



## Transformation of student-centred approach in the context of digitalisation of education

### Transformación del enfoque centrado en el estudiante en el contexto de la digitalización de la educación

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#### Abstract

The aim of the article is to study the impact of digitalisation of education on the transformation of the student-centred approach. The study was conducted through a survey which was based on the questionnaire developed with the involvement of the international Erasmus+ MoPED project. The author identified the main range of issues that are of great concern to students in connection with the introduction of elements of digitalisation in the educational process. It was established that: most students do not trust the automated knowledge control system; most students expressed concern about the quality of digital teaching materials; most respondents expressed a willingness to take an active part in self-development and work on assignments in digital format. Thus, it was found that the student-centred approach is being transformed along with the digitalisation of the educational process. Further research in this direction may aim to identify more acceptable forms and methods of interaction between students and teachers on the basis of digital educational platforms to improve the quality of education and increase motivation to learn. The development of methods for transforming the student-centred approach in the use of digital learning platforms is also promising for further research.

**Keywords:** Student-centred approach, transforming education, digitalised education, digital technologies, educational technologies.

#### Resumen

El objetivo del presente artículo es estudiar el impacto de la digitalización de la educación en la transformación del enfoque centrado en el estudiante. El estudio se realizó a través de una encuesta que se basó en el cuestionario desarrollado con la participación del proyecto internacional Erasmus +

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MoPED. El autor identificó la principal gama de cuestiones que preocupan mucho a los estudiantes en relación con la introducción de elementos de digitalización en el proceso educativo. Se estableció que: la mayoría de los estudiantes no confían en el sistema automatizado de control del conocimiento; la mayoría de los estudiantes expresaron su preocupación por la calidad de los materiales didácticos digitales; la mayoría de los encuestados expresaron su voluntad de participar activamente en el autodesarrollo y trabajar en tareas en formato digital. Así, se constató que el enfoque centrado en el alumno se está transformando junto con la digitalización del proceso educativo. La investigación adicional en esta dirección puede tener como objetivo identificar formas y métodos de interacción más aceptables entre estudiantes y profesores sobre la base de plataformas educativas digitales para mejorar la calidad de la educación y aumentar la motivación para aprender. El desarrollo de métodos para transformar el enfoque centrado en el estudiante en el uso de plataformas digitales de aprendizaje también es prometedor para futuras investigaciones.

**Palabras clave:** Enfoque centrado en el estudiante, educación transformadora, educación digitalizada, tecnologías digitales, tecnologías educativas.

### Introduction

The current stage of world economic and social development is characterized by a significant impact on its digitalisation. As Agibova (2019) notes, the development of new information and communication technologies generates systemic changes in all spheres of public life. Of course, education, as one of the most important types of human activity, cannot stay aside of this process. One of the key manifestations of the virtualization of society (Bicheva & Filatova, 2018) is the trend of digitalisation of education. According to Bourque and Bourdon (2017), it is a new trend of world social development, which replaced informatization and computerization, and is based on digital presentation of information, thus leading to increased economic efficiency and improved quality of economic and social life of both the country and the world. Comprehensive coverage of the features of digital transformation includes revealing its essence, features of the new presentation of information, the relationship between the concepts of “digitalisation” and “digital economy”, measurement methods, the degree of digitalisation of a particular country, a description of the current state and objectives of digitalisation of education, prerequisites and possible positive consequences of digital transformation, as well as challenges, threats, possible negative consequences and risks (Bukeikhanov, Gvozdkova & Butrimova, 2020).

For his part, Buzady (2017) indicates that the term “digitalisation” or “digitisation” comes from the English “digital”, which literally means “expressed as a series of the digits”. The first meaning of the term “digitisation” is the conversion of information from analogue formats to digital one, which are “understandable” to modern computers (Demarle-Meusel, Sabitzer & Sylle, 2017).

According to Cendon and Gillen (2016), digitalisation allows a free use of any channel of electronic communication. In the United States, digitalisation is seen as a path to the information society, further globalisation and transnationalisation of information connections around the world.

Europe and some other regions of the world have another point of view on digitalisation related to the protection of terrestrial broadcasting as a means of preserving national and local characteristics and interests through their own information media (Curaj, Deca & Procopie, 2018).

Prolonged technological changes provide opportunities, but also require new types of training both in the early stages of development and throughout life. Now, more than ever, people of all ages need to be able to constantly update their skills of interacting with the environment and the rest of the world (Evans, 2018).

A separate issue in the trend of digitalization of the educational process is the implementation of distance learning with new opportunities provided by digital technologies. One of the main advantages of using digital technologies in the learning process is that the teacher will be able not only to control the applied effectiveness of learning, but also the speed with which students learn the material, time spent on any particular assignment, the level of understanding of a new information, etc., while traditional methods of monitoring allow making only “rough” estimates of parameters, for example, on the basis of final scores (Gryaznova, Kozlova & Sulima, 2018). The processes of digitisation of education also spread over the development of the now popular student-centred approach (Hibert & Lesic-Thomas, 2017).

