862: 70, 78-79).

As of 1861, the Diocese of Volyn had in operation 1,216 parochial schools, with a combined enrollment of 11,621 students (10,780 boys and 841 girls) (Izvlechenie iz otcheta, 1864: 88). In addition, the area's five ecclesiastical educational institutions (one seminary and four schools) were attended by 1,160 students (Izvlechenie iz otcheta, 1864: 70, 78-79).

On January 17, 1864, the region became home to Zhitomir Ecclesiastical School (Teodorovich, 1901: 145).

As of 1866, the Diocese of Volyn had in operation 2,151 parochial schools, with a combined enrollment of 20,714 students (18,169 boys and 2,545 girls) (Izvlechenie iz otcheta, 1867: 94). In addition, the area's five ecclesiastical educational institutions (one seminary and four schools) were attended by 1,035 students (Izvlechenie iz otcheta, 1867: 74, 82-83).

As of 1867, the Diocese of Volyn had in operation 1,070 parochial schools, with a combined enrollment of 18,345 students (16,022 boys and 2,323 girls) (Izvlechenie iz otcheta, 1868: 94). In addition, the area's five ecclesiastical educational institutions (one seminary and four schools) were attended by 1,168 students (Izvlechenie iz otcheta, 1868: 74, 82-83).

As of 1868, the Diocese of Volyn had in operation 1,188 parochial schools, with a combined enrollment of 19,418 students (17,068 boys and 2,350 girls) (Izvlechenie iz otcheta, 1869: 94). In addition, the area's five ecclesiastical educational institutions (one seminary and four schools) were attended by 1,059 students (Izvlechenie iz otcheta, 1869: 74, 82-83).

By 1885, Volyn Governorate's network of educational institutions comprised 1,551 schools, with seven of those being secondary schools (one male and one female gymnasia, one real school, one Category 1 private educational institution, two ecclesiastical seminaries, and one teacher's seminary). The lower education sector comprised 28 educational institutions: two progymnasia, one ecclesiastical school for girls, four ecclesiastical uyezd schools, one female school of Count Bludov, 15 urban schools, four rural schools, and one feldsher school. The primary education sector was represented by 237 one-grade schools, 449 rural schools, 175 parochial schools, 237 German settler schools, 376 Jewish schools (cheders), and a few other private and religious educational institutions.

Table 1 displays the available statistical data on educational institutions in Volyn Governorate in the period 1803–1885.

**Table 1.** System of Public education in Volyn Governorate in the Period 1803–1885 (Istoriya imperatorskogo, 1884: 17-18; Voenno-statisticheskoe obozrenie, 1859: 125-126; Izvlechenie iz otcheta, 1837: 137, 146-147; Izvlechenie iz otcheta, 1860: 70, 78-79; Izvlechenie iz otcheta, 1862: 70, 78-79, 88; Izvlechenie iz otcheta, 1864: 70, 78-79, 88; Izvlechenie iz otcheta, 1867: 74, 82-83, 94; Izvlechenie iz otcheta, 1868: 74, 82-83, 94; Izvlechenie iz otcheta, 1869: 74, 82-83, 94; Izvlechenie iz otcheta, 1871: 74, 82-83, 94; Izvlechenie iz otcheta, 1872: 72, 80-81, 92; Izvlechenie iz otcheta, 1873: 72, 80-81, 92; Izvlechenie iz otcheta, 1874: 70, 78-79, 90; Izvlechenie iz otcheta, 1876: 70, 78-79, 90; Izvlechenie iz otcheta, 1876a: 70, 78-79, 90; Izvlechenie iz otcheta, 1877: 70, 78-79, 90; Izvlechenie iz otcheta, 1878: 70, 78-79, 90; Izvlechenie iz otcheta, 1879: 70, 78-79, 90; Izvlechenie iz otcheta, 1881: 70, 78-79, 90; Izvlechenie iz otcheta, 1882: 70, 78-79, 90; Izvlechenie iz otcheta, 1883: 70, 78-79, 90; Izvlechenie iz otcheta, 1884: 72, 80-81, 92; Izvlechenie iz otcheta, 1885: 72, 80-81, 92; Izvlechenie iz otcheta, 1886: 72, 80-81, 92; Izvlechenie iz otcheta, 1887: 72, 80-81, 92; Pamyatnaya knizhka, 1886: 86-87)

| | Schools under the Ministry of Public Education (MPE) | | | | | | | Students | | |
| | Secondary | | Lower | | Primary | | | | | |
| Year | Run by the MPE | Run by the Holy Synod | Run by the MPE | Run by the Holy Synod | Run by the MPE | Run by the Holy Synod | Total | Boys | Girls | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1803 | N/A | 1 | N/A | 16 | N/A | 29 | 46 | N/A | N/A | N/A |
| 1836 | N/A | 1 | N/A | 2 | N/A | 8 | 11 | N/A | N/A | 1,269 |
| 1837 | N/A | 1 | N/A | 2 | N/A | 1,064 | 1,067 | N/A | N/A | N/A |
| 1857 | 2 | 1 | 24 | 4 | - | 1,059 | 1,090 | 6,721 | 68 | 6,789 |
| 1860 | N/A | 1 | N/A | 4 | N/A | 1,055 | 1,060 | 11,175 | 97 | 11,272 |
| 1861 | N/A | 1 | N/A | 4 | N/A | 1,216 | 1,221 | 11,940 | 841 | 12,781 |
| 1866 | N/A | 1 | N/A | 4 | N/A | 2,151 | 2,156 | 19,204 | 2,545 | 21,749 |
| 1867 | N/A | 1 | N/A | 4 | N/A | 1,070 | 1,075 | 17190 | 2,323 | 19,513 |
| 1868 | N/A | 1 | N/A | 4 | N/A | 1,188 | 1,193 | 18,127 | 2,350 | 20,477 |
| 1870 | N/A | 1 | N/A | 4 | N/A | 1,189 | 1,194 | 14,645 | 2,222 | 16,867 |
| 1871 | N/A | 1 | N/A | 4 | N/A | 831 | 836 | 12,974 | 1,526 | 14,500 |
| 1872 | N/A | 1 | N/A | 4 | N/A | 624 | 629 | 10,401 | 1,151 | 11,552 |
| 1873 | N/A | 1 | N/A | 4 | N/A | 383 | 388 | 8,275 | 923 | 9,198 |
| 1874 | N/A | 1 | N/A | 4 | N/A | 516 | 521 | 10,087 | 1,018 | 11,105 |
| 1875 | N/A | 1 | N/A | 4 | N/A | 493 | 498 | 9,191 | 916 | 10,107 |
| 1876 | N/A | 1 | N/A | 4 | N/A | 471 | 476 | 8,662 | 825 | 9,487 |
| 1877 | N/A | 1 | N/A | 4 | N/A | 494 | 499 | 10,855 | 836 | 11,691 |
| 1878 | N/A | 1 | N/A | 4 | N/A | 472 | 478 | 10,500 | 745 | 11,245 |
| 1879 | N/A | 1 | N/A | 4 | N/A | 467 | 472 | 10,341 | 703 | 11,044 |
| 1880 | N/A | 1 | N/A | 4 | N/A | 462 | 467 | 8,041 | 505 | 8,546 |
| 1881 | N/A | 1 | N/A | 4 | N/A | 351 | 356 | 9,686 | 699 | 10,385 |
| 1882 | N/A | 1 | N/A | 4 | N/A | 501 | 506 | 12,180 | 233 | 12,413 |
| 1883 | N/A | 1 | N/A | 4 | N/A | 545 | 550 | 13,041 | 211 | 13,252 |
| 1884 | N/A | 1 | N/A | 4 | N/A | 531 | 536 | 10,649 | 336 | 10,985 |
| 1885 | 7[*] | 1 | 24 | 4 | 1,340[†] | 175 | 1,551 | 38,398 | 8,855 | 47,253 |

[*] This includes one private school, one Catholic seminary, and one Jewish teacher's institute.
[†] This is inclusive of religious, private, and national schools.

As evidenced in Table 1, in the period 1803–1885 parochial schools played a significant role in the region's public education sector. The activity of this type of schools peaked in the region at least twice – in 1837, when at the behest of Emperor Nicholas I they established 1,067 church-based parochial schools, and in 1866, when, following the abolition of serfdom in Russia, they established 2,156 schools in the region. This was done on the initiative of the Russian Orthodox Church, which was engaged in a mass opening of schools at the time. Subsequent to the second peak, there occurred a sharp drop in the number of schools in the region – to 175 in 1885. Note that this process was characteristic not only of Volyn Governorate but occurred throughout the Russian Empire, which was due to the Orthodox clergy failing to secure financial support for the cause of opening and operating schools – and, consequently, becoming much less enthusiastic about it (Cherkasov et al., 2020: 661).

Despite the paucity of information available on secular education in the region at the time, it was possible to include in Table 1 some statistical data for the years 1857 and 1885. As evidenced by the data, over the 28-year period the number of secondary educational institutions in the region rose 3 times – from two to six (exclusive of a Catholic ecclesiastical seminary). At the same time, the number of its lower educational institutions did not change. In 1857, the military-statistical survey did not include information on the number of secular primary schools in the region; nor did the report of the Chief Procurator of the Holy Synod provide any data on its parochial schools. Nevertheless, it was possible to get the average number from 1837 (1,064 schools) and 1860 (1,055) – 1,059 schools. Despite the lengthy period (23 years), this figure seems quite plausible. In 1885, the region had a combined 1,515 primary educational institutions (both secular and parochial), an increase of 71%.

## 5. Conclusion

In the period 1796–1885, the system of public education in Volyn Governorate had been developing in the light of the incorporation of this region into the Russian Empire. Attempts to keep in place the Polish education system led to a polarization of the local population and to student involvement in nationalist riots between 1830 and 1831. Only subsequent to this did the Russian government begin to take measures to unify the public education system based on the Russian Empire's standards.

By 1885, the network of the region's educational institutions numbered eight secondary schools, 28 lower schools, and 1,515 primary schools. Overall, Volyn Governorate had in operation 1,551 educational institutions, with a combined enrollment of 47,253 students. The region's education sector included secular, ecclesiastical, private, and national educational institutions. The process of the making of the region's public education system was pretty much over by 1885.

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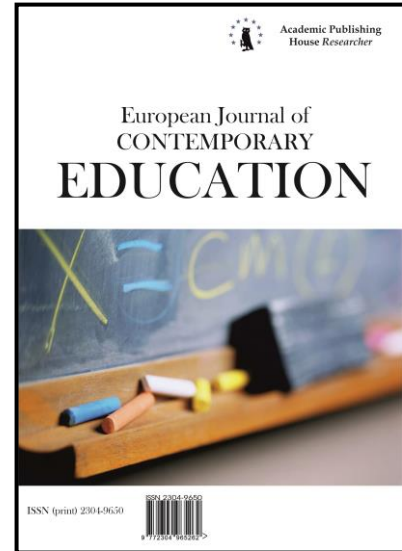
# Curriculum Development in the Kharkov Educational District of the Russian Empire: Best Practices in 1861

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**Abstract**

The 1860s was a time of intense development of the system of education in the Kharkov Educational District. The achievements were given a high assessment by the Administration, with the District's Trustee, Lieutenant General D.S. Levshin, going on to be later appointed in charge of the Moscow Educational District. However, to date there has been no dedicated research on D.S. Levshin's role in the management of education at the time. This paper seeks to fill this gap by exploring the activity of the District Administration in the area of curriculum development by way of circulars issued in the Kharkov Educational District in 1861.

It was established that D.S. Levshin, working in association with well-known pedagogue N.A. Lavrovsky, advocated a shift from direct regulation and introduction of curricula from above to creation of an environment in which teachers are not afraid to display initiative and curricula are designed at the grassroots level. The major undertakings in the area at the time included the following: 1) overhaul of the school control system (with school inspectors encouraged to focus on a direct link between the curriculum and the student's academic progress, acting more as advisers rather than controllers); 2) introduction of teacher's congresses at which to consider issues associated with course content and delivery; 3) modification of the format of teachers' meetings (with such meetings turning into "teachers' colloquies" intended to inspire discussion about relevant issues concerning teaching and learning). These best practices aimed at building a democratic pedagogical environment remain perfectly relevant today.

**Keywords:** history of pedagogy, teaching methodologies, historical pedagogical views, Kharkov Educational District, D.S. Levshin, N.A. Lavrovsky.

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## 1. Introduction

The 1860s was a very important time for the pedagogical community of the south of Russia. As evidenced by the case of Novocherkassk Gymnasium, it is in this period that the younger generation of teachers began to raise in earnest a number of special pedagogical issues, most importantly those related to how to teach (Peretyatko, Zulfugarzade, 2020: 1007-1008). "Experienced music teachers have stated, and famous performers have confirmed, that holding your bow over your violin's strings or pressing your piano's keys in a certain way will produce especially powerful playing – why then do they not pause for a moment to think (do we, actually?) that the craft of managing the soul of a child during their first moments in school is not an easy one?...", wrote A.A. Radonezhsky, a young language and literature teacher at Novocherkassk Gymnasium at the time (Radonezhskii, 1861: 100). Essentially, it is during this period that many in the region came to realize that the teacher must not only know their subject well but also be a pedagogue capable of passing their knowledge on to the student. This is where they almost instantly began to question the usability of existing curricula, most of which took absolutely no account of students' learning abilities and were focused mainly on having them rote memorize all kinds of abstruse material (Peretyatko, Zulfugarzade, 2020: 1003-1005).

Understandably, in that climate, a group with a weighty say in the matter was the Administration of the Kharkov Educational District. The District's officials were faced with the task of not only coming up with new curricula but also explaining the logic behind those curricula to both young teachers and those from the older generation, who were accustomed to a completely different logic behind the design of academic courses. Note that in Novocherkassk Gymnasium, for instance, some teachers' meetings featured heated discussions between older teachers, who defended the scholarliness and strictness of traditional approaches, and young ones, who begged to differ, as may be evidenced by the following statement: "It often happens that the same student who can fluently articulate a grammar rule and all exceptions to it may be bewildered when you ask them to provide a couple of examples to back up their words. In the child's mind, the Russian language of which they have a proper command and a grammar from some Vostokov are two totally different worlds that have hardly anything to do with each other" (Artinskii, 1907: 185).

The situation in the education sector of the south of Russia in the 1860s is arguably similar to the current state of affairs in the Russian education system. At that time, officials were faced with the task of overhauling curricula, with the primary focus on ensuring that the result of pedagogical activity is a person who is able to apply the knowledge acquired in school in real life, rather than reproduce it mechanically. Similar objectives have been espoused by Russia's Ministry of Education. More specifically, in 2019 the Ministry's official website even carried a news story entitled 'New FSES's [Federal State Education Standards] to Help Teach Students Analyze and Apply Knowledge in Practice' (Novye FGOS..., 2019). That being said, implementing new education standards is something many teachers cannot see the point of or even frown upon nowadays too. For instance, when the authorities undertook to implement a new FSES in Russian schools the previous time in 2012, researcher E.A. Sidenko published the findings from a survey of 658 teachers who were undergoing career enhancement training (Sidenko, 2012: 7). Sixty percent of respondents said they were outright against the implementation of new FSES's, with 42 % of those being against the implementation of the actual new education standard, and 18 % being against the implementation of any innovative type of activity in schools. Thirty-seven percent of respondents said that either themselves personally or their educational institution did not have the capacity to implement the new FSES, while just 3 % admitted to be actually implementing it at that moment (Sidenko, 2012: 8-9)! While it may be too early to bring up statistics relating to the new FSES's adopted in 2021, the issue has already sparked heated debate and strong criticism. For instance, academician at the Russian Academy of Education E.A. Yamburg stated in 2019 that "it is certain that a scrupulous and experienced person will not work by the new FSES's" (Shvedchenko, 2019). Thus, despite all the differences between the situations in the 19th and 21st centuries, issues faced by the Russian education system both in the 1860s and in the 2020s are pretty much the same – there was a need back then and there is a need at present to rebuild it in such a way that the main result of school education will be not mechanically ingested knowledge but an ability to apply the knowledge acquired in school in real life, and in a climate of resistance from a portion of the pedagogical community at that.

