The Experience of Using Digital Educational Content in the Psychological Training for Students in Psychology and Pedagogy-Oriented Classes

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Abstract

The modern stage of Russian education is characterized by the development of a system of specialized training for students. An important innovation is the introduction of specialized classes in Russian schools. This fact makes the presentation of the materials in this article particularly relevant. The aim of this publication is to present the results of an experimental study on the use of digital educational content in the psychological training of students in specialized profile classes in schools of the Tula region. The authors conclude that digital educational content for the elective course 'Basics of Psychology' contributes to the effective study, understanding and mastery of the educational material and makes the learning process interactive and engaging for schoolchildren.

The article presents the results of an empirical study conducted by the research team of Lev Tolstoy University as part of a government assignment. It introduces the authors' version of an online platform for the course 'Basics of Psychology' and provides an analysis of a survey conducted among school students (n = 84) studying this course. The questionnaires developed by the authors were used as diagnostic materials. Content analysis, descriptive statistics, and correlation analysis methods were applied for data processing.

The research results confirm the appropriateness of including digital educational content in the process of specialized training for school students.

Keywords: digitalization of education, psycho-pedagogical classes, digital technologies, digital educational content, fundamentals of psychology, pedagogical abilities, professional self-determination.

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1. Introduction

The modern stage of Russian education is characterized by the development of a system of specialized training for students and the active implementation of digital educational technologies in the learning process.

Let us turn to the analysis of scientific articles published in journals on the Elibrary and Scientific Research platforms for the period 2019–2025.

Considering digital technologies as one of the main components of education development, A. Haleema with co-authors argue that digital technologies should be considered not only as a modern source of knowledge but also entrusted with the functions of a mentor and even an expert (Haleema et al., 2022).

When considering issues of digital transformation in the educational process, foreign researchers approve that the main problem of modern education is the discrepancy in methodological approaches between traditional classical and modern education (Zhu, 2020; Wang, 2024).

For example, in an attempt to analyze the digital transformation of education in China, M. Liu and R. Su put forward proposals to optimize information platforms in order to improve the digital literacy of both students and teachers (Liu et al., 2023). Supporting the authors' position, H.P. Liang and L.G. Tian also express the view about of reform's necessity in teaching aimed at developing professional interests and realizing abilities in digital learning (Liang et al., 2024).

Taking into account the prospects of modern education, V.V. Gribanova and N.S. Ulanova identify a direct connection with the implementation of digital technologies in the educational process (Gribanova et al., 2022). As B.E. Starichenko points out, teaching and educational activities today should be viewed in the context of digital education which contributes to improving the quality of the entire educational process (Starichenko, 2020).

It is worth agreeing with I.V. Robert's opinion that modern high-tech society requires qualified specialists whose training largely depends on the introduction of digital technologies into the educational process (Robert, 2020). This point of view is shared by N.A. Sokolova and I.D. Gul who are convinced that "digital transformation affects not only social institutions but also the individual" (Sokolova et al., 2025). Earlier, V.D. Markova also pointed out the need for profound changes in the content, methodology, and forms of education in connection with the integration of digital technologies into the field of education (Markova, 2019). According to researchers from the Financial University under the Government of the Russian Federation, "the digital environment is becoming another space that sets professional guidelines, attitudes toward career building, ideas about professional future, and productive behavior strategies" (Brodovskaya et al., 2019).

Modern researchers focus on studying the methods and mechanisms of effectiveness in digital and online education. For example, the work of A.A. Leibina and G.A. Shukuryan addresses the issue of improving the effectiveness of online learning through the enhancement of methodological, psychological, and technical approaches (Leibina et al., 2020). In his time, A.Yu. Uvarov also spoke about the need for changes in the field of education, emphasizing the "comprehensive renewal of the main components of the educational process" (Uvarov, 2019).

When evaluating the digital educational environment, O.N. Shilova points to the need to take into account such characteristics as clarity, convenience, and attractiveness for students. The author emphasizes that the digital aspect of the educational environment should be enhanced through the inclusion of online platforms, digital educational content, and educational video materials (Shilova, 2020).

