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Control Student Knowledge in the Context of Digitalization of Education: New Problems and Risks

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Abstract

In the context of digitalization of higher education, the system of control and assessing students' knowledge requires a revision of existing practices. The use of algorithmic methods for assessing knowledge makes significant changes in the interaction between teacher and student. The purpose of the study was to analyze the impact of digitalization of education on the transformation of the system of control and assessment of student knowledge in Russian universities. The leading method of collecting empirical data was an online survey of students (N = 1107), conducted in 2021. The survey results were supplemented by a focus group study (N = 12, 2023). It is concluded that there are problems in control students' knowledge in the context of using digital technologies. Analysis of empirical studies shows that 31.1 % note the lack of a clear control system, 24.2 % consider the requirements for the work performed to be unclear. Students who would like to study in the traditional way in the classroom (without forms of online learning) most critically evaluate changes in the process of knowledge control in the context of digitalization. It has been established that there is a request from students to increase the intensity of interaction with the teacher when scaling algorithmic knowledge assessment tools. It is concluded that the active position of the teacher reduces the risk of educational exclusion of students. The most significant risk of digitalization of student knowledge control is the spread of dishonest student behavior during the session and violation of ethical principles. However, it has not been established that there is a direct relationship between the clarity of the control system and the practices of dishonest behavior of students online. The results of the study allow us to draw a

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conclusion about the formation of new sources of stress for students when using digital technologies during knowledge control.

Keywords: digitalization, education, knowledge control, session, ethics of behavior, requirements, students.

1. Introduction

Digitalization of all spheres of public life places new demands on the level of training of specialists, which actualizes the need to revise traditional teaching methods and make adjustments to the process of training specialists in higher educational institutions. The pandemic period intensified these trends and set a trend for intensive digitalization of higher education, including the modernization of practices for monitoring and assessing students' knowledge (Eremeev et al., 2022). According to a number of foreign researchers, this process has significant risks for the work of teachers and students (Söderlund et al., 2023). In particular, studies have shown that the direct transfer into the digital environment of technologies that were used in a full-time format does not improve the quality of student learning. Among the key problems, scientists have identified the following: low digital competence of participants in the educational process, integration of various forms of educational work in the digital environment (Turnbull, 2021), problems of synchronization of contact and non-contact forms of control (Frolova et al., 2023), the presence of a gap between students' expectations and everyday practice of online learning and knowledge control (Van Schoors et al., 2023).

The results obtained by foreign experts showed the existence of contradictions between the recognition of the need to introduce digital technologies into the educational process, knowledge control systems and the inertia of the educational environment. The presence of inertia is explained by the differentiation of the level of training and competence in the use of information and communication technologies, and the low motivation of teachers for retraining (Hämäläinen et al., 2021). Similar conclusions were made earlier in the work of M.J. Kenzig, who drew attention to the lack of appropriate knowledge and skills of teachers to adapt traditional pedagogical methods to the digital format (Kenzig, 2015). These circumstances cause concern among the management of educational organizations; this often limits the use of digital tools in universities (Grando, Calonge, 2014).

Particular attention in foreign studies is paid to the advantages of digital technologies for monitoring students' knowledge. In particular, student surveys showed that the use of digital forms of control enabled students to develop skills such as time management, correct task setting, information search, the ability to work in groups, and independently manage their time (Reyna et al., 2021). Similar conclusions were made in Russian studies (Frolova et al., 2023). Also L.G. Volkova says that digitalization of knowledge control makes it possible to develop students' competencies and qualities such as initiative, responsibility, and the ability to analyze the situation and information. The effectiveness of digital methods of assessing knowledge makes the system of control interesting for students and stimulates the development of self-control (Volkova, 2023). The system of control students' knowledge in the context of digitalization is designed to provide quick access to educational content, standardization of assessment methods and reduction of time costs for the teacher (Peters et al., 2023).

An important advantage of the system of control student knowledge in the context of digitalization is the construction of individual assessment routes. M. Bulger concludes that algorithmic assessment systems make it possible to adapt educational material and assignments to the level of students' preparation (Bulger, 2016).