The present paper analyzes the changes to school and gymnasium curricula proposed by the Administration of the Kharkov Educational District in 1861. Analysis of this issue may be particularly useful from the standpoint of the history of pedagogy, as the history of regional pedagogical thought in pre-revolution Russia has been underresearched, with the swing-round in opinion on the part of southern Russian pedagogues in 1860 remaining completely unresearched. The significance of that swing-round cannot be overestimated, as it is subsequent to it that many in the south of Russia came to realize the special nature of pedagogy as a science, an idea accurately expressed by the Director of Novocherkassk Gymnasium, S.S. Robush, who argued that pedagogues need to be prepared differently from members of other professions, suggesting that future teachers must be taught not to "develop a command of large amounts of information" but "develop their practical ability to teach" (Robush, 1867: 129). Thus, as imperfect as they were, 1860s school and gymnasium curricula in the south of Russia were the first experience of developing courses of study based on the requirements of pedagogy (e.g., assessing the student's cognitive level, establishing clear objectives for teaching, etc.), as opposed to the logic underlying the disciplines taught. At the same time, the analysis presented in this paper is of relevance from the standpoint of present-day issues in Russian education as well, as it helps gain an idea of the way the authorities in charge of the regional education system successfully advocated in the past new pedagogical ideas in a pedagogical community that was not always readily accepting of them. While it is certain that many of those best practices cannot be directly duplicated today, the principal ideas espoused by the Administration of the Kharkov Educational District in the 1860s seem well worthy of attention today, despite all the changes that have taken place over the course of the last century and a half.

## 2. Materials and methods

The history of education in the south of Russia in the pre-revolution period has been explored quite extensively (Belyakova, 2003; Karpenko, 2006; Sit'ko, 2009). However, the focus in previous research has been predominately on the quantitative performance of the education system (e.g., number of educational institutions, number of students, etc.), while there is currently a complete paucity of research examining issues relating to teachers' pedagogical views and instructional support for the learning process.

In the early 1860s, there were two prominent individuals in the Kharkov Educational District whose contribution to the development of Russian pedagogy is well worthy of separate consideration.

Based on the minimal information available on the first of the two, Lieutenant General D.S. Levshin, after a short stint in charge of the Kharkov Educational District, he was appointed to a more senior role – the Trustee of the Moscow Educational District. Well-known scholar A.V. Nikitenko says the following about D.S. Levshin: "Levshin deceived my expectations. I thought he would make a poor trustee, as there was something somewhat shallow about him, but eventually he turned out to be a top trustee. Horse sense and a kind, well-wishing heart offset any other qualities in him. Most important, he never claims to know everything and specifically something that he does not, as is so typical of officials. Besides, he is willing to take advice from others, but he will do so without becoming a slave to them" (Nikitenko, 1955: 429-430). A slightly more critical characterization of D.S. Levshin was provided by another contemporary of his, B.N. Chicherin, who saw the trustee as a person who was "without the slightest idea of either science or teaching" – but who, nevertheless, was not hindered by that from being "the kindest patriarchal general of the olden days" (Nikitenko, 1955: 632). Judging by these characterizations, while he was poorly versed in pedagogy, D.S. Levshin's personal qualities and his willingness to take advice from others perfectly compensated for that.

Indeed, many of the circulars issued in the Kharkov Educational District in 1861 are inclusive of the opinions of members of the Trustee Board. In his activity, D.S. Levshin relied upon reports by Kharkov University professors, the most active of these being the second of the two – N.A. Lavrovsky, a well-known scholar and promoter of science, later appointed Rector of the University of Warsaw, whose contribution to the history of pedagogy in the south of Russia merits special recognition. His life and legacy remain inspirational for many scholars (Kulish, 2013; Makarova, 2013; Fabrak, 2014). However, as noted by Ukrainian researcher S.M. Kulish, "there has yet to be produced an integral picture of N.A. Lavrovsky's activity in Kharkov University and the

Kharkov Educational District as a theoretician and a practitioner in pedagogy at the time" (Kulish, 2013: 90).

Therefore, the present study drew upon circulars issued in 1861 in the Kharkov Educational District as source material. As part of an analysis of these circulars, a set of documents were isolated dealing specifically with curriculum development in schools and gymnasia, which were then matched against the outcomes, mainly those in Novocherkassk Gymnasium. This helped gain an idea of how D.S. Levshin became "the best trustee" with the help of N.A. Lavrovsky.

Note, however, that both the subject matter of this study and its source base permit an understanding only of the methods that were used to implement new curricula in the Kharkov Educational District in the 1860s but by no means of the particular complications and difficulties that most certainly attended this complex process. Therefore, while the picture painted in the present study may seem somewhat idealized, the activity of D.S. Levshin and N.A. Lavrovsky in the early 1860s may well be regarded as highly successful and the methods used by them to implement curricula as overall efficient.

### 3. Discussion

It is for a reason that the present work is focused on documentation from the Kharkov Educational District for 1861 specifically – it contains examples of both direct intervention on the part of the District Administration and indirect intervention on its part in the curriculum development process, with the latter perhaps being of even more significance. The thing is that the education system in the Russian Empire at the time was still quite decentralized, with the curriculum normally designed by educational institutions themselves and then ratified by the Administration. For instance, in 1863, the Administration of the Kharkov Educational District undertook an analysis of all gymnasium curricula used at the time with a view to selecting the best ones. The resulting document stated that most of the time the learning program "was designed by the teacher in keeping with their own view of the subject, without being pressured by official textbook requirements" (Artinskii, 1907: 191). In that climate, it was crucial to get every school and gymnasium teacher to grasp the new requirements for education, rather than mechanically substitute one curriculum for another.

On April 14, 1861, N.A. Lavrovsky delivered a speech at a meeting of the Trustee Board of the Kharkov Educational District. Formally, it was an interim report on new requirements for inspection of primary schools. In actual fact, it went far beyond that narrow focus (Tsirkulyar, 1861d: 13). Commencing his address with a criticism of the then-existing system of control over the education system, N.A. Lavrovsky stressed that "education tends to outright fail to achieve its objectives and tends to be in miserable condition" specifically in schools where they appear to fulfill strict requirements from the District Administration to a T: "student examination lists are maintained with proper accuracy; the same goes for class registers; there are teachers' meeting registers in place"; etc. (Tsirkulyar, 1861d: 14). With that in mind, he suggested that a primary focus in inspecting the schools be on the actual content of the educational process, rather than on documentation for the control thereof. N.A. Lavrovsky was convinced that directions to this effect from the Administration of the Kharkov Educational District were nothing more than "general expressions" (Tsirkulyar, 1861d: 14). For instance, in terms of course content, it typically was directed that one only see to it that "each course is delivered with proper graduality and timeliness and by way of teaching materials and study guides approved by the school's senior leadership" ((Tsirkulyar, 1861d: 14). However, as noted by the Kharkov professor, "very often" the case was that where this requirement was formally fulfilled "the quality of instruction was poor and meaningful academic outcomes were truly meager" (this statement was meant to characterize not only the practices of the Kharkov Educational District but any educational institutions where the primary focus was on having to follow the established curriculum unconditionally) (Tsirkulyar, 1861d: 14). As a result, as argued by N.A. Lavrovsky, fuzzy requirements created "ideal" conditions for "arbitrary rule by inspectors" (Tsirkulyar, 1861d: 14). In terms of issues of student assimilation of the material, the scholar was of the view that knowing the material and being able to formulate it in your own words does not necessarily mean that you comprehend "the actual significance of that knowledge in life", with knowledge detached from real life doomed to be "consigned to rapid and permanent oblivion, with little to no effect on either the student's mental or their moral development" (Tsirkulyar, 1861d: 14-15).

Accordingly, N.A. Lavrovsky suggested focusing not on inspecting a school for how well the education process was reflected formally in documents, including syllabi and curricula, but on auditing "1) the knowledge of teachers themselves; 2) their ways of transmitting knowledge; 3) learning outcomes" (Tsirkulyar, 1861d: 15). TSIRKULYARThe professor provided an in-depth commentary on each of the above items. Many of his observations remain valid today. Essentially, most of what N.A. Lavrovsky proposed was quite simple and easy to verify. For instance, in terms of one's command of a subject, teachers were required to have fundamental knowledge of the subject (e.g., history teachers were expected to be able to represent certain "glorious historical figures and events" in "living images and in organic conjunction with life at the time") – and, most importantly, pedagogical knowledge ("being familiar with the latest developments in the area of didactics of the discipline they teach") (Tsirkulyar, 1861d: 15). N.A. Lavrovsky's wishes were more diverse when it came to one's "ways of transmitting knowledge" (the most crucial of them being "lively and diverse" instruction, given the age of learners in primary school) (Tsirkulyar, 1861d: 17). This is the area he seems to have been most focused on. While not demanding that the teacher strictly follow formal rules, N.A. Lavrovsky advocated the need to check "whether each class is an accomplished whole with a brief introduction in the beginning and a brief overview in the end; whether there is an organic link between each individual class and all of the preceding ones; whether an effort is made to make the student clearly aware of the actual objectives behind teaching a particular subject to them, which may be crucial to arousing in students a lasting interest in learning" (Tsirkulyar, 1861d: 17). Finally, in terms of control over "learning outcomes", while N.A. Lavrovsky did not deny the importance of assessing the student's knowledge via formal grades, he was convinced that in primary school what mattered more was to know "whether the student's interest in learning and their love of a certain subject or group of subjects *have* actually been aroused" ((Tsirkulyar, 1861d: 18). According to N.A. Lavrovsky, organizationally speaking, a school would best be inspected across the three items by way of visits to classes in all subjects and via informal one-on-one "chats" with each teacher about teaching (i.e., inspectors would not have a duty to perform a formal audit of the text of the curriculum and would have to get an idea of its content from their conversations with teachers and visits to their classes) (Tsirkulyar, 1861d: 15).

On balance, an ideal educational institution as seen by the Kharkov professor would look as follows: instruction at it would be delivered by teachers well-versed in their subject and the fundamentals of pedagogy; the learning program would be designed in such a way as to factor in learners' developmental characteristics; the learning program would be logical and oriented toward a specific goal that all participants in the educational process would be aware of; as a result, students would not only acquire formal knowledge and develop an ability to apply it in practice but would also develop a personal interest in the subjects studied. While we could debate the strengths and weaknesses of the above pedagogical concept, its obvious upside lay in addressing the various aspects in a seamless, systemic, and coordinated manner. N.A. Lavrovsky's wishes regarding the learning program were based on his other wishes: the teacher's pedagogical competence was inevitably conducive to each class having to be an accomplished whole; their scholarly competence implied the ability to structure the course in a logical manner; their desire to get the students interested could be best fulfilled through explaining to the latter what they were learning the subject for.

The most significant and complicated question remained – how was the Administration of the Educational District to achieve this kind of organization in the schools, including in terms of curricula? N.A. Lavrovsky entertained no illusions whatsoever and realized that educational institutions at the time were quite far from living up to his ideals (Tsirkulyar, 1861d: 18). However, the pedagogue proposed an unexpected move: he suggested starting with rebuilding the relationships between officials and teachers. N.A. Lavrovsky believed that, while it is via administrative inspections that school life could be radically changed, the school inspector must approach the teachers not as a controller but more in the role of a mentor, one who is "perfectly competent, fully familiar with the latest didactic requirements, fair-minded, scrupulous, and unfailingly amicable" (Tsirkulyar, 1861d: 18). But the most important part of the inspection process was, in his view, to be attending teachers' meetings, with the primary focus being not on the reporting part but on the exchange of best practices in "eclectic, refreshing, and lively ways" – it is at such meetings that various "pedagogical and didactic issues" were to be resolved (and that is in addition to the inspector's mandatory "friendly chats" with each teacher about instruction!) (Tsirkulyar 1861d: 18-19). Thus, one was to familiarize oneself with the latest pedagogical

requirements, including those relating to curriculum content not so much by way of directions from the Administration as via informal well-meaning communication between officers and teachers. What is more, officials were to assist teachers by regularly attending teachers' meetings and responding to questions that arose.

All of N.A. Lavrovsky's presentation was published in circulars for the Kharkov Educational District on June 15, 1861 (Tsirkulyar, 1861d: 13-19). It had been presented to the Russian pedagogical community earlier, literally right after the professor's address – in the April issue of the Journal of the Ministry of Public Education (Lavrovskii, 1861). This is an indication that N.A. Lavrovsky's ideas were also shared by the Trustee of the Kharkov Educational District, Lieutenant General D.S. Levshin, and the rest of the District's Trustee Board. All this helps not only better understand the expectations with regard to the learning program of those in charge of the education system in the south of Russia in the 1860s and their take on its value in the learning process but also get an idea of the theoretical basis for various pedagogical requirements and their place in one's notion of the future development of the Russian education system.

On June 8, 1861, D.S. Levshin enacted a new edition of 'Instructions for Inspection of Secondary and Lower Educational Institutions within the Kharkov Educational District' (Tsirkulyar, 1861e: 18). Although this document dealt with the supervision of not only schools but gymnasia as well, it incorporated many of N.A. Lavrovsky's proposals. Specifically, the following were established as the objectives for inspection of educational institutions: 1) "assess both the overall level of education and the technical knowledge of teachers" in them; 2) "gain an insight into the teaching methods" used in them; 3) "get an accurate idea of actual learning outcomes" in them (Tsirkulyar, 1861e: 18). Auditing the educational part, just as proposed by N.A. Lavrovsky, no longer required serious work on documentation. Instead, the inspector was to personally attend classes and conduct private conversations with teachers (Tsirkulyar, 1861e: 19). Yet the senior management of the Kharkov Educational District was not yet going to the same lengths as the professor would have done, keeping as part of the inspection program paperwork auditing, which, however, was now used to assess not the level of education in an educational institution but only the level of paperwork management in it (Tsirkulyar, 1861e: 21). Similarly, D.S. Levshin recognized the significance of instructional assistance from the inspector to the teacher (it became an official duty of the inspector to familiarize the teacher with "the best principles of teaching"). He, however, did not enjoin inspectors to engage in discussions with teachers, unlike what had been proposed by N.A. Lavrovsky (Tsirkulyar, 1861e: 18-19). On the whole, there is an impression that, while the Administration of the Kharkov Educational District did acknowledge that N.A. Lavrovsky was right on many of the issues, it decided to refrain from dismantling the existing inspection system entirely and maintain a certain degree of continuity with former rules for inspection.