We agree with S.V. Pazukhina's view on the importance of incorporating modern digital technologies and tools to improve the quality of education (Pazukhina, 2024). As M.V. Rybakova asserts, the digital learning system should include a variety of information resources, such as media, video, audio, bibliographic materials, and so on. The author also highlights the importance of applying e-learning technology (Rybakova, 2021).

In our earlier publications we have already referred to the fact that "many government documents and programs of the Russian Federation point to the improvement of specialized education for schoolchildren, which is a key innovation in educational policy. Thus, based on the resolution of the Government of the Russian Federation No. 3273-r dated December 31, 2019, psychological and pedagogical classes were established" (Kulikova, 2025).

"The Concept of Specialized Psychological and Pedagogical Classes prepared by GAOU DPO "Academy for the Implementation of State Policy and Professional Development of Education Workers of the Ministry of Education of the Russian Federation," states that the goal of these classes

is to form in schoolchildren an understanding of the teaching profession, their attitude toward teachers as professionals, the development of self-awareness and professional interests, self-determination, and the alignment of their abilities with the teaching profession" (Kulikova, 2025).

Addressing the problem of developing interest in the teaching profession among school students S.V. Dementieva and V.I. Chumakov conclude that it is necessary to orient students towards pedagogy-related professions through the organization of elective courses and the stimulation of interest in the teaching profession (Dementieva et al., 2021).

Undoubtedly, the training of students in psycho-pedagogical classes aimed at identifying pedagogically gifted schoolchildren requires the use of modern educational technologies which include electronic educational resources, mobile applications, digital didactic materials, digital educational environment.

We share the positions of the cited authors on the development of digitalization as an inevitable process of reforming the system of pedagogical education which requires the development of appropriate didactic support. However, when considering the general problem of digitalization in education, attention should be paid to the digital tools used for creating digital educational content. As I.S. Yakimanskaya emphasizes, the content of educational material, both traditional and digital, should be clear and accessible for students to understand. An important aspect is addressing the personal experience of students, meaning that any content should correspond to the level of knowledge and the skills and competencies that students have already developed (Yakimanskaya, 2010).

Thus, the conducted analysis of scientific works allows us to state that solving the problems of informatization in education against the backdrop of the emergence of specialized classes, including pedagogical classes, is a relevant problem. It should be recognized that despite the importance of this problem, the number of developed digital educational resources is still insufficient which necessitates the creation and implementation of digital educational content in the curriculum for students of specialized psycho-pedagogical classes in "Basics of Psychology". Ownership of information resources in the field of practical psychology will allow students to see new aspects of their potential future professional self-realization.

All of the above defined the purpose of our article that is to describe the experience of using digital educational content in the psychological training of students in profile classes.

We put forward a working hypothesis that digital didactic materials, like digital educational content in general, contribute to the effective study, understanding, and mastery of the curriculum in the "Basics of Psychology" course and lay the foundation for improving the psychological training of school students in profile classes.

2. Methods

An empirical study on the use of digital educational content on the Basics of Psychology in specialized psychological and pedagogical classes was conducted throughout 2024 by the research team of Lev Tolstoy University under the state assignment of the Ministry of Education No. 073-00033-24-01 dated 09.02.2024 on the topic 'Scientific and Methodological Foundations for Creating Digital Educational Content for Psychological Training in Pedagogical Classes,' aimed at determining the conditions for improving and enhancing the quality of specialized education in psycho-pedagogical classes through the implementation of digital tools and resources" (Kulikova, 2025).

Description of the digital educational website

Guided by the goal and objectives of the project within the framework of the state assignment members of the research group developed an educational website for the course "Basics of Psychology". The structure of the digital educational website for the course "Basics of Psychology" is presented in Table 1.