Student-centred approach (SCA) is not a new concept in modern educational science and practice. It is known that the roots of SCA go back to the early 20<sup>th</sup> century, and, in particular, its elements can be found in the works of Dewey (1980), later in the works of Rogers (1983), Piaget (2004) and Knowles (1975). In this case, Šušnjar and Hovhannisyán (2020) remark that the pedagogical science has a wide range of research on issues of theoretical and methodological foundations of personality-oriented education. It should be noted that the domestic tradition of research in the field of personality-oriented education is mainly focused on its psychological, pedagogical and didactic aspects, as well as internal changes that the individual undergoes in the process of development in terms of values, needs, motives, interests, attitudes, positions, personal meanings (Jones & Bennet, 2017). As Evans and Nixon (2015) note, the scientific background of the problem is determined by the novelty of its origin and associated with still weak scientific elaboration of digital transformation processes, including their relationship with the digitisation of the educational process.

Peculiarities of SCA were covered in the collective work of Leask, Jones and De Wit (2018). The latest technologies for involving the Internet of Things in teaching and learning were mentioned in the work of Kusmin, Saar and Laanpere (2018). Lundie (2017) studied the learning and teaching experience and developed analytical methods for diagnosing the state of education. De Wit (2019) analysed the evolution of world educational concepts. Shagrova (2019) considered the issues of

organization of independent work of students in the context of the development of digital economy. Quarles et al. (2017) covered the issues of integration of digital mobile learning strategy of students.

In this context, Wagenaar (2019) draws attention to the fact that the desire to learn is inherent in human nature. As a biological being, man needs new knowledge and skills to survive, as a social being — needs to reunite with society as a factor of socialization, in the psychological sense a person can increase his/her adequacy and competence only through learning, achieving increased self-esteem and ultimately gaining self-affirmation of his/her essence. Learning involves not only external control, but also instilling of internal responsibility, awareness of the need to acquire new knowledge and skills.

Klemenčič (2018) emphasized that the organization of educational activities, which will maximize revealing of the motivational potential of the student's personality can be identified as the main objective of the educational process. Klemenčič (2017) also indicated that in this case, an individual must understand that learning and its results are the most important step into the future. Therefore, internal motivation of an individual is formed at the highest level. Motivation of students is always expressed in their interest in improving their knowledge and general culture in the course of the learning process. It should be noted that the main task of the teacher in this process is the organization of educational activities and monitoring, focusing on encouraging creative participation of students in the educational process (Sukhomlinsky, 1982).

The above principle (Rubinstein, 1999), as an element of the SCA, is based on compliance with the following pedagogical rules: 1) form a comprehensive understanding of the purpose and essence of the educational process, the purpose and objectives of the subjects in the curriculum, show their relationship with previous knowledge; 2) form a stable motivation for learning in students; 3) take care of the development of creative potential of students which will be aimed at improving the quality of the educational process; 4) comprehensively support students in educational creativity, encourage motivation for educational activities; 5) focusing on the individual cognitive characteristics of each student to promote the development of practical competencies of independent work with educational material, the latest methods and technologies of information processing; 6) teach to apply the acquired knowledge and skills to solve real problems.

Therefore, the aim of the study is to identify the peculiarities of students' perception of digitalization of education. The said aim provides for the following objectives: 1. Determine the scale and options of the use of the digital tools and technologies by students in the educational environment; 2. Identify problems and risks of digitalization. It should be noted that in recent European studies, the topic of SCA (Maxwell, Jiang & Chen, 2017) has been paid particular attention in the context of the Bologna Process and changes in the paradigm of education, which are impossible without results-oriented SCA.

In this approach (Cattik & Odluyurt, 2017), the central role is given to learning outcomes, which become a measure of the success of the educational process for the student in terms of acquired knowledge and skills, rather than the teaching tools and methods used by teachers to achieve these results. But the issue of the influence of digitalisation on the transformation of the student-centred approach remains unexplored.

## Methodology

### Research design

The blind draw method was used to determine the research participants. It was implemented in several stages. In the first stage, all elements of the general population were pre-numbered and their numbers were recorded on the cards. In the second stage, after careful shuffling, the required number of cards which corresponded to the sample size was selected from the pack. The selected cards were set aside, thus an irreversible selection was made (Piaget, 2004).

The study used a cluster sample, which involves the selection of several courses from the general population, within which the survey was conducted in a continuous manner. The number of respondents in these courses should ensure the representativeness of the sample (Sukhomlinsky, 1982).