Consequently, the new 'Instructions for Inspection of Secondary and Lower Educational Institutions within the Kharkov Educational District' incorporated some of the former requirements for curriculum – the very requirements that N.A. Lavrovsky regarded as "general expressions". It was still required that courses be delivered "with proper gradality and timeliness" (Tsirkulyar, 1861e: 19). Furthermore, the requirement to provide instruction "by way of study guides approved by the school's senior leadership" was supplemented. The teacher was now permitted to depart from the use of prescribed teaching materials and study guides if they had valid reasons to do so (Tsirkulyar, 1861e: 19). Thus, while most of N.A. Lavrovsky's proposals relating to changes to curriculum were not incorporated into the new version of the document, what, in actual fact, *was* implemented is the most crucial of his ideas – the primary focus was now not on how well classes aligned with the adopted curriculum but on how effective a particular course was, with teachers encouraged to adjust the learning program if that could help achieve better academic outcomes.

Thus, while the Administration of the Kharkov Educational District was fully aware in the early 1860s of the instructional outmodedness of many of the existing curricula for primary and secondary education, it approached the issue in quite an irregular manner. It is impossible to understand why it responded this way if you do not take into account the fact that it was part of its overhaul of the education system, which was to reorient schools and gymnasia from fulfilling formal requirements set by the Administration to ensuring the maximum efficiency of the learning process. Even at the prescriptive level, changes were made not to provisions regulating the activity of educational institutions but to instructions for officers concerned with inspecting them. The focus was shifted from auditing a school's paperwork to auditing its educational process and

from punishing to seeking improvement. Of relevance here is a view maintained by another Kharkov University professor – F.V. Tikhonovich. His suggestion, published in circulars for the Kharkov Educational District, was that, in the event an instructor found a teacher's methods of instruction to be ineffective, the former was to "suggest using a method that is more appropriate and useful and then try to demonstrate how it works – not only in words but in action as well, by engaging in an actual demonstration in front of the students in the presence of the teacher, so that everyone could see how instruction is to be delivered by way of the new method" (Tsirkulyar, 1861e: 22). Accordingly, instead of establishing clear-cut requirements for new curricula, the Administration of the Kharkov Educational District left it entirely up to teachers to decide what to include in the learning program, officially empowering them to depart even from already adopted curricula. At the same time, inspecting an educational institution now involved conducting an informal assessment of each teacher's learning program not from the standpoint of its alignment with certain standards but in terms of how well the material was assimilated by the learners. To get the teachers to better understand the new requirements, it was decided to include in circulars for the Kharkov Educational District, along with a set of new prescriptive documents, a report by N.A. Lavrovsky (the one that formed the basis of those documents); the report, which provided insight into many different aspects, was written in a breezy style (apparently, the District Administration did not entertain the illusion that the Journal of the Ministry of Public Education was read by all teachers).

Inspection records for schools and gymnasia within the Kharkov Educational District began to indicate the effect of the new requirements as early as May 1861. While curricula were not always audited by inspectors, it was done quite frequently, with regularly poor student knowledge believed to actually be the result of using a deficient learning program. A perfect example in this respect is an audit of the activity of Kupyansk Uyezd School, which found student command of Russian, arithmetic, and geometry at the school to be "paltry and weak" (Tsirkulyar, 1861f: 88). Having articulated this fact, the inspector provided a detailed breakdown of the school's instruction in Russian, noting that in their Russian language classes "the children would be presented with dry grammar rules to learn by heart, with no practical application thereof encouraged; practical activities, like dictation, articulate and responsible reading, prose rendering of poems, and composition writing exercises, [were] totally overlooked in the classroom" (Tsirkulyar, 1861f: 88). Consequently, it was to be communicated and explained to the teachers that most student learning gaps were actually the result of using an outmoded learning program.

The practice of following good programs in a literal and uncreative, if formally valid, fashion was now looked upon in the Kharkov Educational District as a drawback of the school. A noteworthy example in this respect is an inspection conducted at Fatezh Uyezd School, instruction in which at the time can be summed up by the following quote: "All academic subjects were taught in the volume specified in the school's constitution and curriculum and using pre-approved teaching materials. No departures from and no special peculiarities about the instruction method have been observed. Everything is conducted in accordance with the established procedure" (Tsirkulyar, 1861f: 94). However, as suggested by the inspector, the satisfactory, but by no means brilliant, academic progress of students in the school was a natural effect of the approach described above (Tsirkulyar, 1861f: 94). For instance, in divinity, the audit revealed a sharp differentiation among students, with satisfactory performance exhibited only by capable and diligent students; most of the school's students solved arithmetic and geometric problems correctly but slowly; in history and geography, a good command was combined with a dislike of the subject (Tsirkulyar, 1861f: 94). In general, it was clear that no school would ever achieve remarkable results until the curriculum was adapted to meet the needs of individual students and teachers.

Most inspectors at the time favored making thoughtful changes to the curriculum, which they believed would help ensure greater effectiveness of the educational process at a school and, hence, improve its overall performance. This was particularly the case in gymnasia where well-educated teachers approached the curriculum in a more thoughtful manner. Specifically, in Kursk Gymnasium the philology course was expanded through the addition of foreign literature and Church Slavonic, and the geography course – by way of "providing to students interesting information taken from various memoirs and travel notes", while the jurisprudence course was modified in such a way as to have the "primary focus" on criminal law (Tsirkulyar, 1861f: 89-90). Note that in the last two cases the teachers also removed from the program certain "trifles" and "redundant details" prescribed by the textbook (Tsirkulyar, 1861f: 90). Wide use was made of

books not included in the program by the Administration as study guides (e.g., a "great history teacher" named Neslukhovsky supplemented textbook material with works by S.M Solovyov and D.I. Ilovaisky) (Tsirkulyar, 1861f: 90). What is more important, while inspectors generally displayed an understanding and interested attitude toward initiatives of this kind, there, however, were also cases of attempts at improvement through modifying the program failing (the reasons behind the failures were then identified and analyzed). For instance, in Kursk Gymnasium, while the quality of instruction in the modern languages (French and German) was overall decent, most learners' command of grammatical forms was an area that still needed work, which affected the quality of their translations tangibly in terms of accuracy (Tsirkulyar, 1861f: 90). The inspector's conclusion was that the problem was caused by "practice-based learning being privileged over theory-based learning" (i.e., students were engaged more in practical activities than the learning of rules). While overall acknowledging the value of this approach, the inspector noted that it would not work where there were just 2 to 3 classes per week (Tsirkulyar, 1861f: 90).

Essentially, the most important merit of the new inspection system lies in recognizing that the success of the teacher's learning program is directly related to the student's academic success. In light of this, even in primary schools, some teachers may well have unconsciously engaged in adapting the learning program for their course to their own individual characteristics. This was particularly the case with the Russian language course. As revealed by audits, in some schools this subject was taught "with the predominant focus on practice", while in others it was "a combination of theory and practice" (Tsirkulyar, 1861f: 85-97). However, the use of both of these approaches was fine with inspectors as long as it produced good results. It was even fine to use a slightly outmoded curriculum, as evidenced by the case of Sudzha Uyezd School, headed at the time by an elderly trustee (his exact age at the time was not specified, but it was known to be his 45$^{th}$ year in service) (Tsirkulyar, 1861f: 92). The school still had in place practices such as cramming and study of topics quite remote from real life. For instance, as established by an audit, the divinity course involved "rote learning of texts", and the Russian language course required translation from Church Slavonic into Russian, a practice that was no longer around in other schools (Tsirkulyar 1861f: 93). Having said that, despite the fact that the use of rote learning without mixing in practical activities was something generally frowned upon by the Administration of the Kharkov Educational District, in this particular case the inspector reported with satisfaction that most of the students attending the divinity course had "a working command" of course content (Tsirkulyar 1861f: 92-93). Even more curious is the inspector's review of the school's Russian language instruction. Despite the fact that students had incomplete mastery of grammar and made minor mistakes, the inspector refrained from criticizing the teacher, as the latter's techniques were believed to have had "a significant effect on the children's development" (Tsirkulyar, 1861f: 93). Overall, in spite of quite a few critical observations about the performance of Sudzha Uyezd School, the activity of its teaching staff was described as "low-key but effective enough to achieve the objectives set" (Tsirkulyar, 1861f: 92).

Thus, the method used to rebuild schools and gymnasia within the Kharkov Educational District to meet the new requirements, including in terms of curriculum, was quite permissive. It did not require completely forsaking the former principles of teaching. On the contrary, if educational institutions managed to reach their primary objectives and ensure acceptable development for their students they were allowed to continue using admittedly outmoded methodologies and learning programs. Perhaps, it is taking this particular approach that saved the Kharkov Educational District from destroying what was working well: contrary to N.A. Lavrovsky's views, the majority of schools within the District posted satisfactory academic results for 1861 (Tsirkulyar, 1861f: 85-97). At the same time, with the process of rebuilding the education system having been launched, devoting more attention to the curriculum by way of inspection helped ensure that in all schools and gymnasia learning programs would gradually take on a form that met the latest requirements.

Another noteworthy fact is that most of the above-mentioned school inspection findings were published in circulars for the Kharkov Educational District. This enabled teachers to learn about the experience of their colleagues from other educational institutions, both positive and negative but always specific. Accordingly, this helped ensure that they take their cue not from foreign pedagogues or those based in the capital, who worked in totally different conditions, but their colleagues from neighboring uyezds and governorates. It must be noted that it is the exchange of

real experience that the Administration of the Kharkov Educational District deemed particularly crucial to making course content as effective as possible.

Back in September 1860, D.S. Levshin noted that relevant pedagogical issues are almost never discussed at teachers' meetings in the District's schools and gymnasia. Based on his observations, most teachers' meetings involved "examining the school's receipts and expenditure and setting the dates of promotion and final exams" (Tsirkulyar, 1861b: 7). The Trustee Board recognized that this state of affairs was unacceptable, while N.A. Lavrovsky also came up with a few interesting points on the matter. In his view, school and gymnasia were in acute need of "powerful means of stimulating and sustaining activity among instructors", for without such means teachers were turning into but formal executors of prefabricated programs, consigned to stooping "to mechanical delivery of textbook content, which not only is devoid of any educational value but actually is harmful, year after year page by page" (Tsirkulyar, 1861b: 7). It is regularly held teachers' meetings at which to discuss methods and ways of teaching that were seen as the most obvious and down-to-earth means of motivating teachers and providing them with instructional support. Owing to a systematic approach taken by the Administration of the Kharkov Educational District, this solution was, obviously, to improve the education system as a whole, not just curricula. In the context of the present work, of particular relevance are the following quintessential thoughts from D.S. Levshin: "They [teachers' meetings] help maintain education in secondary and lower educational institutions in harmony with the terms and requirements of present-day didactics. Any change and improvement in the method of teaching a particular subject that becomes a fact in present-day didactics or is recognized as useful by an instructor based on their personal reflections on the matter or teaching experience can become known to all instructors in attendance, discussed by them, and explored by them in terms of both theory and practice" (Tsirkulyar, 1861b: 7-8). As can be seen, the District Administration again placed emphasis on that changes in the educational process must emanate not from orders and directives but from teachers' inner understanding of the current development of pedagogy, an understanding founded on information obtained both from external sources and from personal experience. As in other cases, to make teachers better aware of the logic behind the latest changes in the education system, the Administration published in circulars for the Kharkov Educational District a directive to all secondary and lower educational institutions enjoining them to hold twice a month teachers' meetings to discuss relevant pedagogical issues, with a detailed rationale for the decision provided (Tsirkulyar, 1861b: 7-9).

Unfortunately, the issue of how crucial this transformation was to the development of pedagogy in the south of Russia remains unresearched. It is known that the new form of teachers' meetings, or "teachers' colloquies", did eventually become a major form of discussing and resolving urgent issues in Novocherkassk Gymnasium (Artinskii, 1907: 184). It is at these meetings that young and old teachers engaged in discussions about rebuilding the learning program. The largest amount of attention was normally devoted to discussing the learning program for philology, history, and geography. For instance, geography teacher I.P. Pryanishnikov was advised to rebuild his course completely – it was recommended that he begin not with mathematical geography (e.g., explanation of mathematical laws governing a climate, day and night length, etc.) but with physical geography, which was to help get the children interested in learning it (Artinskii, 1907: 192). Similarly, history teacher A.S. Zmiyev was advised to begin instruction in his subject not with world history but domestic history – so as to make the material more interesting and comprehensible for the student (Artinskii, 1907: 193). Philology teachers had debates regarding the ideal relationship between the theoretical and practical parts in teaching Russian (Artinskii, 1907: 185). Thus, the policy pursued by the Administration of the Kharkov Educational District helped quickly launch the process of rebuilding and enhancing the learning program at the grassroots level, with teachers themselves, through debate, searching for optimum ways to design a curriculum.

N.A. Lavrovsky suggested going even further and introducing annual congresses to be attended by teachers from different schools. While recognizing that the problem with arranging large-scale activities of this kind was distance and a shortage of railroads at the time, he believed that it was quite possible to organize smaller congresses – "for teachers from, say, three to five uyezd schools" (Tsirkulyar, 1861c: 7). Essentially, the idea of holding teacher's congresses was received welcomingly by both D.S. Levshin and the Ministry of Public Education – but with one little reservation: it required funding. It was obvious that pedagogues sent to a congress would

need to receive financial remuneration, and those expenses were to be borne by uyezd schools, most of which at the time were not particularly well-off (Tsirkulyar, 1861c: 7). Under those circumstances, D.S. Levshin again acted carefully – in May 1861, he directed the principals of all gubernia schools to share with him their opinion concerning the holding of teacher's congresses (Tsirkulyar, 1861c: 7).

The Kharkov Educational District would go on to implement the practice of arranging teacher's congresses, including large-scale ones. Quite often, the central issue at a teacher's congress was designing curricula to a uniform template that would be most effective for the challenges teachers face. For instance, in the Province of the Don Cossack Host, they started to arrange such congresses in 1862, with the central topic at them most of the time being "discussing and developing more or less general principles of providing instruction in subjects within a course of study" (Artinskii, 1907: 188). At times, there were congresses held for teachers from all over the Kharkov Educational District. One of such events was devoted exclusively to creating a single program for teaching Russian philology. By the mid-1860s, it was clear that the biggest challenge was posed by gymnasium programs for teaching Russian. Some very interesting speculations to this effect were voiced to the District Administration by Novocherkassk pedagogues: "None of the gymnasium subjects has caused so much disagreement, disorganization, and disunity in the teaching community as our own language. All existing textbooks on this subject have to this point been found unsatisfactory. Yet no one has proposed anything satisfactory. While we have discarded the old ways of teaching the native language, the new ones have yet to produce tangibly better results. As a consequence, each gymnasium is doing it its own way, keeping to its own views and convictions. Hence, the lack of certainty and the absence of a good system – and, consequently, total disunity in teaching the native language as part of the philology course" (Artinskii, 1907: 222). In that climate, the Administration of the Kharkov Educational District resolved to call a congress of philology teachers from all gymnasia. The objective for the congress, which took place in 1867, was to draw up "a most detailed plan for teaching the Russian language". A special condition was established requiring the participants to communicate with each other via a "real life exchange of opinions", as opposed to in-house documentation (Artinskii, 1907: 223). Indeed, the resulting program would be successfully employed in practice going forward. Without going into detail, it is worth noting that it envisaged both taking account of students' developmental characteristics and maintaining the link between theory and practice. It was decided to teach the Russian and Slavonic languages in Grades 1–4 and Russian literature in Grades 5 and 6, with a focus on the application of previously learnt grammar rules and identifying specific theoretical rules for "poetry and prose" in various works of literature, with the course of study concluding in Grade 7 with revising and reinforcing the material covered (Artinskii, 1907: 223). Thus, while the idea of teacher's congresses proposed by N.A. Lavrovsky turned out to work pretty well in creating curricula, the full implementation of the practice of holding teacher's congresses was affected by lack of funding.