Considering the specifics of monitoring students' knowledge in the context of digitalization, foreign scientists pay attention to the transformation of the practice of interaction between student and teacher. The research concludes that teachers demonstrate a desire to escape "the awkward task of personally assessing students". This request is associated with an increase in cases of challenging grades by students and even lawsuits. In this context, algorithmic assessment systems reduce teacher vulnerability during assessment activities (Selwyn et al., 2023). At the same time, scientists warn against the danger of crowding out personal communication from the educational environment (Pasquale, 2020).

Scientific research questions the limits of using artificial intelligence in the system of control students' knowledge (Shanley et al., 2020). However, relevant studies conducted on Russian material are not presented in the scientific community today. It can be assumed that this direction

of studying trends in the development of the system of control students' knowledge can be considered as promising when intensifying the processes of digitalization of higher education.

The introduction of digital technologies into the system of monitoring students' knowledge has determined a new vector of research - analysis of the inversion of ethical standards of students, violation of the principles of academic education, and the spread of unfair practices in the use of IT-technologies in order to circumvent established rules. (Frolova, Rogach, 2022). This problem is not a dysfunction of the Russian education system only. According to M.N. Singh, the scaling up of practices of violation of ethics in exams, cheating of students is becoming a consequence of the digitalization of the younger generation. Access to smartphones makes it easier for students to pass security checks, which threatens the integrity and validity of academic education (Singh, 2021).

2. Methods

The purpose of the study was to analyze the impact of digitalization of education on the transformation of the system of control and assessment of student knowledge in Russian universities. In particular, the authors set the following research tasks:

1. Study of the characteristics of the knowledge control system in the context of digitalization, assessment of student perception.
2. Analysis of the emergence of new risks when control students' knowledge in the context of digitalization.
3. Analysis of the prevalence of practices of unethical behavior of students during knowledge control in an online format, assessment of the influence of the conditions for organizing control on violations of ethics in the educational process.

During the work, the authors used a complex of analytical research methods. The emphasis in the work is on comparative and correlation analysis. The authors also used the method of generalization, systematization and analysis of scientific sources. The empirical material is presented by data from a survey of Russian university students, which was conducted after the end of the pandemic and students began full-time education. The questionnaire was posted on an online service (Google Forms). The choice in favor of online questioning was made in view of the possibility of more complete coverage of respondents and a reduction in the frequency of refusal to participate in the survey. Limitations of the study are related to sampling bias due to the use of the snowball method during the recruitment of respondents. The number of respondents surveyed was 1107 people.

In order to clarify the data obtained, a focus group was held in September 2023 with students of 1-4 years of undergraduate study. The total composition of participants is represented by 7 girls and 5 boys.

Research hypotheses:

1. Students who prefer face-to-face classes in the classroom are more critical of assessing the clarity of the knowledge control system in the context of digitalization.
2. The teacher is a compensator for the risks of using «unmanned technologies» for knowledge control, algorithmized knowledge assessment systems.
3. With the spread of online learning format, students are more likely to exhibit dishonest behavior during the session.
4. Organizing a clear control system at the university reduces the prevalence of dishonest student behavior during online sessions.

3. Results

According to the data obtained, in the conditions of digitalization, the majority of students consider the requirements that the teacher makes for the quantity and quality of work understandable (75.8 %). At the same time, a quarter of respondents do not understand the requirements of the teacher, which can be considered a barrier to including student data in the educational process. At the same time, only 68.9 % of students agree that in the conditions of digitalization a clear the system of control students' knowledge is being formed.

In this context, it is of interest that there is a relationship between the preferred form of learning and the perception of students' knowledge control system (Table 1).

Table 1. The relationship between the choice of form of education and improving the characteristics of the educational process, pers.

What form of training do you prefer: traditional (in the classroom) or remote (online)	Use your personal example to evaluate the characteristics of the educational process in the context of digitalization		**Total**
	Clear requirements for quantity and quality of work		
Possible answer	**Yes**	**No**	
online	435	97	532
traditional	241	125	366
difficult to answer	163	46	209
Total	839	268	1107
	Clear the system of control students' knowledge		
online	414	118	532
traditional	212	154	366
difficult to answer	137	72	209
Total	763	344	1107

Among students who prefer online learning, the proportion who positively assessed the clarity of the requirements for the quantity and quality of work is significantly higher. The choice of the "yes" answer is higher than the average for the sample by 6 percentage points. Among students who would like to study "traditionally" in an auditorium, there is a higher proportion of those who rated this criterion negatively (34.2 %, which is 10 percentage points higher than the average values). An analysis of arbitrary contingency tables using the χ^2 criterion showed that when the number of degrees of freedom is 2, the value of the χ^2 criterion is 30.630. The critical value of χ^2 at the significance level $p = 0.01$ is 9.21. The relationship between factor and resultant signs is statistically significant at a significance level of $p < 0.01$.