Table 1. Structure of the digital educational website for the course "Basics of Psychology"

№	Sections	Description
1	Theoretical and methodological	This section includes a theoretical analysis of traditional conceptual approaches to the digitalization of modern education; an overview of foreign and domestic experience regarding the issue of digital transformation in education; the methodological foundations and

№	Sections	Description
		conditions for the development of students' pedagogical abilities in a digital educational environment; the psychological and pedagogical aspects of learning in a digital educational environment; an analysis of pedagogical technologies, models, and tools within the digital educational environment system.
2	Theoretical video section	This section includes several professionally oriented video lectures focused on the teaching profession, united by the common theme "Introduction to the Teaching Profession." The theoretical video section covers the following topics: the teaching profession: yesterday, today, tomorrow; the role of the teacher in the era of digitalization; the image of the modern teacher; pedagogical skills and how to become a teacher.
3	Didactic section	This section contains educational materials for students (multimedia presentations, video parables, video workshops) and methodological recommendations for teachers on organizing lessons using digital didactic materials.
4	Professionally-oriented section	This section contains an electronic bank of psychological tests for online career guidance diagnostics; identification of pedagogical abilities, professionally significant personal qualities and traits; career guidance games; a consulting platform with a schedule of webinars for the academic year.

The series of video lectures presented on the website is united by the common theme "Introduction to the Teaching Profession". In our view, video lectures have certain advantages in terms of material accessibility. Students have the opportunity to repeatedly return to rewatch the lectures asynchronously. Moreover, considering the characteristics of the 'clip-like perception' of modern students, the duration of a single video lecture does not exceed 15-20 minutes. The content of all video lectures is oriented towards the teaching profession.

Multimedia presentations converted into video format, video parables – specifically developed for each topic in accordance with the educational-thematic plan – help to develop reflective skills, to understand one's feelings and empathize with others, as well as how to express and defend one's opinion.

Multimedia workshops are designed to develop self-monitoring skills and are intended for independent student work. These video workshops are intended for students to work on independently.

The inclusion of psychological tests in the professionally-oriented section aims to identify the needs and interests of students, determine their inclinations and abilities, and also to "try on" their professional and personal qualities in relation to the teaching profession.

The didactic materials presented on the educational website create an effective and innovative educational space for the collaborative work of students and teachers. According to I. Darazha, R. Lyazzat et al., the creation and use of new models and forms of digital learning, as well as the gamification of the learning process and the possibility of self-organization in learning, contribute to increased learning motivation, the development of independence, and self-control in the learning process (Darazha et al., 2021).

Methodology of Empirical Research

The purpose of the empirical research was to identify the attitude of school students in psycho-pedagogical classes towards the content of digital educational material aimed at improving their psychological training. A questionnaire developed by the authors was used as diagnostic material, and the survey procedure was organized using the Google Forms online tool.

The reliability of the questionnaire was determined by measuring the distribution of students' responses to the given questions using α-Cronbach coefficient. Participation in the

questionnaire was voluntary and anonymous in accordance with the principle of confidentiality. No personal data was collected except for demographic information. All research results were analyzed in summarized form. The questionnaire procedure was conducted with the direct involvement of the psychology teacher at the educational organization. The study involved students from the 10th and 11th psychology-pedagogy classes of educational organizations in the Tula region. The total sample comprised 84 individuals aged 16-18. Of the total number of respondents 59.8 % were girls and 40.2 % were boys. All respondents were informed about the aim of the study before the questionnaire was administered. The wording of individual questions with result interpretation is presented in Section 3, "Results" of this article.

During the survey process the necessary ethical standards were observed. Firstly, taking into account the age of the subjects, when the consent to questioning or the collection of other data can be given by the teenager himself. Secondly, the safety (confidentiality) of the participation of schoolchildren in the questioning was guaranteed. Thirdly, the appeal in the introductory part of the questionnaire and its content focused students on obtaining a positive and useful experience, a feeling of their own contribution to a significant cause (Ipatova et al., 2023).