As can be seen, the Administration of the Kharkov Educational District was engaged in the 1860s in a gradual and consistent building of a system that envisaged teachers being key initiators in rebuilding the education system, including in terms of enhancing the learning program. With that said, where teachers were unable to achieve the objectives set, the Trustee Board could step in with a rough program of its own and provide an explanation of the logic behind it. There was a case of this kind in 1861; it dealt with drawing up a program for teaching Latin from Grade 3, as opposed to Grade 4 (Tsirkulyar, 1861a: 8). Initially the task of creating the program was entrusted to a chief teacher in the District's only gymnasium where Latin was already being taught from an earlier age (Tsirkulyar, 1861a: 8). However, the program produced by the teacher failed to gain the support of the District's Trustee Board, leading the latter to design a program of its own (the basis for the Board's program was formed by the ideas contributed by the above-mentioned Kharkov University professor F.V. Tikhonovich) (Tsirkulyar, 1861a: 8).

Members of the Trustee Board placed the primary emphasis specifically on what children were to be taught in Grade 3. Apparently, the program proposed by the gymnasium teacher was focused primarily on learning words by heart, which was found to be misaligned with pedagogical requirements for the design of a learning program. The Board's criticism of the approach can be expressed by the following quote: "Just learning words without doing any translation is quite useless and even harmful in learning a language. <...>. Memorized words become a real part of students' knowledge when they are committed to memory while the student is having a thought,

i.e. during an act of translation; any acquired linguistic material, be it words or phrases, must be applied instantly, i.e. in an act of translation" (Tsirkulyar, 1861a: 8). Accordingly, as an alternative to memorizing words, the Trustee Board of the Kharkov Educational District, suggested engaging thirdgraders in translation, for which it recommended using "Kühner's grammar", while it was suggested that vocabulary and rules of grammar be learnt as part of analyzing a text (Tsirkulyar, 1861a: 9). It was noted separately that students were to translate both from Latin into Russian and from Russian into Latin, the rationale being that "this is needed not because it teaches the student to speak Latin but because it provides much greater potential for them applying in practice much of the previously learnt grammar and vocabulary" (Tsirkulyar, 1861a: 9). As always, the recommendation was accompanied by a detailed explanation, and in this case it was stressed that translation from Russian into Latin, compared with translation from Latin into Russian, requires a firm, rather than rough, command of grammar, as well as an ability to choose among different Latin words with similar meaning (Tsirkulyar, 1861a: 9). Similarly, students in Grades 4–7 were, too, mainly to engage in translation activities, but learners in this group were to translate not adapted texts but original ones, with a gradual increase in complexity and diversity. For example, for Grade 4 it was recommended to use works by Julius Caesar (for the "breezy, and therefore riveting, and down-to-earth writing style"). Poetry translation was allowed in limited amounts; it was to become a regular part of the program starting in Grade 5 only (Tsirkulyar, 1861a: 9).

Even where it was a turnkey learning program designed through the efforts of the District Administration, some initiative was still expected on the part of teachers, who were allowed to suggest both including in the program translations from unlisted sources and, conversely, leaving out translations from recommended ones (Tsirkulyar, 1861a: 10). As a noteworthy example, it was allowed, in teaching Latin versification, to replace a "Jacobi-based" study guide with "a custom study guide designed in close alignment with student needs" (Tsirkulyar, 1861a: 9). Finally, teachers were encouraged to find a convenient time during lessons to "explain to the class the ways in which life in ancient times was different from life in modern times", as this was thought to be useful both in terms of their future study of history and "accustoming" them to attentive reading and analysis of life around them (Tsirkulyar, 1861a: 9).

The above case clearly indicates that the Administration of the Kharkov Educational District did have the ability to produce quality curricula of its own design, and most of its programs were in keeping with the needs of the time, were pedagogically and scientifically well-grounded, and took account of children's developmental characteristics. However, as shown above, it preferred not to do it. Even in the above example, the task of initial development of the program was entrusted to a gymnasium teacher (incidentally, quite characteristically, the teacher's name was not mentioned in any of the circulars for the Kharkov Educational District; nor was there provided a detailed overview of his failed program) (Tsirkulyar, 1861a: 8-10). Essentially, the District Administration tried to act in the same ideal role as the one it had assigned to school inspectors – that of a considerate consultant and mentor to students. Apparently, this produced good results, with Latin instruction in the District's gymnasia becoming top-grade, irrespective of specific programs. For instance, Novocherkassk Gymnasium was allowed to keep using its existing curriculum for Latin, whereby Latin instruction was to begin in Grade 4, up until the mid-1860s, the reason being that learners in Grade 3 were overloaded as it was and increasing the number of teaching hours could place an extra strain on the teacher, leading to a decline in the quality of instruction (characteristically, the maximum teaching load at the time was 22 lessons per week) (Artinskii, 1907: 171). Note that, subsequent to adopting a new program, the gymnasium managed to deliver some excellent academic results, with its Latin exam performance bringing back in 1866 "fond memories of past success with the classical languages" (Artinskii, 1907: 210).

### 4. Conclusion
"With the era of the reign of fear in our schools irrevocably drawing to a close and the intimidation system giving way to meek measures, it is time now that inspectors in our schools started to be likened not to a lightning storm that will punish just for the sake of punishing but to a friendly guest who will seek to invigorate the monotonous routine of study and organize and guide the student's energies, serving as a kind middleman between the distant school and its senior management", wrote N.A. Lavrovsky in 1861 (Tsirkulyar, 1861d: 19). This quote accurately reflects the policy pursued by the Kharkov Educational District at the time. While it was fully aware of the

issues facing the education system at the time, the most salient of which being its outmodedness, ineffectiveness, and detachedness from real life due to its excessive focus on theory, the District Administration did, however, refrain from using tough punitive measures. Instead of just punishing weak and indifferent teachers and instead of introducing new rules and curricula in a strictly top-down manner, the District's Trustee, D.S. Levshin, strove to inspirit the actual educational process, with a focus on getting each school and gymnasium to prioritize conscious improvement of the actual learning process over formal compliance with administrative directions.

What became the primary measure aimed at improving the curriculum in schools and gymnasia was inspecting the educational institution. Subject to inspection was now, however, not the written version of the curriculum – instead, the inspector was to visit each teacher's classes and then have a private conversation with them. The inspector was to draw, on that basis, conclusions about the relationship between students' academic progress and the quality of the courses attended by them. The key upsides of this approach were its flexibility and explicit focus on learning outcomes. While the Administration of the Kharkov Educational District, essentially, was in favor of practice-based teaching methods being employed and the use of problems and assignments prevailing over a focus on theory and rote memorization, there were cases where inspectors approved the use of formally outmoded but still efficient curricula, as well as cases where, conversely, gaps in the student's knowledge were found to be the result of their willful disregard for the course's theoretical part. The period's school inspection materials indicate that inspectors actually quite often acted as advisers focused on identifying strengths and weaknesses in the curriculum.

Another crucial measure undertaken to get teachers to prioritize thoughtful instruction over mechanical delivery of course content was the introduction of "teachers' colloquies" in all schools. Teachers' meetings, which formerly had been used to discuss mainly administrative and economic issues, were now employed for the exchange of best teaching practices. For instance, in Novocherkassk Gymnasium, teachers' meetings involved active discussion of the sequence of units in a course, with adjustments being made as necessary. In addition, the go-ahead was given for the convening of teacher's congresses, where best teaching practices could be exchanged among teachers from different educational institutions. By the late 1860s, such congresses had become a tool for unifying Russian philology curricula – instead of introducing a new curriculum in this subject in a strictly top-down manner, the District Administration directed that teachers in all of the gymnasia develop it personally.

Thus, the success in education in the south of Russia in the 1860s was directly associated with the original reforms initiated by D.S. Levshin and N.A. Lavrovsky, who had understood that initiative and readiness to innovate cannot be inculcated into members of the pedagogical community through directions from above and administrative control alone. They rebuilt the education system as much as they could, with a focus on encouraging initiative from below and making control over educational institutions not punitive but helpful in student development. This helped initiate the process of creating new curricula at the grassroots level, with the District Administration now intervening only under exceptional circumstances (which, to its credit, it would be doing in quite a professional and competent manner).

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# Private Educational Institutions in the Caucasus in the Period 1846−1914: A Historical-Statistical Study

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## Abstract

This work examines the private education sector in the Caucasus in the prerevolutionary period. Consideration is given to the distinctive characteristics of the development of secondary, lower, and primary private education in the region.

The key sources used in putting this work together are the annual Reports on Educational Institutions in the Caucasus Educational District, which provide data on the region's schools run by the Ministry of Public Education in the period 1884−1914, and the 1879 Memorandum Book for the Caucasus Educational District.

Given the study's nature, special use was made of the statistical method, with the diverse statistical material classified by level of private educational institutions and the raw data on both the number of educational institutions and the gender and religious composition of the student body summarized. This helped identify some of the key distinctive characteristics of the development of the private education system in the Caucasus in the period 1849−1914.

The authors' conclusions are as follows:

1. Private educational institutions in the Caucasus were divided into the following three categories: Category 1 – educational institutions with five grades and up (gymnasia and higher primary educational institutions); Category 2 – educational institutions with three-to-four grades (urban schools and four-grade progymnasia); Category 3 – educational institutions with one-to-two grades (primary schools).

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2. To be able to compete with ministerial (public) educational institutions, private educational institutions had to continuously keep track of the demand for education in society, take account of new trends, and vouch for the quality of the educational process. Consequently, the region's private education sector was characterized by impermanence. Essentially, it acted as a litmus paper for a reading on what was desired by society in the Caucasus. The sector was undergoing continuous change, with the number of school grades increasing. The number of primary private educational institutions continuously declined in the region over the prerevolutionary period. In 1879, primary schools accounted for 93 % of all private educational institutions in the region, in 1907 – for 78 %, and in 1914 – for just 61 %.

3. In religious composition, the student body across the region's private educational institutions was dominated throughout the period under review by Orthodox Christians (the figure ranging from 57 to 74 %), followed by Armenian Gregorian Christians (18 to 35 %), with members of other faiths accounting for an insignificant portion of the region's student body.

**Keywords:** private educational institutions, Caucasus, Russian Empire, Caucasus Educational District.

## 1. Introduction

Private education existed across the Caucasus long before its becoming part of the Russian Empire. As a rule, well-off parents would hire private tutors for their children in an effort to have them learn basic skills such as reading, writing, and math. This form of private education was incomplete, as tutors did not have proper study guides and subjected their teaching methods to analysis only superficially. Understandably, the level of such education was quite poor, even though no other form of education was available in the region at the time.

With the advent of Russia to the Caucasus, slowly yet systematically the region became home to its first public educational institutions[*], and, where government efforts were insufficient to meet increased education demand in the region, private educational institutions began to emerge to fill this gap.

## 2. Materials and methods

The key sources used in putting this work together are the annual Reports on Educational Institutions in the Caucasus Educational District, which provide data on the region's schools run by the Ministry of Public Education in the period 1884–1914, and the 1879 Memorandum Book for the Caucasus Educational District (Pamyatnaya knizhka, 1880).

Given the study's nature, special use was made of the statistical method, with the diverse statistical material classified by level of private educational institutions and the raw data on both the number of educational institutions and the gender and religious composition of the student body summarized. This helped identify some of the key distinctive characteristics of the development of the private education system in the Caucasus in the period 1849–1914.

## 3. Discussion

The topic of private education in the Russian Empire is not new in Russian historiography. Researchers have explored both the history of private education in Russia and its regional characteristics.

Among the most prominent works on the subject are the following: a study by K.V. Romanenchuk exploring the history of the private education sector in Russia (Romanenchuk, 2011); a study by S.V. Sergeeva exploring the inspection of private educational institutions in Russia (Sergeeva, 2009); a study by O.K. Pavlova exploring the development of commercial education in Russia during the prerevolutionary period (Pavlova, 2014).

Worthy of mention are also the following works: a study by A.V. Belov exploring the process of creation of the nation's public education system through the example of the city of Moscow (Belov, 2019); a study by V.D. Kamynin and A.B. Khramtsov exploring reports by public school inspectors in prerevolutionary Siberia (Kamynin, Khramtsov, 2019); a study by L.M. Khutorova

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[*] The first-ever public educational institution in the Caucasus was established in 1802 in the city of Tiflis (Shevchenko et al., 2016: 364).

and Yu.N. Ronzhina exploring the history of the private education system in the city of Kazan (Khutorova, Ronzhina, 2013).

When it comes to research on the specific subject matter covered by the present work, private education in the Caucasus has been researched by the following scholars: A.M. Mamadaliev, who has explored the system of public education in Tiflis Governorate (Mamadaliev et al., 2020; Mamadaliev et al., 2020a; Mamadaliev et al., 2020b; Mamadaliev et al., 2020c); V.S. Molchanova, who has explored the system of public education in Kuban Oblast (Molchanova et al., 2019; Molchanova et al., 2019a; Molchanova et al., 2020); O.V. Natolochnaya, who has explored the system of public education in Stavropol Governorate (Natolochnaya et al., 2020; Natolochnaya et al., 2020a; Natolochnaya et al., 2020b); A.A. Cherkasov, who has explored the system of public education in Black Sea Governorate (Cherkasov et al., 2020; Cherkasov et al., 2020a).

Given that only incidental research has been carried out on private education in the Caucasus, there appears to be a need for a targeted research study on the subject. The research reported in this work was conducted to serve this purpose.

## 4. Results
Private educational institutions in the Russian Empire were divided into the following three categories: Category 1 – educational institutions with five grades and up; Category 2 – educational institutions with three-to-four grades; Category 3 – educational institutions with one-to-two grades.

The private education sector in the Caucasus was characterized by impermanence, with educational institutions opening and closing down regularly in the region. The possible reasons were lack of students (due to a portion of the potential student body being provided with an education already) and lack of funding. To illustrate this statistically, in 1885 the Caucasus witnessed the opening of 24 and closure of 25 private educational institutions (Otchet, 1886: 293), with the figures for 1889 being 16 and 22, respectively (Otchet, 1890: table 288).

As of January 1, 1879, the Caucasus Educational District numbered 84 private educational institutions (Pamyatnaya knizhka, 1880: XIII), with the date of foundation and the location known for 54 of those (Table 1). The region's three oldest private educational institutions were based in the city of Tiflis: Belakhyants's School, a one-grade primary educational institution established in 1846; Marsova's Gymnasium, a four-grade female gymnasium established in 1854; Melikyants's School, a one-grade primary school established in 1864. The era of the hegemony of Tiflis-based educational institutions in the region ended in 1865, when it became home to three primary schools in Kuban Oblast (the Yekaterinodar, Poltava, and Uman schools). That same year, the region also became home to Grigoryeva's School, a one-grade primary school, in Tiflis.