A similar correlation was established during the analysis of the relationship between the perception of the system of control students' knowledge in the context of digitalization and the choice of the preferred form of training. When the number of degrees of freedom is 2, the value of the $\chi 2$ criterion is 41.444.

The results of the focus group led to the conclusion that even in online learning conditions, students are guided by the teacher and count on his help in overcoming difficulties in interacting with impersonal algorithms. During the focus group, the following student opinions were expressed: "*it's good that the teacher can explain the task; the system itself is difficult to understand*," "*the system is not perfect, but the teacher can enter into your situation, add points, go to a meeting and allow you to pass the test*".

Subjective assessments of digitalization and perceptions of the system of control students' knowledge are interdependent variables. In particular, communicating clear requirements for knowledge control to students creates a positive perception of digitalization in general. Thus, among respondents who noted the lack of clear requirements for the quantity and quality of work, the proportion of those who positively assess digitalization in general is significantly lower (72.4 %, which is 11.5 percentage points below the average). A similar situation arises with respect to the "clear the system of control students' knowledge" parameter. Among students who noted the lack of a clear control system in the context of digitalization, the proportion of those who "positively" and "rather positively" assess digitalization in general is significantly lower (73.5 %, which is 10.4 percentage points below the average).

It can be assumed that the organization of a clear control system at a university allows students to feel psychological comfort in the process of using electronic educational resources (Figure 1). During the focus group, the following answers were recorded: *"I want everything to be explained clearly and clearly - this reduces stress", "sometimes the teacher himself changes the rules for receiving points, after which it is very difficult to understand", "I feel discomfort when completing assignments in electronic environment, if everything is not clearly explained to me before completing the tasks."*