The analysis the results of the questionnaire, the following parametric statistical methods were used: the Pearson correlation coefficient r-test; the Student t-test for dependent samples. In particular, when analyzing the answers to questionnaire questions No. 1 (*Which source of information do you prefer to use when studying the basics of psychology – printed publications; notebook notes; online resources?*); No. 2 (*Choose the behavior typical for you while doing homework – only take notes in your notebook; watch a video lecture on the website; search for additional information on the Internet?*); No. 6 (*Identify the most interesting and useful didactic materials for learning the basics of psychology - multimedia lectures; video parables; multimedia practicum; psychological testing?*), it was interesting to identify the relationship between students' specific choice of response options. Each of these questions allowed multiple answer options.

Thus, by recording each student's choice of answers and using the Pearson correlation coefficient, the strength of the linear relationships was determined and patterns were identified in students' preferred choices (Table 2).

Table 2. Example of recording students' responses to question No. 1 of the questionnaire

Respondent's No	Question number 1		
	Answer option 1	Answer option 2	Answer option 3
1	0	0	1
2	0	1	1
3	0	1	1
4	0	1	1
5	1	0	1
n = 84	...	...	...

Notes: 0 – no answer selected; 1– answer selected

The analysis of responses to survey question No. 4 (*Can you say that the educational website increased your interest in psychology and pedagogy – yes; no; difficult to answer?*) the Student t-test for dependent samples was chosen, as the same students (n=84) participated in the survey at different stages of the study: before and after the execution of work on the project was implemented. For the purpose of quantitative statistical data processing, each student response was assigned a numerical number (point), as follows: *"yes" – 3 points, "no" – 2 points, "difficult to answer" – 1 point.* This allowed us to compare the two resulting dependent samples, before and after the project implementation, and draw conclusions about the changes that occurred and their statistical significance.

3. Results
In order to identify general trends and organize the data an initial descriptive analysis of the results for the entire sample (n = 84) was conducted (Table 3).

Table 3. Descriptive statistics of indicators characterizing the variability of data for the entire sample (n = 84) during the study

Descriptive statistics		Question 1	Question 2	Question 6
Average		1,7262	1,6071	2,5000
95 % confidence interval for the average	lower bound	1,6127	1,4288	2,2054
	upper bound	1,8397	1,7855	2,7946
Median		2,0000	2,0000	2,0000
Standard deviation		,52299	,82166	1,35771
Minimum		1,00	,00	,00
Maximum		3,00	3,00	4,00
Range		2,00	3,00	4,00
Inter-apartment range		1,00	1,00	2,00
Asymmetry		-,227	-,353	-,385
Exzess		-,439	-,322	-,532

Taking into account the mean and standard deviation values (Mean±SD), as well as the values of skewness (As) and kurtosis (Ek), we can conclude on the homogeneity of the group and understand how much the identified values differ from the average.

Analyzing students' responses regarding preferred sources of information we observe the following distribution: of the entire sample, 35.9 % chose printed materials, 43.8 % used their notes, and 87.5 % preferred digital content from the Basics of Psychology website.
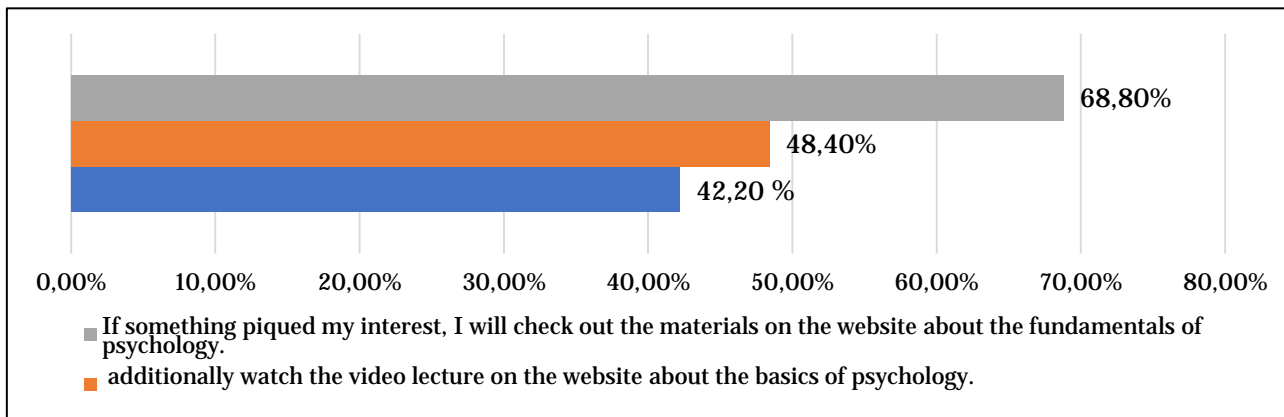
Next, we conducted a correlation analysis of the obtained data which showed an inverse relationship, namely: students who prefer to use information from digital website content use less frequently information from printed publications (Pearson's coefficient was r = -0.689) (Table 4).