In 1866, the region became home to its only secondary private educational institution – Monastyrtsev and Ter-Akopov's Gymnasium, a five-grade male gymnasium in Tiflis. Of note is the fact that S.I. Monastyrtsev combined his entrepreneurial activity with teaching Latin at the gymnasium, while his partner, N.Ya. Ter-Akopov, taught Armenian there. Overall, the gymnasium had 34 instructors. As of 1879, the gymnasium had 225 boys, with 128 of those being boarders. Monastyrtsev and Ter-Akopov would go on to open up a real school in Tiflis in 1877.

That same year, 1866, Kutais became home to a one-grade Armenian school, and in 1871 a one-grade Tatar school was established in Shamakhi, with both going on to be the oldest in operation as of 1879.

The region's private educational institutions varied in type, including gymnasia, progymnasia, real schools, primary schools, and grammar schools, with a few exotic types of school also present, including an elementary one-grade school, an Armenian female charity school, a free female school, and a Catholic school.

As evidenced in Table 1, the oldest of the region's private educational institutions that remained in operation in 1879 were those based in Tiflis, which is no wonder as Tiflis was the administrative center of the Caucasus Viceroyalty. As early as 1865, this group began to be joined by educational institutions from other areas, including Kuban Oblast and Kutais Governorate. Despite the fact that the oldest private educational institution was established back in 1846, the majority of the institutions were opened in the last five-year period (1875–1879) – 32 out of the region's 54 educational institutions.

**Table 1.** Dates of Foundation of Private Educational Institutions in the Caucasus as of 1879

| Year founded | Number of educational institutions | Area |
|---|---|---|
| 1846 | 1 | Tiflis |
| 1854 | 1 | Tiflis |
| 1864 | 1 | Tiflis |
| 1865 | 4 | 3 – Kuban Oblast, 1 – Tiflis |
| 1866 | 2 | 1 – Tiflis, 1 – Kutais |
| 1868 | 2 | 1 – Kutais, 1 – Tiflis |
| 1869 | 1 | Tiflis |
| 1871 | 1 | Shamakhi |
| 1873 | 4 | Kutais, Stavropol, Tiflis |
| 1874 | 5 | Baku, Kuban Oblast, Stavropol, Gori |
| 1875 | 3 | Tiflis, Shusha |
| 1876 | 9 | Kutais, Stavropol, Vladikavkaz, Tiflis |
| 1877 | 5 | Baku, Stavropol, Vladikavkaz, Tiflis |
| 1878 | 13 | Baku, Stavropol, Vladikavkaz, Tiflis |
| 1879 | 2 | Stavropol |

Table 2 displays the number of private educational institutions in the Caucasus in the period 1879–1914.

**Table 2.** Private Educational Institutions within the Caucasus Educational District in the Period 1879–1914 (Pamyatnaya knizhka, 1879, 1880: 25; Otchet, 1885: 283-286; Otchet, 1886: 292-295; Otchet, 1887: 304-307; Otchet, 1890: table 288, 292; Otchet, 1891: table 307, 311; Otchet, 1892: table 309, 313; Otchet, 1893: table 310, 314; Otchet, 1894: table 310, 314; Otchet, 1895: table 310, 314; Otchet, 1896: table 310, 314; Otchet, 1897: table 310, 314; Otchet, 1899: table 294, 298; Otchet, 1900: table 294, 298; Otchet, 1901: table 294, 298; Otchet, 1905: table 294, 298; Otchet, 1908: table 264, 265; Otchet, 1909: table 270; Otchet, 1910: table 271; Otchet, 1911: table 269; Otchet, 1912: table 269; Otchet, 1913: table 236; Otchet, 1914: table 235; Otchet, 1915: table 234)

| Year | Number of educational institutions | | | | | | | | Number of students | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Category 1 | | Category 2 | | Category 3 | | | Total | Boys | Girls | Total |
| | m | f | m | f | m | f | mixed | | | | |
| 1879 | 1 | | 5 | | 78 | | | 84 | 2,133 | 1,077 | 3,210 |
| 1884 | 1 | - | 7 | 1 | 30 | 4 | 54 | 97 | 2,843 | 687 | 3,530 |
| 1885 | 1 | 1 | 7 | - | 34 | 5 | 48 | 96 | 3,035 | 750 | 3,785 |
| 1886 | 2 | - | 6 | - | 30 | 4 | 56 | 98 | 2,891 | 678 | 3,569 |
| 1888 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 104 | 2,995 | 818 | 3,813 |
| 1889 | 3 | - | 5 | 8 | 28 | 6 | 53 | 98 | 3,024 | 987 | 4,011 |
| 1890 | 2 | - | 4 | 3 | 33 | 4 | 57 | 103 | 2,980 | 998 | 3,978 |
| 1891 | 3 | - | 3 | 3 | 38 | 1 | 47 | 95 | 2,865 | 873 | 3,788 |
| 1892 | 3 | - | 3 | 3 | 30 | 3 | 47 | 89 | 2,828 | 979 | 3,807 |
| 1893 | 2 | 1 | 3 | 3 | 29 | 3 | 50 | 92 | 3,101 | 1,174 | 4,275 |
| 1894 | 3 | 1 | 3 | 2 | 31 | 2 | 52 | 94 | 3,303 | 1,202 | 4,505 |
| 1895 | 3 | 1 | 3 | 1 | 35 | 2 | 54 | 99 | 4,032 | 1,319 | 5,351 |
| 1896 | 1 | 1 | 6 | 2 | 44 | 12 | 58 | 124 | 4,750 | 2,104 | 6,854 |
| 1898 | 1 | - | 6 | 5 | 43 | 11 | 70 | 136 | 4,971 | 2,275 | 7,246 |
| 1899 | 1 | - | 5 | 5 | 43 | 16 | 77 | 147 | 5,175 | 2,586 | 7,761 |
| 1900 | 1 | 2 | 8 | 4 | 41 | 17 | 84 | 157 | 5,254 | 3,011 | 8,265 |
| 1904 | 1 | 1 | 4 | 7 | 43 | 22 | 63 | 141 | 4,975 | 2,889 | 7,864 |
| 1907 | 4 | 3 | 6 | 12 | 23 | 6 | 65 | 119 | 4,837 | 2,418 | 7,255 |
| 1908 | 9 | | 27 | | 106 | | | 142 | 5,894 | 3,541 | 9,435 |

| 1909 | 7  | 33 | 96  | 136 | 4,350 | 3,187 | 7,537  |
|------|----|----|-----|-----|-------|-------|--------|
| 1910 | 8  | 34 | 103 | 145 | 6,030 | 3,647 | 9,677  |
| 1911 | 7  | 43 | 98  | 148 | 7,163 | 4,958 | 12,121 |
| 1912 | 6  | 40 | 104 | 145 | 5,723 | 4,090 | 9,813  |
| 1913 | 7  | 28 | 99  | 134 | 4,526 | 4,146 | 8,672  |
| 1914 | 32 | 20 | 83  | 135 | 3,560 | 4,935 | 8,495  |

As evidenced in Table 2, the region witnessed an increase of 4.5 times in the number of Category 1 schools in 1914. This was associated with the introduction of six-grade higher primary educational institutions across the Russian Empire and the Caucasus in 1912. In 1914, a mass reaction to this came from private educational institutions, with it being done in part at the expense of Category 2 and Category 3 schools. For instance, Baku Governorate had in operation just one public higher primary institution in 1913, whereas in 1914 it now had as many as five – as a result of the opening of one new and reorganization of three existing public institutions. At the same time, in 1913 the governorate had no private higher primary institutions, whereas in 1914 it now had as many as six (Otchet, 1915: table 234).

In addition, throughout the lengthy period from 1879 to 1907 the basis of the private education sector in the region was formed by Category 3 primary schools. For instance, in 1879 they accounted for 93 % and in 1907 for 78 %. However, by 1914 the sector had undergone significant changes, with the share of primary schools dropping to 61 % and with priority given now to Category 1 educational institutions.

The private education sector in the Caucasus was characterized at the time by private schools tending to be opened where there was commercial promise in doing so. To be able to compete with ministerial (public) educational institutions, private educational institutions had, apart from watching for opportunities for commercial success, to continuously keep track of the demand for education in society, take account of new trends, and vouch for the quality of the educational process. Consequently, the region's private education sector was characterized by impermanence. Essentially, it acted as a litmus paper for a reading on what was desired by society in the Caucasus. As a consequence, the region witnessed significant fluctuations in terms of the gender composition of its student body. Specifically, whereas in 1884 girls accounted for 19.5 % of the student body, in 1914 the figure now was 58 %. The region's public and private education sectors competed fiercely throughout the prerevolutionary period. The Ministry of Public Education, especially in the early 20th century, was keenly engaged in opening new educational institutions, attracting large numbers of school-age children, with private educational institutions forced in that climate to retool in order to adapt to the realities of the rapidly changing situation in education. That was the only way for the private education sector to keep afloat.

A few words will now be said about the private sector's student body. Table 3 illustrates the religious composition of the student body within the region's private education sector in the period 1884–1909. It is to be noted straightaway that in the period 1905–1914 information on the religious composition of the private sector's student body was published in the Reports on Educational Institutions in the Caucasus Educational District only in 1909. This must have been associated with the sharply increasing number of ministerial educational institutions and the declining role of private education in the region at the time. For instance, in 1884 private educational institutions in the Caucasus accounted for 9.7 % of the total number of educational institutions (Otchet, 1885: 290), and in 1914 – for just 2.6 % (Otchet, 1915: 149).

**Table 3.** Distribution of Students in Private Educational Institutions in the Caucasus by Faith in the Period 1884–1909 (Otchet, 1885: 286-287; Otchet, 1886: 296-297; Otchet, 1887: 310-311; Otchet, 1890: table 293; Otchet, 1891: table 312; Otchet, 1892: table 314; Otchet, 1893: table 315; Otchet, 1894: table 315; Otchet, 1895: table 315; Otchet, 1896: table 315; Otchet, 1897: table 315; Otchet, 1899: table 299; Otchet, 1899: table 299; Otchet, 1901: table 299; Otchet, 1905: table 299; Otchet, 1910: table 272)

| Year | Orthodox Christians | Armenian Gregorian Christians | Catholics | Protestants | Jews | Muslims | Other faiths | Total |
|------|------|------|------|------|------|------|------|------|
| 1884 | 1,992 | 1,226 | 37 | 132 | 89 | 107 | 47 | 3,530 |
| 1885 | 1,894 | 1,393 | 60 | 131 | 84 | 146 | 77 | 3,785 |
| 1886 | 1,811 | 1,199 | 63 | 91 | 120 | 151 | 134 | 3,569 |
| 1889 | 2,301 | 1,233 | 47 | 94 | 125 | 139 | 72 | 4,011 |
| 1890 | 2,251 | 1,087 | 89 | 104 | 148 | 178 | 121 | 3,978 |
| 1891 | 2,022 | 1,276 | 59 | 90 | 123 | 107 | 61 | 3,788 |
| 1892 | 2,075 | 1,306 | 57 | 50 | 177 | 81 | 52 | 3,807 |
| 1893 | 2,285 | 1,332 | 70 | 148 | 156 | 157 | 127 | 4,275 |
| 1894 | 2,471 | 1,204 | 72 | 189 | 165 | 176 | 168 | 4,505 |
| 1895 | 2,841 | 1,086 | 84 | 191 | 217 | 159 | 223 | 5,351 |
| 1896 | 3,348 | 2,514 | 94 | 285 | 216 | 166 | 281 | 6,854 |
| 1898 | 3,756 | 2,719 | 124 | 91 | 205 | 201 | 150 | 7,246 |
| 1899 | 4,232 | 2,877 | 128 | 67 | 186 | 231 | 40 | 7,761 |
| 1900 | 4,788 | 2,632 | 134 | 101 | 244 | 220 | 146 | 8,265 |
| 1904 | 5,269 | 1,949 | 200 | 80 | 139 | 148 | 79 | 7,864 |
| 1909 | 5,557 | 1,355 | 150 | 141 | 161 | 173 | - | 7,537 |

As evidenced in Table 3, Orthodox Christians made up the bulk of the private sector's student body in the region, accounting for 57 % in 1884 and for 74 % in 1909. In the period under review, the figure rose 2.8 times. Orthodox Christians were steadily followed by Armenian Gregorian Christians, who accounted for 35 % in 1884 and for just 18 % in 1909, despite an increase in their number. Armenian Gregorian Christians were followed by Catholics, Protestants, Jews, and Muslims, with only Catholic students posting a sharp increase in number – 4 times.

Table 4 displays the numbers of private educational institutions across the regions of the Caucasus.

**Table 4.** Numbers of Private Educational Institutions across the Regions of the Caucasus in the Period 1883–1914 (Otchet, 1886: 282-283; Otchet, 1886: 292-293; Otchet, 1887: 304-305; Otchet, 1890: table 288; Otchet, 1891: table 307; Otchet, 1892: table 309; Otchet, 1893: table 310; Otchet, 1894: table 310; Otchet, 1895: table 310; Otchet, 1896: table 310; Otchet, 1897: table 310; Otchet, 1899: table 294; Otchet, 1900: table 294; Otchet, 1901: table 294; Otchet, 1905: table 294; Otchet, 1908: table 265; Otchet, 1909: table 270; Otchet, 1910: table 271; Otchet, 1912: table 269; Otchet, 1913: table 236; Otchet, 1914: table 235; Otchet, 1915: table 234)

| Year | Kuban Oblast | Stavropol Governorate | Terek Oblast | Tiflis Governorate | Kutais Governorate | Elizavetpol Governorate | Erivan Governorate | Kars Oblast | Baku Governorate | Dagestan Oblast | Sukhum Sector | Black Sea Governorate | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1883 | 5 | 9 | 6 | 46 | 7 | 9 | 13 | - | 4 | 1 | N/A | N/A | 100 |
| 1884 | 9 | 11 | 7 | 35 | 9 | 8 | 13 | - | 4 | 1 | N/A | N/A | 97 |
| 1885 | 6 | 11 | 7 | 38 | 8 | 14 | 7 | - | 4 | 1 | N/A | N/A | 96 |
| 1886 | 7 | 15 | 7 | 35 | 7 | 12 | 6 | - | 8 | 1 | N/A | N/A | 98 |
| 1888 | 12 | 13 | 6 | 40 | 7 | 10 | 4 | - | 11 | 1 | N/A | N/A | 104 |
| 1889 | 15 | 6 | 6 | 35 | 7 | 13 | 4 | 1 | 10 | 1 | N/A | N/A | 98 |
| 1890 | 17 | 11 | 8 | 31 | 7 | 14 | 5 | - | 9 | 1 | N/A | N/A | 103 |
| 1891 | 18 | 7 | 5 | 28 | 9 | 12 | 5 | - | 10 | 1 | N/A | N/A | 95 |
| 1892 | 15 | 8 | 5 | 26 | 10 | 10 | 4 | - | 10 | 1 | N/A | N/A | 89 |
| 1893 | 12 | 7 | 5 | 31 | 10 | 10 | 5 | - | 12 | - | N/A | N/A | 92 |
| 1894 | 10 | 6 | 6 | 34 | 11 | 10 | 6 | - | 11 | - | N/A | N/A | 94 |
| 1895 | 9 | 7 | 5 | 33 | 14 | 9 | 6 | - | 16 | - | N/A | N/A | 99 |
| 1896 | 8 | 8 | 5 | 38 | 16 | 15 | 11 | - | 21 | - | N/A | 2 | 125 |
| 1897 | 11 | 8 | 6 | 44 | 15 | 15 | 13 | - | 25 | - | N/A | 1 | 138 |
| 1898 | 8 | 8 | 5 | 43 | 15 | 14 | 9 | - | 32 | - | N/A | 2 | 136 |
| 1899 | 10 | 7 | 4 | 50 | 16 | 10 | 8 | 1 | 37 | 2 | N/A | 2 | 147 |
| 1900 | 11 | 4 | 6 | 57 | 19 | 9 | 9 | 1 | 37 | 2 | N/A | 2 | 157 |
| 1903 | 10 | 4 | 5 | 54 | 28 | 5 | 12 | 2 | 22 | 1 | N/A | 2 | 145 |
| 1904 | 14 | 5 | 5 | 47 | 29 | 5 | 14 | 1 | 18 | - | N/A | 3 | 141 |
| 1906 | 12 | 3 | 7 | 19 | 37 | 2 | 10 | - | 8 | 1 | N/A | 3 | 102 |
| 1907 | 14 | 4 | 8 | 26 | 41 | 2 | 12 | - | 7 | 1 | N/A | 4 | 119 |
| 1908 | 15 | 5 | 10 | 44 | 36 | 3 | 11 | - | 7 | | N/A | 9 | 142 |
| 1909 | 14 | 5 | 13 | 40 | 33 | 2 | 12 | - | 7 | 1 | N/A | 11 | 136 |
| 1910 | 12 | 9 | 12 | 41 | 32 | 2 | 11 | - | 8 | - | N/A | 8 | 145 |
| 1911 | 15 | 9 | 12 | 35 | 37 | 2 | 12 | 1 | 9 | - | N/A | 11 | 148 |
| 1912 | 20 | 8 | 12 | 35 | 31 | 2 | 10 | 1 | 8 | - | 5 | 18 | 145 |
| 1913 | 9 | 8 | 16 | 32 | 26 | 6 | 9 | 1 | 8 | - | 6 | 14 | 134 |
| 1914 | 15 | 9 | 15 | 37 | 20 | 5 | 6 | - | 13 | - | 3 | 12 | 135 |