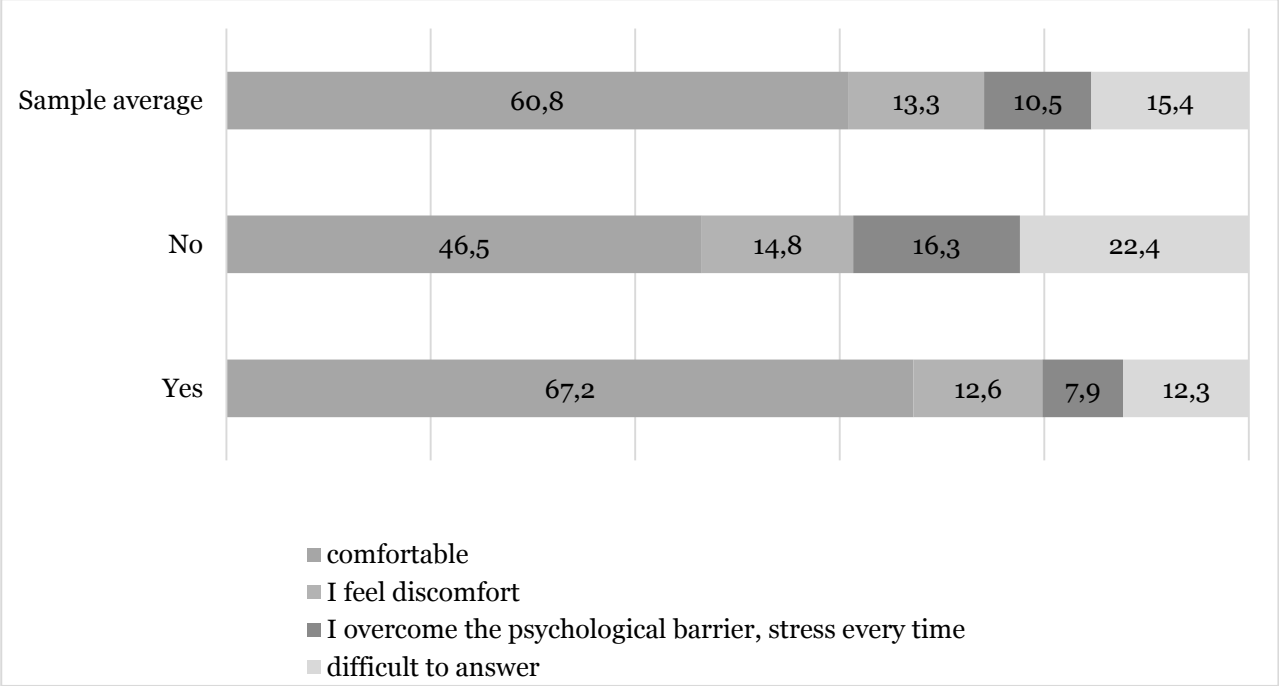

Fig. 1. Distribution of answers to the question: "How psychologically comfortable is it for you to use electronic educational resources at a university?" depending on assessments of the system of control students' knowledge (answer options "yes"/"no"), %

A similar trend is observed in the analysis of assessments for the indicator "clear requirements for quantity and quality of work". The results of the correlation analysis demonstrate the relationship between the organization of the system of control students' knowledge at the university and the student's comfort level when working with electronic resources (Table 2).

Table 2. The results of the correlation analysis between the indicator "psychological comfort" of using electronic educational resources and the parameters of the student knowledge control system

Possible answer	**χ2 criterion**	**number of degrees of freedom**	**the significance level p = 0.01**
clear the system of control students' knowledge	49.217	3	11.345
clear requirements for quantity and quality of work	17.532		

The relationship between factor and resultant signs is statistically significant at a significance level of $p < 0.01$. At the same time, a comparative analysis of the obtained correlations illustrates a higher relationship between the student's psychological comfort when using electronic educational resources and the creation of a clear the system of control students' knowledge.

It has been established that poor material and technical equipment of the university does not affect the clear the system of control students' knowledge (Table 3). The results of the study did not show the presence of statistically significant differences in the perception of the clarity of the control system in groups of students with diametric assessments of personal experience (answer options "yes"/"no") according to the parameter "poor material and technical equipment of the university reduces the benefits of using digital technologies in the educational process".

Table 3. The relationship between the level of material and technical support of the university and students' assessments of the clarity the system of control students' knowledge, pers.

Use your personal example to evaluate the characteristics of the educational process in the context of digitalization:			
poor material and technical equipment of the university reduces the benefits of using digital technologies in the educational process	**clear the system of control students' knowledge**		
Possible answer	Yes	No	Total
Yes	484	203	687
No	279	141	420
Total	763	344	1107

An analysis of arbitrary contingency tables using the χ^2 criterion showed that when the number of degrees of freedom is 1, the value of the χ^2 criterion is 1.969. The critical value of χ^2 at the significance level $p<0.05$ is 3.841. The relationship between factor and resultant signs is not statistically significant at a significance level of $p>0.05$. Significance level $p = 0.161$.

Although the results of the study showed that there was no significant relationship between these indicators, during the focus groups we identified inflated expectations of students, their high demands on the material and technical infrastructure of the university and on the IT competencies of teachers. The following opinions were expressed: *"how strange it is that some teachers have not mastered even basic IT functionality", "in some classrooms there is only chalk and a blackboard - that's all the infrastructure", "we only hear about interactive technologies, but in reality this is not the case or almost not".*

The focus group materials also made it possible to establish a chain of student expectations: the material and technical support of the educational process and good digital skills of the teacher provide interesting learning and a high quality control system in the electronic environment. However, among 62.1 % of respondents, a negative attitude towards the material and technical infrastructure of the university prevails, which, in their opinion, limits the success of digitalization of education. Also, 41.5 % of students believe that teachers do not have a high level of digital competence and are not ready to work remotely. In this context, the contradiction between students' hopes for the transformation of digital forms of control and its actual practice in modern conditions seems quite obvious. During the focus group, the following expectations of students regarding the construction of digital knowledge control in the future were expressed: "*it seemed to me that the standard exam is outdated, we need something in a game format, we cannot evaluate everyone the same way, we need a different approach", "if this is a number, then there has to be something interactive and interesting, even if it's the system of control students' knowledge*".