Table 4. Correlation indicators regarding the preferred sources of information

Variable	Printed publications	Notes	Electronic resources of the website
Printed publications	1		
Notes	-,361**	1	
Electronic resources of the website	-,689**	,453*	1

Notes: **correlation of significance at $p < 0.01$; *correlation of significance at $p < 0.05$

One of the survey questions aimed to gather information about the typical behavior of students while doing homework for the course "Basics of Psychology". Participants were asked to choose from several provided options (Figure 1).

Fig. 1. Data on students' responses to the question about typical student behavior while completing homework for the course "Basics of Psychology".

As a result, out of the total sample, 68.8 % of respondents tend to view study materials on the Basics of Psychology website; 48.4 % use video materials on the same site, and 42.2 % of students reported that they limit themselves to only reading notes in their notebooks.

Correlation analysis revealed that students who prefer to use electronic resources on the Basics of Psychology website are more likely to watch video lectures on the same site (r = 0.602) than students who use only notebook notes (r = -0.364) (Table 5).

Table 5. Correlation results of responses regarding typical behavior when doing homework

Variable	Electronic resources of the website	Video lectures of the website	Notes
Electronic resources of the website N	1 84		
Video lectures of the website N	,602** 84	1 84	
Notes N	-,305** 84	-,364* 84	1 84

Notes: **the correlation is significant at the level of p < 0.01

Next, we were interested in the question of how much the content of the online platform on the Basics of Psychology improved the learning process and made it more engaging. This is more a question of students' personal attitudes toward digital content. Analysis of the responses showed that 75.4 % of respondents found the website materials much more interesting and informative. Nevertheless, 23 % of the total sample believed that the provided digital content did not diversify their learning process, and another 1.6 % were unable to answer this question at all. The results obtained for this question were compared with the results of a survey conducted before the project trial. The survey aimed to identify students' preferences and expectations regarding the content of digital materials, the forms of information presentation, and possible interactivity.

Students were asked to evaluate whether digital multimedia educational content (videos, audio materials, interactive automated tests) could make the learning process more engaging and successful.

As a result, 45.2 % of respondents answered "yes," indicating that digital content on the Basics of Psychology would facilitate the learning process and material comprehension, 32.1 % of students answered "no," believing it would not affect the effectiveness of the learning process, and 22.7 % found it difficult to answer this question.

To calculate statistical significance the Student t-test for dependent samples was used to test the hypothesis that the mean value of the "before project implementation" sample differs significantly from the mean value of the "after project implementation" sample. The test statistic was tEmp = 6.3 > tCr = 2.63 (at p ≤ 0.01). The obtained empirical t value (6.3) falls within the significance zone.