As evidenced in Table 4, private educational institutions in the Caucasus were distributed unevenly at the time. Some of the areas (Tiflis Governorate, which had the maximum number of educational institutions, 57, in 1900) and Kutais Governorate (which had the maximum number of educational institutions, 41, in 1907), were clear leaders in private education in the region, and some were clear laggards (Kars Oblast and Dagestan Oblast) with an unstable private education sector.

**5. Conclusion**

The following conclusions were drawn from the insights gained from this study:

1. Private educational institutions in the Caucasus were divided into the following three categories: Category 1 – educational institutions with five grades and up (gymnasia and higher primary educational institutions); Category 2 – educational institutions with three-to-four grades (urban schools and four-grade progymnasia); Category 3 – educational institutions with one-to-two grades (primary schools).

2. To be able to compete with ministerial (public) educational institutions, private educational institutions had to continuously keep track of the demand for education in society, take account of new trends, and vouch for the quality of the educational process. Consequently, the region's private education sector was characterized by impermanence. Essentially, it acted as a litmus paper for a reading on what was desired by society in the Caucasus. The sector was undergoing continuous change, with the number of school grades increasing. The number of primary private educational institutions continuously declined in the region over the prerevolutionary period. In 1879, primary schools accounted for 93 % of all private educational institutions in the region, in 1907 – for 78 %, and in 1914 – for just 61 %.

3. In religious composition, the student body across the region's private educational institutions was dominated throughout the period under review by Orthodox Christians (the figure ranging from 57 to 74 %), followed by Armenian Gregorian Christians (18 to 35 %), with members of other faiths accounting for an insignificant portion of the region's student body.

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# The System of Public Education in Baku Governorate in the Period between the Second Half of the 19th Century and the Early 20th Century. Part 2

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## Abstract

This work analyzes the system of public education in Baku Governorate in the period between the second half of the 19th century and the early 20th century. This part of the work examines the timeframe 1900–1917.

The key sources used in putting this work together are the annual Reports on Educational Institutions in the Caucasus Educational District, which provide data on the region's schools under the purview of the Ministry of Public Education, and a set of related documents from the Russian State Historical Archive (Saint Petersburg, Russian Federation).

Wide use was made of the statistical method. The authors researched the reports for statistical data on the following: the types of the region's educational institutions, the number of schools in the region, the region's library holdings, and the region's student body (information related to student demographics, including ethnicity, religion, social estate, and gender). The use of the statistical method helped identify some of the key distinctive characteristics of the development of the system of public education in Baku Governorate in the period 1900–1917.

The authors' conclusion is that the system of public education in Baku Governorate had markedly distinct characteristics. A large segment of the region's population was Muslims. Most members of this community preferred their children only to receive an ecclesiastical education, with it being discouraged that school be attended by girls. With the Baku Directorate for Public Schools tasked with the job of altering the community's attitude toward secular education,

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the efforts did overall bring some fruition by 1914. More specifically, starting in 1900, the total number of educational institutions in the region rose 3.2 times, and its student body increased 3 times. The numbers of Orthodox Christian students and Muslim students in its primary schools virtually evened up – a testimony to most Muslim parents in the area coming to realize the importance of mainstream education for their children. However, there was a holdover that strongly persisted – it being discouraged that girls attend school.

**Keywords:** Baku Governorate, system of public education, period between the second half of the 19th century and the early 20th century, Ministry of Public Education.

### 1. Introduction

In 1846, the Caucasus Viceroyalty was divided into the Shamakhi, Tiflis, Kutais, and Derbent governorates (Mil'man, 1966: 133). However, in 1859 the capital of Shamakhi Governorate, Shamakhi, was destroyed by a devastating earthquake. The capital was moved to Baku, and the governorate was renamed Baku Governorate. As other regions of the Caucasus, Baku Governorate had a motley population. As of 1886, the region had a population of 712,000, of which 377,000 were Azerbaijanis (approx. 53 %), 134,000 – Tats (19 %), 57,000 – Dagestanis (8 %), and 50,000 – Talyshes (7%), with ethnic Russians placed fifth – 42,000 (6 %), followed by Armenians – 39,000 (5.5 %). In large part, the region's demographic circumstances are what determined the complexity of organizing its system of public education.

This part of the work examines the development of the system of public education in Baku Governorate in the period 1900–1917.

### 2. Materials and methods

The key sources used in putting this work together are the annual Reports on Educational Institutions in the Caucasus Educational District, which provide data on the region's schools under the purview of the Ministry of Public Education, and a set of related documents from the Russian State Historical Archive (Saint Petersburg, Russian Federation).

Wide use was made of the statistical method. The authors researched the reports for statistical data on the following: the types of the region's educational institutions, the number of schools in the region, the region's library holdings, and the region's student body (information related to student demographics, including ethnicity, religion, social estate, and gender). The use of the statistical method helped identify some of the key distinctive characteristics of the development of the system of public education in Baku Governorate in the period 1900–1917.

### 3. Discussion

In his work on the system of public education in Kars Oblast, scholar T.A. Magsumov notes the following: "Up to now, the system of public education in Kars Oblast in the period 1878–1917 has not been the subject of independent research. What is more, the topic has not been touched upon in research publications even incidentally" (Magsumov et al., 2020: 222). This statement holds true for Baku Governorate too. Nevertheless, there are several summarizing works on the system of public education in other regions of the Caucasus, including Kuban Oblast (Molchanova et al., 2019; Molchanova et al., 2019a; Molchanova et al., 2020), Stavropol Governorate (Natolochnaya et al., 2020; Natolochnaya et al., 2020a; Natolochnaya et al., 2020b), Black Sea Governorate (Cherkasov et al., 2020; Cherkasov et al., 2020a), and Kutais Governorate (Mamadaliev et al., 2021; Mamadaliev et al., 2021a).

In addition, in recent years researchers have expressed keen interest in the study of the system of public education in various governorates within the Russian Empire. Specifically, a team of researchers led by A.A. Cherkasov has explored the system of public education in Vologda Governorate (Cherkasov et al., 2019; Cherkasov et al., 2019a; Cherkasov et al., 2019b; Cherkasov et al., 2019c); A.Yu. Peretyat'ko has researched a similar subject in the context of the Don region (Peretyatko, Zulfugarzade, 2017; Peretyatko, Zulfugarzade, 2017a; Peretyatko, Zulfugarzade, 2019; Peretyatko, Zulfugarzade, 2019a); O.V. Natolochnaya has investigated the system of public education in Vilna Governorate (Natolochnaya et al., 2019; Natolochnaya et al., 2019a).

## 4. Results

By 1900, Baku Governorate had in place an entire network of public and private educational institutions, which included six gymnasia, seven lower educational institutions, and 113 primary schools (Magsumov et al., 2021: 543).

### Secondary education

The process of establishment of new secondary educational institutions in Baku Governorate continued into the 20th century. This was associated with Baku's male gymnasium being full to capacity. In 1904, it had an enrollment of more than 1,300 students (Otchet, 1905: 56). To help resolve this issue, an additional school was opened up in Baku – a male progymnasium (established October 22, 1902) (Otchet, 1905: 2).

However, the male gymnasium continued to be overfilled in subsequent years. Specifically, in 1907 the gymnasium had an enrollment of more than 1,400 students, while between 1908 and 1909 the figure held at 1,200. In an attempt to resolve this issue, the Baku Directorate for Public Schools turned the male progymnasium into what would become the region's second male gymnasium; it also established another, the region's third, male gymnasium. These events took place on July 1, 1910 (Otchet, 1911: 26).

In addition, on September 13, 1903, Baku became home to another female gymnasium – Second Baku Female Gymnasium (Otchet, 1905: 162), with the total number of female gymnasia in the city reaching three (First Baku Female Gymnasium, Second Baku Female Gymnasium, and St. Nina's Gymnasium for Girls).

There were changes within other areas of the region as well. Specifically, on October 24, 1906, the governorate became home to Shamakhi Real School (Otchet, 1908: 92), and on August 1, 1910, Lankaran Male Progymnasium was established (Otchet, 1911: 27).

As the number of children with a primary education grew in the region, it became home to new secondary educational institutions. Specifically, on February 4, 1913, Lankaran became home to a female progymnasium (Otchet, 1914: 204), and on September 11 that same year, Third Baku Female Gymnasium was established (Otchet, 1915: 302).

With World War I already in progress, on September 22, 1914, Lankaran Male Progymnasium was reorganized into a male gymnasium (Otchet, 1915: 40). Thus, Baku Governorate now had four male gymnasia in operation.

Table 1 displays the numbers of secondary educational institutions and students in them in Baku Governorate in the period 1900–1914.

**Table 1.** Numbers of Secondary Educational Institutions and Students in Them in Baku Governorate in the Period 1900–1914 (Otchet, 1901: 60, 138, 214-215; Otchet, 1905: 2, 56, 105, 134, 210-211; Otchet, 1908: 27, 78, 120-122;  Otchet, 1909: 2, 8, 80, 182-183; Otchet, 1910: 8, 80, 128-129; Otchet, 1911: 8, 26, 27, 80, 192-193; Otchet, 1912: 8, 26, 27, 80, 162-163; Otchet, 1913: 8, 68, 151; Otchet, 1914: 8, 68, 177, 179; Otchet, 1915: 8, 12, 126, 262, 266)

| Year | Number of educational institutions | | | | | Number of students | | |
|---|---|---|---|---|---|---|---|---|
| | Gymnasia | | Progymnasia | | | | | |
| | Male | Female | Male | Female | Real schools | Boys | Girls | Total |
| 1900 | 1 | 2 | - | - | 1 | 1,777 | 1,172 | 2,949 |
| 1904 | 1 | 3 | 1 | - | 1 | 2,281 | 1,705 | 3,986 |
| 1907 | 1 | 3 | 1 | - | 2 | 2,799 | 1,765 | 4,564 |
| 1908 | 1 | 3 | 1 | - | 2 | 2,602 | 1,743 | 4,345 |
| 1909 | 1 | 3 | 1 | - | 2 | 2,589 | 1,730 | 4,319 |
| 1910 | 3 | 3 | 1 | - | 2 | 2,654 | 1,806 | 4,460 |
| 1911 | 3 | 3 | 1 | - | 2 | 2,678 | 1,849 | 4,527 |

| 1912 | 3 | 3 | 1 | - | 2 | 2,709 | 1,898 | 4,607 |
|---|---|---|---|---|---|---|---|---|
| 1913 | 3 | 4 | 1 | 1 | 2 | 2,726 | 2,241 | 4,967 |
| 1914 | 4 | 4 | - | 1 | 2 | 2,693 | 2,495 | 5,188 |

As evidenced in Table 1, during the period under examination, the number of educational institutions grew from four to 11, while the number of students increased just 1.75 times. This was due to the region's educational institutions being overfilled in 1900 and a large number of newly established educational institutions being in operation in 1914. A significant achievement of the governorate's secondary education system was that secondary education became accessible to children in its peripheral areas as well. Of interest is also the fact that, whereas in 1900 the gender balance was 40 % female and 60 % male, in 1914 the figure was now approximately 50 % and 50 %.

Note that during the period under examination, information on the ethnic composition of the student body across the region's secondary educational institutions was mainly published in an incomplete and sporadic fashion. Table 2 displays most of the data available in this respect.

**Table 2.** Distribution of Students in Secondary Educational Institutions in Baku Governorate by Ethnicity in the Period 1900–1909 (Otchet, 1901: 60, 138, 214-215; Otchet, 1905: 56, 134, 210-211; Otchet, 1909: 182-183; Otchet, 1910: 114, 180-181)

| Year | Ethnic Russians | Georgians | Armenians | Tatars | Mountaineers | Jews | Other ethnicities (Europeans) | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 1,152 | 75 | 1,140 | 132 | 12 | 282 | 163 | 2,949 |
| 1904 | 1,377 | 113 | 1,665 | 158 | 12 | 440 | 221 | 3,986 |
| 1908 | 858 | 34 | 429 | 25 | 1 | | 396 | 1,743[*] |
| 1909 | 845 | 44 | 404 | 28 | 2 | | 407 | 1,730[†] |

As evidenced in Table 2, there was a gender imbalance in the region at the time in terms of ethnicity. In 1904, the total number of Armenians in its secondary educational institutions was even greater than that of ethnic Russians. However, in 1908 and in 1909, when information was available only on female students, this ratio changed sharply. This circumstance indicates a gender balance among Russians in the region's secondary educational institutions and a significant imbalance among Armenians in them.

Table 3 illustrates the distribution of students in the region's secondary educational institutions by faith at the time.