Determining the risks of reducing control over students' knowledge deserves special attention. The authors test the hypothesis that one of the key risks is the spread of practices of dishonest behavior among students in the context of large-scale digitalization and unproven control methods. This hypothesis was confirmed by empirical data illustrating the frequency of dishonest behavior among students when conducting an online session. Thus, a quarter of respondents (27.5 %) confirmed that such cases occurred frequently in their practice (Figure 2).

Given the sensitivity of this topic and the subjective barriers that prevent respondents from answering the question about dishonest behavior sincerely, it can be assumed that the scale of ethical violations when taking a test/exam online is much greater. During the focus group, students commented more openly on their position: *"if classmates cheat, then honesty will look strange against their background," "the online format encourages the use of additional materials... it's difficult to cheat in the classroom, but online it's much easier".*

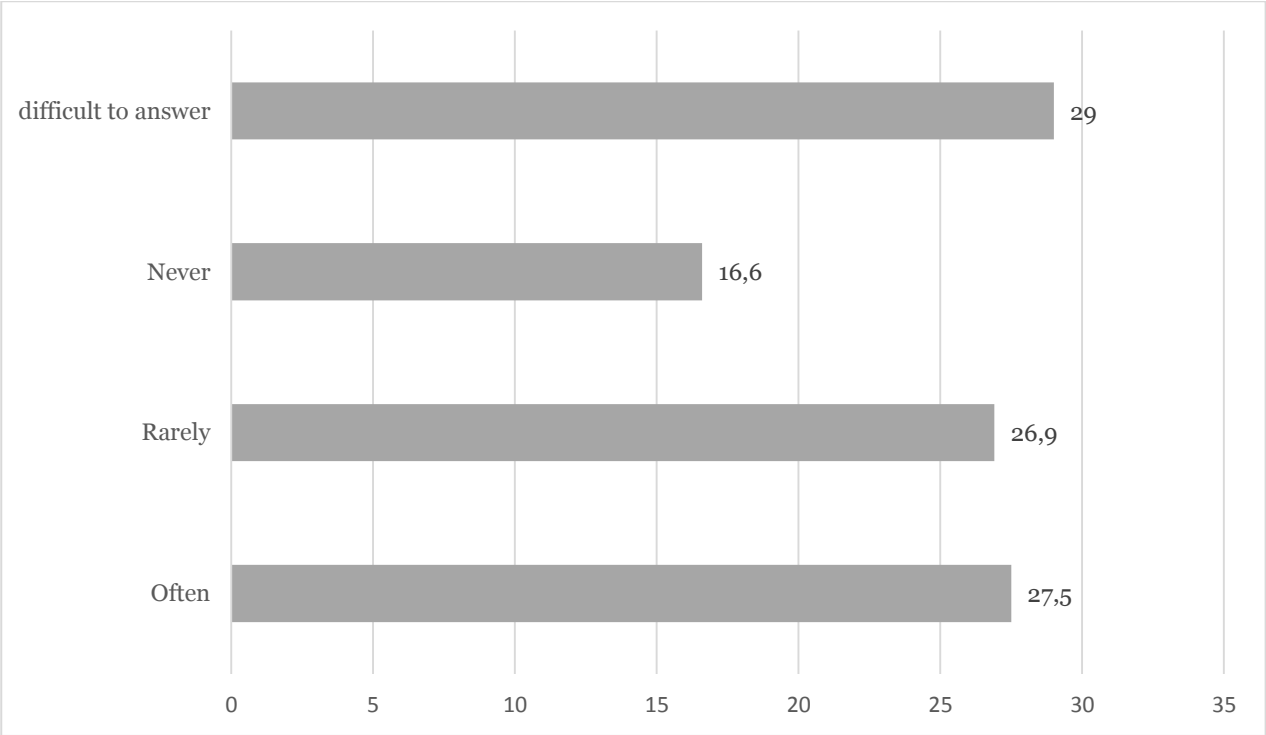

Fig. 2. Distribution of answers to the question: "What do you think was the behavior of students during the online session? Have there been any cases of dishonest behavior by students (using additional materials when taking a test/exam)?", %

The study tested the hypothesis that a clear control system can block students' dishonest behavior during an online session. However, the results of the correlation analysis did not confirm this assumption (Table 4). The ambiguity of the digitalization process and limited experience in conducting online sessions did not allow Russian universities to create effective tools to combat student dishonesty.

Table 4. The relationship between the frequency of cases of dishonest behavior of students during online sessions and the clarity the system of control students' knowledge, pers.