Of greatest interest to us were the students' responses to the structured question about the most content-effective components of the educational website on the Basics of Psychology. To answer this question participants had to select one or more options from those provided (Figure 2).
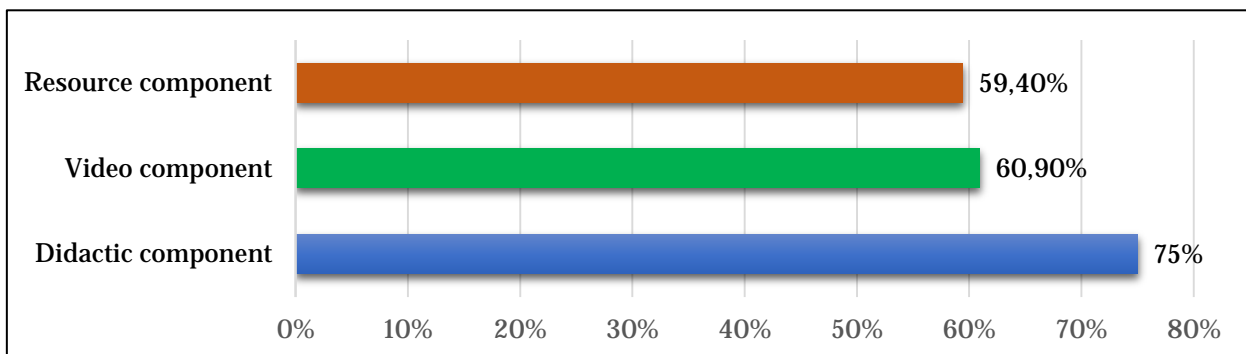

Fig. 2. Data on students' responses to the question about the most successful component of the educational website on the Basics of Psychology

The following results were obtained: 75 % of students definitely named the didactic component as the most successful, the video component holds the second position in terms of appeal, and the resource component was identified as the most useful.

Next, the participants were asked to highlight the most interesting and useful materials of the didactic component. It should be noted that students expressed interest in all didactic materials (Figure 3). Nevertheless, the most popular among students is the bank of psychological tests (73.4 % of respondents), the second position in terms of appeal is taken by multimedia lectures (64.1 % of respondents), followed by video parables (57.8 %) and the multimedia practicum (54.7 %).
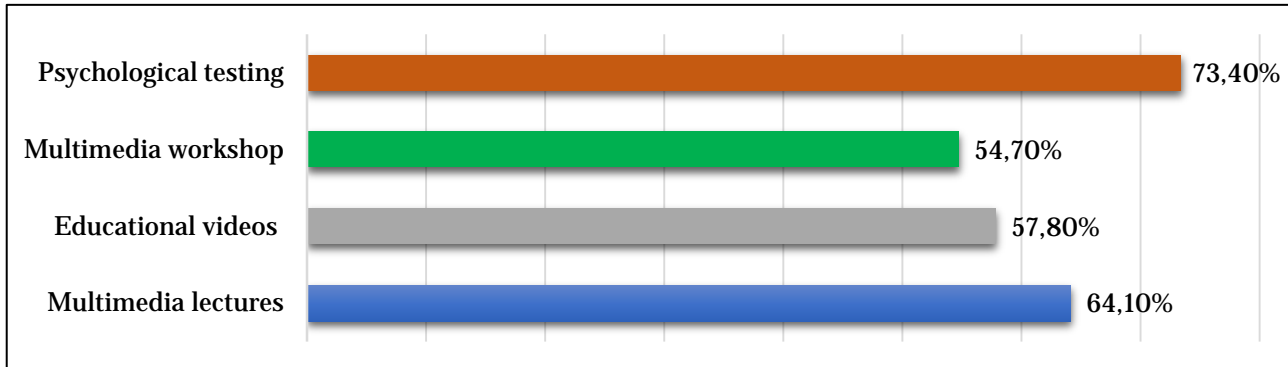

Fig. 3. Data on students' responses to the question about the most interesting and useful materials of the didactic component

Correlation analysis of the obtained data revealed several strong positive relationships, namely: students who were interested in psychological tests also preferred watching multimedia lectures (r = 0.657); and students who were interested in the multimedia practicum more often preferred watching video parables (r = 0.784) (Table 6).