**Table 3.** Distribution of Students in Secondary Educational Institutions in Baku Governorate by Faith in the Period 1900–1914 (Otchet, 1901: 61, 138, 214-215; Otchet, 1905: 57, 134, 210-211; Otchet, 1908: 8, 78, 126-127; Otchet, 1909: 8, 80, 182-183; Otchet, 1910: 8, 80, 128-129; Otchet, 1911: 8, 80, 192-193; Otchet, 1912: 8, 80, 162-163; Otchet, 1913: 8, 68, 151; Otchet, 1914: 8, 68, 177, 179; Otchet, 1915: 12, 126, 262, 266)

| Year | Orthodox Christians | Armenian Gregorian Christians | Catholics | Protestants | Jews | Muslims | Other faiths | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 1,213 | 1,095 | 58 | 158 | 276 | 130 | 17 | 2,949 |
| 1904 | 1,615 | 1,465 | 73 | 212 | 427 | 167 | 27 | 3,986 |
| 1907 | 1,710 | 1,394 | 114 | 243 | 619 | 474 | 10 | 4,564 |

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[*] Data available only for girls (female gymnasium students)
[†] Data available only for girls (female gymnasium students)

| 1908 | 1,666 | 1,264 | 126 | 267 | 536 | 481 | 5 | 4,345 |
|---|---|---|---|---|---|---|---|---|
| 1909 | 1,702 | 1,337 | 91 | 221 | 496 | 472 | 0 | 4,319 |
| 1910 | 1,739 | 1,250 | 112 | 279 | 533 | 488 | 2 | 4,503 |
| 1911 | 1,856 | 1,282 | 104 | 245 | 532 | 479 | 29 | 4,527 |
| 1912 | 1,902 | 1,285 | 116 | 270 | 536 | 490 | 8 | 4,607 |
| 1913 | 2,067 | 1,448 | 168 | 163 | 575 | 504 | 42 | 4,967 |
| 1914 | 2,144 | 1,546 | 120 | 239 | 603 | 514 | 22 | 5,188 |

As evidenced in Table 3, Christian students in secondary educational institutions in Baku Governorate numbered 4,049 in 1914, their number increasing 1.6 times starting in 1900. The number of Jewish students rose in the same period 2.2 times, and the number of Muslim students grew 3.6 times. Receiving a secondary education was rare among Muslim girls. Specifically, in 1900, there were just seven girls among 130 Muslim students; in 1904, the figure was nine. In 1907, the region witnessed a more than threefold increase in the number of Muslims in its secondary educational institutions – from 130 in 1900 to 474 in 1907, with the number of girls increasing too – to 19. In the period 1908–1911, the number of Muslim female students ranged from 25 to 33, and in the period 1912–1914 it ranged from 40 to 50. Thus, between 1913 and 1914, girls accounted for around 8–10% of the Muslim student body across the region's secondary educational institutions.

Table 4 illustrates the composition of the student body across Baku Governorate's secondary educational institutions at the time in terms of estate.

**Table 4.** Distribution of Students in Secondary Educational Institutions in Baku Governorate by Estate in the Period 1900–1914 (Otchet, 1901: 61, 138, 214-215; Otchet, 1905: 57, 134, 210-211; Otchet, 1908: 9, 79, 126-127; Otchet, 1909: 9, 81, 182-183; Otchet, 1910: 9, 81, 128-129; Otchet, 1911: 9, 81, 192-193; Otchet, 1912: 8, 81, 162-163; Otchet, 1913: 9, 69, 151; Otchet, 1914: 9, 69, 177, 179; Otchet, 1915: 13, 127, 263, 267)

| Year | Nobles[*] | Persons of ecclesiastical status | Distinguished citizens and merchants of the first guild | Members of other urban estates | Peasants | Members of the lower ranks and Cossacks | Foreigners and others | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 978 | 72 | 164 | 1,419 | 258 | 69 | 39 | 2,949 |
| 1904 | 945 | 79 | 323 | 2,062 | 465 | 76 | 36 | 3,986 |
| 1907 | 1,014 | 75 | 317 | 2,420 | 581 | 68 | 89 | 4,564 |
| 1908 | 979 | 74 | 390 | 2,115 | 652 | 86 | 49 | 4,345 |
| 1909 | 949 | 69 | 324 | 2,211 | 668 | 62 | 34 | 4,319 |
| 1910 | 946 | 68 | 289 | 2,211 | 787 | 57 | 102 | 4,503 |
| 1911 | 1,036 | 78 | 305 | 2,045 | 928 | 37 | 98 | 4,527 |
| 1912 | 1,058 | 85 | 328 | 2,258 | 786 | 30 | 59 | 4,607 |
| 1913 | 1,080 | 74 | 375 | 2,248 | 1,022 | 17 | 151 | 4,967 |
| 1914 | 1,106 | 69 | 487 | 2,314 | 858 | 28 | 326 | 5,188 |

As evidenced in Table 4, the period 1900–1914 witnessed a significant increase in the number of peasants in the region's secondary educational institutions (3.3 times). Just like before, the way was led by members of the urban estates, their number growing 1.6 times, followed by children of nobles and functionaries, their number growing insignificantly – from 978 to 1,106, i.e. 1.1 times. There was a threefold increase in the number of children of distinguished citizens and merchants

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[*] As used herein, the term 'nobles' means hereditary nobles, personal nobles, and functionaries.

(from 164 to 487) and an eightfold increase in the number of children of foreigners (their number was insignificant, so it could not have a tangible effect on the demographic situation in the region). The number of children of persons of ecclesiastical status remained pretty much the same. The only group that posted a decline in its size was children of members of the lower ranks and Cossacks – an almost threefold decline. Thus, in the period 1900–1914, the number of students in secondary educational institutions grew mainly thanks to children of peasants and members of the urban estates (petit bourgeois).

Traditionally, major significance was attached at the time to out-of-classroom learning, with libraries and their accessibility for students being particularly important. Most secondary and lower educational institutions at the time had the following two separate library sections in place – fundamental (for teachers) and discipular (for students).

In 1900, secondary educational institutions in Baku Governorate had the following library stock (shown as divided into items in the fundamental and discipular library sections, respectively): Baku Male Gymnasium – 4,566 and 3,077 items (Otchet, 1901: 8); Baku Real School – 4,057 and 1,820 items (Otchet, 1901: 111); Baku Female Gymnasium – 4,119 and 3,568 items (Otchet, 1901: 170); St. Nina's Gymnasium for Girls – 702 items in the fundamental section (it had no discipular section at that time) (Otchet, 1901: 170). Thus, in 1900, the total library stock across the region's secondary educational institutions reached 21,909 items, an increase of more than 5 times.

By 1914, secondary educational institutions in Baku Governorate had the following library stock (shown as divided into items in the fundamental and discipular library sections, respectively): First Baku Male Gymnasium – 10,037 and 3,805 items; Second Baku Male Gymnasium – 1,410 and 2,684 items; Third Baku Male Gymnasium – 895 and 2,714 items; Lankaran Male Gymnasium – 1,145 and 1,156 items (Otchet, 1915: 44); Baku Real School – 6,690 and 6,588 items; Shamakhi Real School – 1,016 and 1,777 items (Otchet, 1915: 142); First Baku Female Gymnasium – 8,513 and 7,229 items; Second Baku Female Gymnasium – 2,016 and 1,937 items; Third Baku Female Gymnasium – 77 and 645 items; St. Nina's Gymnasium for Girls – 2,992 and 3,571 items (Otchet, 1915: 314); Lankaran Female Gymnasium – 250 and 154 items (Otchet, 1915: 318). Thus, in 1914, the total library stock across the region's secondary educational institutions was 67,301 items, i.e. more than 3 times the figure for 1900.

### Lower education

Lower education in Russia was represented at the time by urban schools, mountain schools, female Mariinsky schools[*], and industrial schools.

In the early 20th century, Baku Governorate witnessed a rapid development of its lower education system, with lower education being available and accessible to both residents of the governorate's capital and those of peripheral areas. Specifically, on September 1, 1901, Shamakhi Urban School was reorganized into a four-year school. In addition, On July 1, 1904, the governorate became home to Lankaran Urban School, and on October 1, 1904, Sabunchi School was established (Otchet, 1905: 293). On September 1, 1908, the region became home to Quba Urban School (Otchet, 1909: 294). On September 1, 1911, Baku became home to its third urban school, which had to do with its two urban schools in operation at the time being overfilled (Otchet, 1912: 320).

In 1912, with the start of the new school year, the Caucasus became home to its first five higher (six-year) primary schools. One of these schools was established on October 1, 1912, in Baku (Otchet, 1913: 274).

On September 1, 1914, Baku became home to the governorate's first female higher primary school, while the higher primary school, established in 1912, was reorganized into its first male higher primary school. In addition, in 1914, the Lankaran, Quba, and Shamakhi urban schools were reorganized into higher primary schools (Otchet, 1915: 522).

In the latter stages of the period, Baku Technical School was turned into a secondary educational institution.

Table 5 illustrates the development of lower educational institutions in Baku Governorate and their student body at the time.

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[*] Female educational institutions under the purview of the widowed Empress Maria Fedorovna. There were no Mariinsky schools in Baku Governorate.

**Table 5.** Number of Lower Educational Institutions in Baku Governorate in the Period 1900–1914 (Otchet, 1901: 296, 362, 456, 492; Otchet, 1905: 293, 359, 451-452, 488-489; Otchet, 1908: 237, 364, 399; Otchet, 1909: 234, 272, 411; Otchet, 1910: 232, 298, 409; Otchet, 1911: 126, 298, 409; Otchet, 1912: 126, 298, 395; Otchet, 1913: 128, 258, 350-351; Otchet, 1914: 128, 316, 318, 442; Otchet, 1915: 186, 486, 488, 494, 522, 524, 530, 698)

| Year | Number of educational institutions | | | | Number of students* |
| | Higher primary schools | Urban schools | Tradesman's specialized schools (lower technical schools) | Tradesman's schools | |
|---|---|---|---|---|---|
| 1900 | - | 3 | 1 | 1 | 1,058 |
| 1904 | - | 5 | 1 | 1 | 1,274 |
| 1907 | - | 5 | 1 | 1 | 1,685 |
| 1908 | - | 6 | 1 | 1 | 1,756 |
| 1909 | - | 6 | 1 | 1 | 1,828 |
| 1910 | - | 6 | 1 | 1 | 1,945 |
| 1911 | - | 7 | 1 | 1 | 2,277 |
| 1912 | 1 | 7 | 1 | 1 | 2,512 |
| 1913 | 1 | 7 | 1 | 1 | 2,779 |
| 1914 | 5 | 4 | 1 | 1 | 2,978 |

Traditionally, lower educational institutions in the region were mainly attended by boys only. In the period 1900–1914, the number of students in them rose nearly 3 times, while the number of lower educational institutions in the region increased more than 2 times. In addition, the region witnessed a qualitative change in its lower education system, with six-year primary educational institutions being introduced; by contrast, in 1900, all of the region's lower educational institutions were four-year.

Of interest is the ethnic composition of the student body across the region's lower educational institutions at the time. However, only limited data are available in this respect (Table 6).

**Table 6.** Distribution of Students in Lower Educational Institutions in Baku Governorate by Ethnicity in the Period 1900–1904 (Otchet, 1901: 362, 492; Otchet, 1905: 359, 488-489)

| Year | Ethnic Russians | Georgians | Armenians | Tatars | Mountaineers | Jews | Other ethnicities | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 308 | 11 | 332 | 319 | 15 | 51 | 27 | 1,058 |
| 1904 | 430 | 18 | 265 | 475 | 7 | 50 | 29 | 1,274 |

As evidenced in Table 6, in 1900, the bulk of the student body across lower educational institutions in Baku Governorate were Armenians, followed by Tatars, and then ethnic Russians. In 1904, the way was now led by Tatars, followed by Russians, and then Armenians, with the numbers of members of other ethnic groups remaining pretty much the same.

Table 7 illustrates the composition of the student body across the region's lower educational institutions at the time in terms of faith.

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* All the students were boys.

**Table 7.** Distribution of Students in Lower Educational Institutions in Baku Governorate by Faith in the Period 1900–1914 (Otchet, 1901: 363, 493; Otchet, 1905: 359, 488-489; Otchet, 1908: 237, 364, 399; Otchet, 1909: 234, 272, 411; Otchet, 1910: 232, 298, 409; Otchet, 1911: 126, 298, 409; Otchet, 1912: 126, 298, 395; Otchet, 1913: 128, 258, 350; Otchet, 1914: 128, 316, 318, 442; Otchet, 1915: 186, 486, 488, 494, 698)

| Year | Orthodox Christians | Armenian Gregorian Christians | Catholics | Protestants | Jews | Muslims | Other faiths (schismatics) | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 281 | 304 | 9 | 37 | 51 | 334 | 43 | 1,058 |
| 1904 | 395 | 247 | 14 | 20 | 50 | 493 | 55 | 1,274 |
| 1907 | 693 | 227 | 18 | 78 | 82 | 574 | 13 | 1,685 |
| 1908 | 598 | 247 | 20 | 88 | 83 | 696 | 24 | 1,756 |
| 1909 | 724 | 253 | 19 | 78 | 76 | 650 | 28 | 1,828 |
| 1910 | 819 | 261 | 22 | 112 | 130 | 591 | 10 | 1,945 |
| 1911 | 971 | 309 | 19 | 134 | 143 | 680 | 21 | 2,277 |
| 1912 | 1,110 | 379 | 23 | 192 | 168 | 629 | 11 | 2,512 |
| 1913 | 1,264 | 397 | 37 | 186 | 186 | 694 | 15 | 2,779 |
| 1914 | 1,418 | 394 | 27 | 182 | 194 | 743 | 20 | 2,978 |

As evidenced in Table 7, there was a sharp, fivefold, increase in the number of Orthodox Christian students in the region's lower educational institutions at the time. A similar increase was posted by Protestant and Catholic students, but their numbers were insignificant. An increase of nearly 4 times was posted by Jewish students, while the number of Muslim students grew 2.2 times. At the same time, the numbers of Armenian students and students from among members of other faiths remained unchanged.

Table 8 illustrates the distribution of the student body across the region's lower educational institutions at the time by estate.

**Table 8.** Distribution of Students in Lower Educational Institutions in Baku Governorate by Estate in the Period 1900–1914 (Otchet, 1901: 363, 493; Otchet, 1905: 359, 488-489; Otchet, 1908: 237, 364, 399; Otchet, 1909: 234, 272, 411; Otchet, 1910: 232, 298, 409; Otchet, 1911: 126, 298, 409; Otchet, 1912: 126, 298, 395; Otchet, 1913: 129, 259, 351; Otchet, 1914: 129, 317, 319, 443; Otchet, 1915: 187, 487, 489, 699)

| Year | Nobles | Persons of ecclesiastical status | Distinguished citizens and merchants of the first guild | Members of other urban estates | Peasants | Members of the lower ranks and Cossacks | Foreigners and others | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 93 | 39 | 17 | 563 | 241 | 95 | 10 | 1,058 |
| 1904 | 101 | 37 | 23 | 656 | 404 | 44 | 9 | 1,274 |
| 1907 | 107 | 50 | 163 | 603 | 744 | 11 | 7 | 1,685 |
| 1908 | 95 | 31 | 176 | 684 | 733 | 14 | 23 | 1,756 |
| 1909 | 101 | 22 | 234 | 680 | 760 | 12 | 19 | 1,828 |
| 1910 | 128 | 33 | 224 | 651 | 853 | 23 | 33 | 1,945 |
| 1911 | 87 | 47 | 171 | 853 | 1,072 | 25 | 22 | 2,277 |

| 1912 | 139 | 50 | 244 | 659 | 1,378 | 26 | 16 | 2,512 |
|------|-----|-----|------|-----|-------|-----|-----|-------|
| 1913 | 134 | 27 | 134 | 892 | 1,555 | 30 | 7 | 2,779 |
| 1914 | 126 | 47 | 123 | 979 | 1,658 | 24 | 21 | 2,978 |

As evidenced in Table 8, the period 1900–1914 witnessed significant gains in the number of peasants attending public school in the region. Specifically, in that period, the number of peasants in the region's lower educational institutions increased nearly 7 times! There, also, was an increase of 7 times in the number of student children of distinguished citizens and merchants, but their numbers were insignificant. There was an increase of 1.7 times in the number of students from among members of the urban estates. The rest of the estate groups posted only slight changes. The number of student children of members of the lower ranks and Cossacks declined several times, just as was the case with members of this group in the region's secondary educational institutions.