Use your personal example to evaluate the characteristics of the educational process in the context of digitalization:	What do you think was the behavior of students during the online session? Have there been any cases of dishonest behavior by students (using additional materials when taking a test/exam)?				**Total**
Clear the system of control students' knowledge	**often**	**rarely**	**never**	**difficult to answer**	
Yes	201	217	129	216	763
No	102	80	55	107	344
Total	303	297	184	323	1107

An analysis of arbitrary contingency tables using the χ^2 criterion showed that when the number of degrees of freedom is 3, the value of the χ^2 criterion is 4.079. The critical value of χ^2 at the significance level $p < 0.05$ is 7.815. The relationship between factor and resultant signs is statistically significant at a significance level of $p>0.05$. Significance level $p = 0.254$.

The study attempted to analyze the relationship between practices of unethical behavior during a session and the level of psychological comfort of a student when using electronic educational resources (Table 5). An analysis of arbitrary contingency tables using the χ^2 criterion showed that when the number of degrees of freedom is 9, the value of the χ^2 criterion is 77.834. The critical value of χ^2 at the significance level $p = 0.01$ is 21.666. The relationship between factor and resultant signs is statistically significant at a significance level of $p<0.01$.

Table 5. The relationship between the psychological comfort of using electronic educational resources at the University and the presence of cases of dishonest behavior when conducting a session online, pers.

How psychologically comfortable is it for you to use electronic educational resources at a university?	**What do you think was the behavior of students during the online session? Have there been any cases of dishonest behavior by students (using additional materials when taking a test/exam)?**				**Total**
Possible answer	often	rarely	never	difficult to answer	
comfortable	177	200	105	191	673
I feel discomfort	56	39	19	33	147
I overcome the psychological barrier, stress every time	31	27	41	17	116
difficult to answer	39	30	19	83	171

Despite the presence of a stable relationship between these variables, this issue remains controversial. Indeed, the results of the study suggest that the discomfort of using electronic educational resources becomes a source of stress that pushes students to violate academic ethics. However, it must be taken into account that a student's unethical behavior during an exam can be caused by various factors, primarily his individual psychological characteristics, such as honesty, morality, decency, responsibility, etc.. Analysis of these features requires a deeper psychological understanding of student behavior, which is beyond the scope of this study.

Students were asked what is a source of stress for them when conducting an online session. With multiple choice available, the following results were obtained (Figure 3). The greatest source of stress is problems with technical support for online knowledge control (34.4 %). The second line of the conditional rating is occupied by students' traditional fears during the exam – not answering the teacher's questions without preparation (22.9 %). At the same time, almost every tenth respondent (8.2 %) does not experience stress when conducting a session online.