Table 6. Results of the correlation of data on the question of preference for didactic materials

Variable	Psychological testing	Multimedia workshop	Video parables	Multimedia lectures
Psychological testing	1			
N	84			
Multimedia workshop	-,075	1		
N	84	84		
Video parables	,023	,784**	1	
N	84	84	84	
Multimedia lectures	,657**	,221*	,328**	1
N	84	84	84	84

Notes: ** correlation of significance at p < 0.01; * correlation of significance at p < 0.05

The questionnaire included two open-ended questions, where participants were asked to express their own opinions on the advantages and disadvantages of digital educational content on the Basics of Psychology. Let's present the students' responses in descending order:
– 70 % of respondents stated that they found no disadvantages;
– 40 % of students said they liked everything and that the website has many benefits;
– 23 % of students consider the digital content convenient and practical;
– 15 % of respondents did not find this digital content interesting;
– 12 % of students noted the attractiveness of psychological tests;
– 8 % of students found the video parables useful and only 2 % of the entire sample were unable to provide any answer.

4. Discussion

The methodological basis of the conducted study was formed by the scientific works of domestic and foreign authors: I.V. Robert, V.D. Markova, A.Yu. Uvarov, S.V. Pazukhina, O.N. Shilova, V.V. Gribanova, N.S. Ulanova, B.E. Starichenko, A. Haleema, W. Zhu, W. Wang, H.P. Liang, I. Darazha, R. Lyazzat, and others, who address the issue of creating, structuring, and applying digital educational content in the learning process.

The results of the empirical study on the inclusion of digital educational content in the psychological training of students in psycho-pedagogical classes are consistent with the views of the authors (Shilova, 2020; Uglova, 2024) that a digital educational environment involves the emergence and use of various digital technologies and digital educational resources as teaching tools in the educational process.

Digital educational resources are electronic materials designed to support and implement the learning process. They include e-textbooks, online courses, multimedia presentations, and other digital tools designed to optimize the learning process in a digital environment.

Considering the importance of organizing specialized pedagogical classes that promote the development of students' values and meaningful orientations, social competence, leadership skills, and communication abilities (Sergeeva, 2022) and developing in them the readiness for independent career choice makes the creation of an engaging and safe digital educational environment evident (Shilova, 2020; Pazukhina, 2024).

The theoretical aspects and basic structure of the online platform for the course "Basics of Psychology" presented in the article can serve as a reliable assistant for teachers in digital learning environments and, in particular, in psychology and pedagogy-oriented classes, taking into account the individual abilities, interests, and learning pace of each student. The distinction of the developed educational content from existing ones lies in the use of digital resources and the combination of didactic, educational, and career guidance orientations.

It is important to note that the empirical data obtained during the study indicate the demand for digital educational content for the "Basics of Psychology" course among students of specialized psychology and pedagogy classes.

However, this study has some limitations. Firstly, the sample was selected using a targeted method based on subjective criteria, which may not provide reliable insights into the quantitative distributions in the general population.

However, purposive sampling is used in exploratory designs to illustrate existing or generate new research hypotheses, which can later be tested by "rigorous" methods in a separate study. The second limitation is the lack of previous studies on this issue. Citing previous scientific works forms the basis of the literature review and helps to understand the subject of the research.

5. Conclusion

The development of digital education is impossible without understanding the accumulated global and domestic pedagogical experience and determining the main scientific approaches to using digital educational environment tools. Our research confirms that the use of digital educational tools and resources, including modern online educational platforms and digital didactic materials, contributes to the development of learning motivation, the formation of interest in the subjects studied, and overall improvement in the quality of education.

We believe that in order to increase students' satisfaction with the learning process, achieve high educational results for schoolchildren, and foster the readiness of today's senior students for independent career choices, integrating modern digital technologies into the educational process is a relevant and necessary task.

The experience presented in this article of using digital educational content in the psychological training of students in psycho-pedagogical classes demonstrates the effectiveness of using digital materials in the learning process and the advisability of incorporating digital educational content into the educational process as a necessary condition for the development of students' pedagogical abilities.

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«Approbation of digital didactic materials in the development of pedagogical abilities of students in psychological and pedagogical classes".

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