In 1900, the region's lower educational institutions had the following library stock (shown as divided into items in the fundamental and discipular library sections, respectively): First Baku Urban School – 1,066 and 2,006 items; Second Baku Urban School – 58 and 487 items; Shamakhi Urban School – 2,434 and 802 items (Otchet, 1901: 300); Baku Lower Technical School – 373 and 587 items. The lower tradesman's school at the technical school did not have a library of its own at the time (Otchet, 1901: 458). Thus, in 1900, the total library stock across the region's lower educational institutions was 7,813 items.

In 1914, the region's lower educational institutions had the following library stock (shown as divided into items in the fundamental and discipular library sections, respectively): Baku Technical School – 1,069 and 3,482 items (Otchet, 1915: 196); First Baku Male Higher Primary School – 170 and 425 items; First Baku Female Higher Primary School did not have a library of its own; Quba Higher Primary School – 1,028 and 1,112 items; Lankaran Higher Primary School – 2,165 and 2,496 items (Otchet, 1915: 532); Shamakhi Higher Primary School – 4,671 and 1,675 items (Otchet, 1915: 534); First Baku Urban School – 2,685 and 5,709 items; Second Baku Urban School – 1,276 and 1,468 items; Third Baku Urban School – 537 and 1,585 items; Sabunchi Urban School – 1,504 and 1,086 items (Otchet, 1915: 540). Thus, by 1914 the total library stock across the region's lower educational institutions was 32,821 items, i.e. more than 4 times the figure for 1900.

**Primary education**

The network of primary educational institutions in the region was represented at the time by private, ministerial (schools under the purview of the Ministry of Public Education, including zemstvo and community schools), and parochial schools.

**Private primary schools**

As already mentioned in the work's previous part, Baku Governorate had a unique system of private education. By 1900, the governorate had in operation two female gymnasia, two lower male schools, one female lower school, and 32 primary schools (nine male, six female, and 17 mixed) (Otchet, 1901: 518). The region's private educational institutions had a combined enrollment of 2,432 students (Otchet, 1901: 528). In this case, it is not possible to divide the student body across levels of education, as in the Reports on Educational Institutions in the Caucasus Educational District the data on the entire student body across the region's private educational institutions are provided in a single consolidated table.

In 1904, the governorate had in operation the following private educational institutions: one female gymnasium, one lower female school, seven male primary schools, four female primary schools, and five mixed primary schools (Otchet, 1905: 514). The combined enrollment was 1,072 (528 boys and 544 girls) (Otchet, 1905: 524). In numbers of private educational institutions and students in them, the governorate ranked third in the Caucasus, behind the Tiflis and Kutais governorates.

By January 1, 1908, the governorate had in operation seven private educational institutions (one gymnasium, one lower educational institution, and five primary schools), with a combined enrollment of 201 boys and 499 girls (Otchet, 1908: 454). The governorate ranked fifth in number of private educational institutions.

By January 1, 1909, the number of private educational institutions in the region dropped further – to just seven schools (one gymnasium, two lower schools, and four primary schools), with a combined enrollment of 967 (278 boys and 689 girls) (Otchet, 1909: 466; Otchet, 1910: 464).

By January 1, 1910, the region's private education system remained stagnant, with its private gymnasium, unable to compete with its public educational institutions, closing down. However, there were increases in the number of lower educational institutions in the region (from one to three) and that of primary schools (from four to five). The total size of the student body declined more than 2 times – to 425 (319 boys and 106 girls) (Otchet, 1910: 464). By January 1, 1911, thenumber of private educational institutions in the region remained unchanged, with only the size of the student body increasing – to 567 (487 boys and 80 girls) (Otchet, 1911: 464). The number of private educational institutions remained unchanged by January 1, 1913, too (Otchet, 1913: 392). In 1913, the number of private educational institutions in the region declined by one (a lower school); it had in operation two lower and six primary schools; the size of the student body declined by 200 (from 671 to 471), totaling 341 boys and 130 girls (Otchet, 1914: 486-487).

**Ministerial schools**

As already noted previously, the first school in the territory of the future Baku Governorate that would subsequently be under the purview of the Department of Public Education was opened back during the Caucasian War of 1817–1864 (Otchet, 1890: № 299).

Table 9 illustrates the development of the network of primary education institutions in Baku Governorate in the period 1900–1914.

**Table 9.** Distribution of Primary Schools under the Ministry of Public Education in Baku Governorate in the Period 1900–1914 (Otchet, 1901: 536-537, 566; Otchet, 1905: 532-533, 562; Otchet, 1908: 352, 358; Otchet, 1909: 394, 400; Otchet, 1910: 392, 398; Otchet, 1911: 392, 398; Otchet, 1912: 450, 456; Otchet, 1913: 336, 343; Otchet, 1914: 428, 434-435; Otchet, 1915: 672, 683)

| Year | Two-grade schools | | | One-grade schools | | | Total schools | Number of students | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Mixed | Male | Female | Mixed | | Boys | Girls | Total |
| 1900 | 4 | 1 | 3 | 36 | 5 | 32 | 81 | 3,786 | 1,321 | 5,107 |
| 1904 | 3 | 1 | 4 | 41 | 9 | 62 | 120 | 6,529 | 3,348 | 9,877 |
| 1907 | 3 | 1 | - | 33 | 7 | 56 | 105 | 7,195 | 3,675 | 10,870 |
| 1908 | 2 | 2 | 7 | 30 | 5 | 66 | 112 | 7,734 | 4,065 | 11,799 |
| 1909 | 2 | 2 | 9 | 35 | 8 | 81 | 137 | 8,588 | 4,814 | 13,402 |
| 1910 | 3 | 2 | 7 | 43 | 10 | 82 | 147 | 9,574 | 5,429 | 15,003 |
| 1911 | 4 | 4 | 7 | 64 | 12 | 101 | 192 | 12,224 | 6,376 | 18,600 |
| 1912 | 4 | 3 | 8 | 77 | 10 | 111 | 213 | 13,787 | 6,518 | 20,305 |
| 1913 | 3 | 5 | 8 | 130 | 12 | 145 | 303 | 15,917 | 8,150 | 24,067 |
| 1914 | 2 | 4 | 13 | 132 | 11 | 215 | 377 | 17,890 | 9,033 | 26,923 |

As evidenced in Table 9, between 1900 and 1914, i.e. over just a 14-year period, the number of primary educational institutions in the region grew 4.6 times, and their combined student body increased 5.2 times! The changes were both quantitative and qualitative. Specifically, whereas in 1900 the region had in operation eight two-grade schools, the figure now was 19 in 1914. Of special note is the increase in the number of mixed educational institutions in the region. Specifically, in 1900, there were more male than mixed educational institutions in the region (40 male and 35 mixed), but it was the other way round in 1914 (228 mixed and 134 male). The student body changed gender-wise too – in 1900, girls accounted for 25.9 % of the total student body, and the figure now was 33.5 % in 1914.

Table 10 illustrates the ethnic composition of the student body across the region's primary schools at the time (only limited data are available).

**Table 10.** Distribution of Students in Primary Schools in Baku Governorate by Ethnicity in the Period 1900−1914 (Otchet, 1901: 572; Otchet, 1910: 400; Otchet, 1913: 343; Otchet, 1915: 683)

| Year | Ethnic Russians | Georgians | Armenians | Tatars | Mountaineers | Jews | Other ethnicities | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 2,163 | 19 | 1,331 | 1,239 | 61 | 137 | 157 | 5,107 |
| 1909 | 7,475 | 118 | 2,367 | 3,050 | 10 | | 382 | 13,402 |
| 1912 | 9,385 | 37 | 3,348 | 6,695 | - | | 840 | 20,305 |
| 1914 | 10,126 | 132 | 3,731 | 9,160 | 1,523 | | 2,251 | 26,923 |

As evidenced in Table 10, the student body across Baku Governorate's primary schools was dominated in 1900 by ethnic Russians, followed by Armenians, and then Tatars. During the period under examination, the number of ethnic Russian children attending primary school in the region increased 4.7 times, and the number of their Armenian counterparts rose 2.8 times, with the largest increase posted by mountaineers and Tatars. Specifically, the number of mountaineer students attending primary school in the region rose 25 times! This was a turning period for the mountaineer segment of the student body, with education becoming quite a common thing in mountaineer villages. At the same time, the number of Tatar students going to primary school rose 7.4 times, with this group almost overtaking ethnic Russians in absolute terms.

Table 11 illustrates the composition of the student body across the region's primary schools at the time in terms of faith. Note that the first value in the table indicates the number of boys, and the second one does the number of girls. No division of this kind was possible for 1900.

**Table 11.** Distribution of Students in Primary Schools in Baku Governorate by Faith in the Period 1900−1914 (Otchet, 1901: 573; Otchet, 1908: 352; Otchet, 1909: 394; Otchet, 1910: 392; Otchet, 1911: 392; Otchet, 1912: 460; Otchet, 1913: 336-337; Otchet, 1914: 428-429; Otchet, 1915: 672-673)

| Year | Orthodox Christians | Armenian Gregorian Christians | Catholics | Protestants | Jews | Muslims | Other faiths | Total |
|---|---|---|---|---|---|---|---|---|
| 1900 | 1,241 | 1,270 | 6 | 212 | 137 | 1,300 | 941 | 5,107 |
| 1907 | 2,521/2,240 | 1,035/549 | 72/53 | 1,105/584 | 57/105 | 2,319/101 | 86/43 | 10,870 |
| 1908 | 2,584/2,399 | 1,271/731 | 55/43 | 1,079/604 | 70/104 | 2,553/122 | 122/62 | 11,799 |
| 1909 | 2,911/2,702 | 1,449/918 | 50/53 | 1,166/702 | 97/99 | 2,802/248 | 113/92 | 13,402 |
| 1910 | 3,151/2,939 | 1,563/1,067 | 54/65 | 1,338/805 | 118/117 | 3,236/359 | 114/77 | 15,003 |
| 1911 | 3,559/3,400 | 1,708/1,198 | 65/81 | 1,367/944 | 139/171 | 5,292/481 | 94/101 | 18,600 |
| 1912 | 4,003/3,326 | 1,955/1,393 | 50/108 | 1,320/733 | 164/132 | 6,095/600 | 197/226 | 20,305 |
| 1913 | 4,707/4,465 | 2,057/1,559 | 87/102 | 1,567/1035 | 218/190 | 7,193/695 | 88/104 | 24,067 |
| 1914 | 5,111/5,147 | 2,062/1,669 | 78/104 | 1,415/874 | 632/477 | 8,493/667 | 99/95 | 26,923 |

As evidenced in Table 11, in the period 1900−1914, the number of Orthodox Christian students in the region's primary schools rose 8.2 times; the number of Muslim students rose 8.4 times; the number of Armenian Gregorian students rose 2.9 times; the number of Jews rose 8.1 times. Of note is the gender imbalance in the region's primary schools at the time. The most harmonious performance in this respect was posted by Orthodox Christians (50 % and 50 %) and Catholics, whose girls even outnumbered boys staring in 1909. Among the region's Armenian Gregorian student body, girls accounted for 45 %, its Protestant student body – 40 %, and its

Jewish students body – 43 %, with the lowest figure posted by its Muslim student body (4.2 % in 1907 and 7.3 % in 1914).

**Parochial schools**

In the late 19th century, Orthodox Christian parochial schools were not common in Baku Governorate, where the majority of the population was Muslim. Specifically, in 1884, there were no parochial schools in the region, while in 1889 it had only one parochial school in operation (Otchet, 1890: № 319). However, the situation changed by 1914, with the governorate becoming home to 28 parochial schools with a combined enrollment of 1,366 students (823 boys and 543 girls) (Vsepoddanneishii otchet, 1916: 124-125).

Table 12 illustrates the accomplishments of the system of public education in Baku Governorate in the period 1900–1914.

**Table 12.** Baku Governorate's Public Education System in the Period 1900–1914 (Otchet, 1901: 526)

| Year | Schools under the Ministry of Public Education (MPE) | | | | | | | Students | | |
| | Secondary | | Lower | | Primary | | Total | Boys | Girls | Total |
| | MPE-run | Private | MPE-run | Private | MPE-run | Private | | | | |
| 1900 | 4 | 2 | 4 | 3 | 81 | 32 | 126 | 7,891 | 3,655 | 11,546 |
| 1904 | 6 | 1 | 7 | 1 | 120 | 16 | 151 | 10,612 | 5,597 | 16,209 |
| 1907 | 7 | 1 | 7 | 1 | 105 | 5 | 140 | 11,880 | 5,939 | 17,819 |
| 1908 | 7 | 1 | 8 | 2 | 112 | 4 | 134 | 12,370 | 6,497 | 18,867 |
| 1909 | 7 | - | 8 | 3 | 137 | 5 | 160 | 13,324 | 6,650 | 19,974 |
| 1910 | 9 | - | 8 | 3 | 147 | 5 | 172 | 14,660 | 7,315 | 21,975 |
| 1911 | 9 | - | 9 | 2 | 192 | 4 | 216 | 17,643 | 8,265 | 25,908 |
| 1912 | 9 | - | 10 | 3 | 213 | 5 | 240 | 19,566 | 8,486 | 28,052 |
| 1913 | 11 | - | 10 | 3 | 303 | 6 | 333 | 21,990 | 9,494 | 32,484 |
| 1914 | 11 | - | 11 | 2 | 377 | 6 | 407 | 23,823 | 11,655 | 35,478 |

As evidenced in Table 12, in the 14-year period from 1900 to 1914, the number of educational institutions in Baku Governorate rose 3.2 times, with the number of students growing 3 times (boys – 3 times; girls – 3.2 times). The largest increase was observed in the number of the region's primary educational institutions (4.6 times), which was associated with the implementation of the country's compulsory primary education program.

The statistical data below will illustrate how fruitful the efforts of the Baku Directorate for Public Schools were for that period. On January 1, 1915, Baku Governorate had 94,917 children of school age, with 25,642 of those attending primary school (RGIA. F. 733. Op. 207. D. 39. L. 2). However, taking into account the student body in the region's secondary, lower, private, and parochial educational institutions, the figure was much greater. This clearly indicates that the region was still quite far from having a sufficient number of schools in place. Nevertheless, the scale of the effort put in during the prewar years was impressive, and there was hope that the work on instituting compulsory primary education would be completed as planned, i.e. by 1918. However, this was only hindered by World War I.

**5. Conclusion**

The system of public education in Baku Governorate had markedly distinct characteristics. A large segment of the region's population was Muslims. Most members of this community preferred their children only to receive an ecclesiastical education, with it being discouraged that school be attended by girls. With the Baku Directorate for Public Schools tasked with the job of

altering the community's attitude toward secular education, the efforts did overall bring some fruition by 1914. More specifically, starting in 1900, the total number of educational institutions in the region rose 3.2 times, and its student body increased 3 times. The numbers of Orthodox Christian students and Muslim students in its primary schools virtually evened up – a testimony to most Muslim parents in the area coming to realize the importance of mainstream education for their children. However, there was a holdover that strongly persisted – it being discouraged that girls attend school.

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