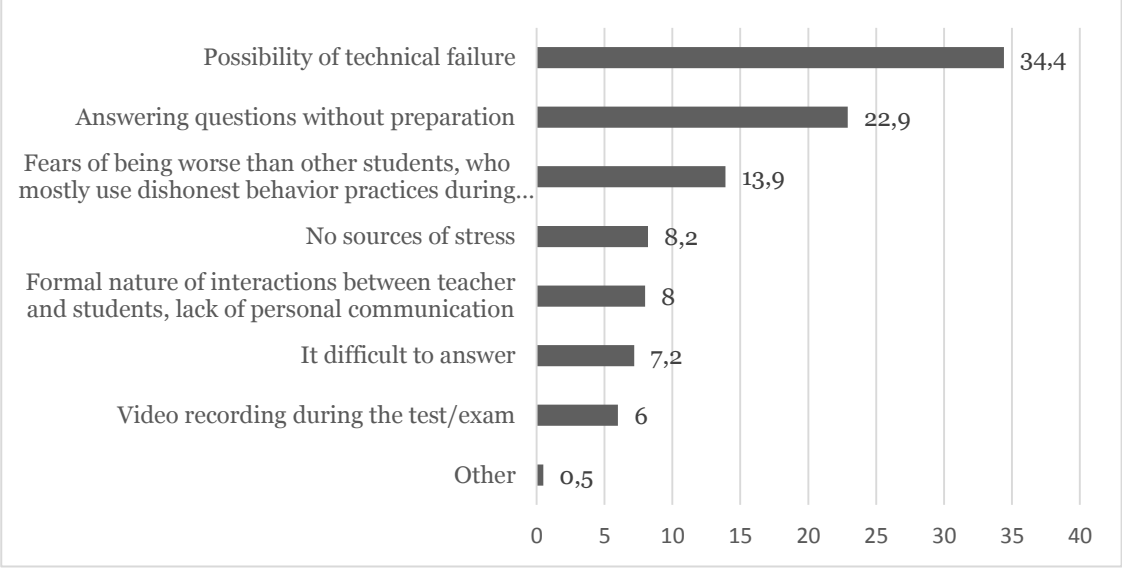

Fig. 3. Distribution of answers to the question: "What is the source of stress when conducting an online session?", multiple choice, %

The results of the focus group showed the presence of anxiety among students when conducting the session online. "*Of course, it is psychologically more comfortable when you*

communicate directly with the teacher. I'm always worried that the Internet will fail, or the microphone won't turn on, or something else will fail at the most crucial moment."

4. Discussion

The results of the study made it possible to draw attention to the presence of destructive practices in the systems of monitoring students' knowledge. In particular, a quarter of students do not understand the teacher's requirements for the quantity and quality of work; another third of respondents note the lack of a clear the system of control students' knowledge. Solving these dysfunctions seems very relevant in view of the threat to their scalability. The use of algorithmic methods of knowledge control is becoming ubiquitous in the context of digitalization and can become a source of dysfunction in assessing student academic achievements. It is concluded that students' knowledge control system assessments are determined by their subjective perception of digitalization processes. Complementing this idea, we can cite the results of a study conducted by S. Willermark and M. Gellerstedt. Scientists conclude that it is necessary to place different requirements on technologies and tools for assessing students' knowledge depending on the profile of the disciplines taught (Willermark, Gellerstedt, 2022).

Students who adhere to the traditional form of education demonstrate a more negative perception of the elements of knowledge control in the context of digitalization. The most negative assessments are typical for such a parameter as: "clear the system of control students' knowledge." At the same time, students showed a more loyal attitude in the parameter "clear requirements for the quantity and quality of work." It can be assumed that the teacher, in the context of digitalization, acts as a "buffer" between the algorithmic knowledge assessment system and the student. The widespread use of computer testing, as well as strict assessment algorithms, creates a space of discomfort in the interactions between the student and the electronic environment. For some students, the stress of interacting with "unmanned technologies" creates risks of educational exclusion. Similar risks are noted in the work of foreign scientists. F.M. Aldhafeer and A.A. Alotaibi, assessing the risks of digitalization, argues that the unified approach to the system of control students' knowledge is unconstructive (Aldhafeer, Alotaibi, 2023). Scientists conclude that the digital shift requires a more careful approach to the formation of integrated social and pedagogical practices, and ensuring the flexibility of the system of control students' knowledge.

It is noteworthy that the clarity of the system for monitoring students' knowledge is not determined by the level of material and technical equipment of the university. The results of the focus groups showed that students have high expectations for the digital skills of teachers (with a low assessment of their actual level) and digital forms of control. Epithets are often used: *interactive, interesting, playful, etc*. However, such an approach is not an element of the system for assessing student knowledge control. It is fair to note that foreign scientists in a number of cases share the point of view that was expressed by students during the focus group. Researchers have concluded that game-based testing has benefits in improving students' academic performance, especially in low-proficiency groups (Wang et al., 2023). The works of S. Bayne and M. Gallagher conclude that it is necessary to increase the attractiveness of knowledge control systems for teachers and students, and to diversify assessment methods (Bayne, Gallagher, 2021). The role of digital literacy of teachers is also noted, which consists of relevant knowledge and skills in using information and communication technologies in the educational process (Seiler et al., 2021).

In general, it can be assumed that the leading role in the process of organizing a clear control system belongs to the University Administration and teachers. Foreign scientists, assessing the effectiveness of digital transformations, come to similar conclusions. The works of A. Jakoet-Salie and K. Ramalobe postulate the idea that in addition to technical support, careful methodological support for online classes is necessary to take into account the needs of students (Jakoet-Salie, Ramalobe, 2023). This approach, in their opinion, allows students to be included in the educational process and prevent them from falling behind in their academic work.

The study confirmed the hypothesis about the prevalence of dishonest behavior among students when conducting online sessions. These risks, which are inherent in digitalization, are also noted in foreign studies. In particular, A. Balderas and J.A. Caballero-Hernández theorize that educators are generally unable to assess students due to the possibility of fraudulent behavior, which is nearly undetectable in an online learning environment (Balderas, Caballero-Hernández, 2020). Developing this idea, T Lancaster and C. Cotarlan conclude that the increase in unethical

behavior in online exams is forcing teachers to strengthen control measures. This fact raises concerns among students (Lancaster, Cotarlan, 2021).

The conclusions drawn on the basis of empirical material from foreign scientists were not confirmed in our study. In particular, the hypothesis that a clear control system can have an impact on reducing cheating in online exams was not confirmed. The influence of this factor turned out to be statistically insignificant. It can be assumed that the tightening of control measures provokes students to search for destructive practices to overcome them. The identified trends indicate the need for further research into factors that counteract unethical behavior in the online environment.

Sources of stress when conducting an online session can be divided into two groups: traditional (fear of answering worse than others, fear of answering the teacher's questions, etc.) and sources that are related to the specifics of digitalization of education (the possibility of a technical failure, lack of personal communication with the teacher, video recording the exam, etc.). The results obtained during the study indicate the formation of new risks when monitoring students' knowledge in the context of digitalization of education. Partially, this conclusion is reflected in the analysis of the reaction of students in the Netherlands and Australia to video recording of exams (Doffman, 2020). There is a negative perception among students of the use of artificial intelligence and information technology to control student behavior during the exam.

The risks of control students' knowledge in the context of digitalization identified in the author's study are associated with imperfect technological support. According to the authors, the digitalization of education should largely transform the educational process, adding new technologies and tools to improve the quality of knowledge transfer. At the same time, it is more promising to leave knowledge control in the traditional form, thereby reducing the level of stress experienced by the student and preventing technical errors from interfering with the control activities.

5. Conclusion

The study concluded that there is destruction in the organization of the system of control students' knowledge in the context of digitalization. It has been established that every fourth student negatively evaluates such a parameter as clear requirements for the quantity/quality of work. Almost every third respondent notes the lack of a clear system for monitoring students' knowledge in the context of digitalization. The dysfunctions of digitalization of knowledge control are perceived most painfully by students who prefer traditional teaching practices (face-to-face in the classroom). Thus, the first hypothesis was confirmed.

The results of the focus group showed the actualization of the request to increase the intensity of interaction between student and teacher in the context of scaling algorithmic knowledge assessment tools. The research materials allowed us to confirm the second hypothesis. In particular, if the teacher acts as a "buffer" between the student and the "unmanned technologies" of knowledge control, then the risk of educational exclusion of students is reduced.

It has been established that the key risk of digitalization of student knowledge control is the growth of unethical student behavior practices, which confirms the third hypothesis. It is concluded that with the spread of the online learning format, students are more likely to exhibit dishonest behavior during the session. At the same time, the hypothesis about the relationship between the clarity of the control system and the practices of dishonest behavior of students online was not confirmed.

It is concluded that in the conditions of digitalization, in addition to the traditional sources of stress when testing students' knowledge, specific ones are added, which are characteristic of the digital format of organizing knowledge control. According to the results of the study, these include: the possibility of technical failures, video recording of the exam, and the formal nature of the interaction between the teacher and students.

Thus, the problems of digitalization of student knowledge control lie in the formation of new sources of stress, insufficient level of ensuring the clarity of the control system and clear requirements for the quantity/quality of work.

Further areas of research may be the following: identifying factors that reduce the risks of unethical behavior of students in the context of digitalization of knowledge control, detailing the expectations of students to ensure the clarity of the control system, assessing the transformation of the role of the teacher acting as a "buffer" between the student and algorithmic methods of assessing knowledge.

6. Limitations

The limitations of the study conducted by the authors include the principle of student selection (random sampling). This approach did not allow for a representative representation of the opinions of all categories of students. Therefore, the authors used an additional method (focus group) to reduce the risk of excluding students' specific assessments of the problem under consideration. However, in the future, it is undoubtedly necessary to use a differentiated methodology for selecting respondents to conduct a mass questionnaire survey.

7. Declaration of Competing Interest

The manuscript's authors declare that there is no interest in conflict, and all reference materials were dully acknowledged.

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