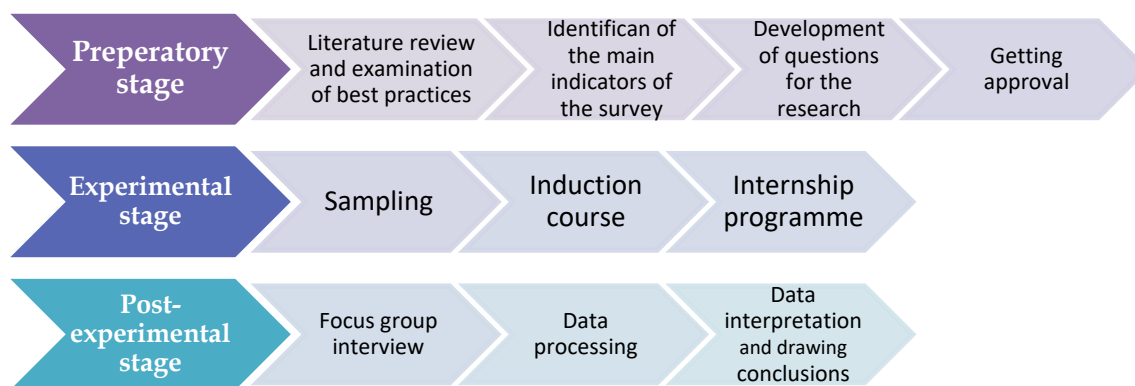


Figure 1. Visualised research design

### Objectives

The objective of the study is to identify the degree of readiness of students for the transition of the educational process to a new digital level and knowledge of the latest educational technologies.

### Sample

The questions of the questionnaire of the selected group were formulated taking into account the set objective. The respondents were students of the Municipal Establishment “Kharkiv

Humanitarian-Pedagogical Academy”, who were asked to fill out the developed questionnaires using Google Forms. The study involved a sample of students majoring in the humanities of the Municipal Establishment “Kharkiv Humanitarian-Pedagogical Academy”, from 1<sup>st</sup> to 4<sup>th</sup> years of study of bachelor’s degree and from 1<sup>st</sup> to 2<sup>nd</sup> years of study of master’s degree in various fields of study. Sample size is 360, including: 305 bachelors and 55 masters. The age of respondents is from 18 to 25 years, the majority of respondents (85.5%) were women, 15.5% — men. Thus, the sample reflects the average data on students majoring in the humanities of the higher educational institutions and allows for a representative study.

## Research methods

1. General scientific methods of working with special literature: analysis, synthesis, generalization.

2. The survey was conducted with the help of alternative questions and open-ended questions by testing. A questionnaire developed within the international project Erasmus+ MoPED (Modernization of pedagogical higher education by innovative teaching instruments - 586098-EPP-1-2017-1-UA-EPPKA2-CBHE-JP) was used: introduction of new pedagogical and digital technologies in educational process.

3. Since our study is non-repeated and random, estimating the quantitative values of qualitative variables expressed in a nominal scale (answers to the questionnaire), it is reasonable to use the following expression to estimate the sample size:

$$n = (Z^2 pq N) / (\Delta^2 N + Z^2 pq)$$

The meaning of the elements of this formula is as follows: The Z-value of the critical point of the standard normal distribution for our chosen level of significance (confidence level) is taken from Table 1. For a given confidence probability P = 0.95 (95%) we obtain Z = 1.96. In this case, Z<sup>2</sup> will be equal to 3.84.

**Table 1**

*Values of critical points of the standard normal distribution for different levels of significance*

Z-value	Confidence probability
1.645	0.90 or 90%
1.960	0.95 or 95%
2.575	0.99 or 99%

Source: Osipova (2003)

p is the total share of the choice of answers to the questions of the questionnaire for all respondents in the sample, that is the share of dividing the number of choices by the number of respondents. q is a share of the failures to choose the appropriate answers to the questionnaire. It is obvious that  $q + p = 1$ . Hence:  $q = 1 - p$ .

### Instruments

Google Forms were used for the survey. Data entry and processing was performed using Microsoft Excel and SPSS Statistics 17.0. All data are given in absolute (number of choice of answers) and relative (% of the number of respondents) values.

### Results

The sample can be estimated in two ways. First, by choosing the maximum value of their product. Second, by estimating in the course of the pilot study. In the first case, you can see that the scope of the product pq lies in the interval:

$$0.09 = 0.1 * 0.9 \leq pq \leq 0.5 * 0.5 = 0.25$$

It is this circumstance that allows taking  $p = q = 0.5$  at a rough estimate of n. Therefore, you can use the value  $pq = p(1 - p) = 0.25$ .

**Table 2**

*The results of previous studies*

Indicators	1 <sup>st</sup> year of studies	2 <sup>nd</sup> year of studies	3 <sup>rd</sup> year of studies	4 <sup>th</sup> year of studies	MA course	Σ
J	1	2	3	4	5	
Surveyed	38	31	35	35	42	181
x <sub>1</sub>	10	10	9	8	10	47
x <sub>2</sub>	20	15	12	17	22	86
...	...	...	...	...	...	...
X <sub>15</sub>	15	9	8	8	8	48
<b>Σ</b>	<b>120</b>	<b>103</b>	<b>90</b>	<b>85</b>	<b>122</b>	<b>522</b>

In the second case, these shares can be taken from pilot studies involving 5 institutes ( $n^5 \leq N$ ), the results of which are given in Table. 2. Taking the number of respondents and the number of answers they chose, we obtain  $p_1$  and  $q_1$  for the first answer to the first question  $x_1$ .  $p_1$  is the total share of choices of the answer to the first question for all respondents in the sample, that is the share of dividing the number of choices by the number of questionnaires. In our case  $p_1 = 86/181 = 0.48$ . Accordingly,  $q_1 = 1 - p_1 = 1 - 0.48 = 0.52$ . As mentioned above, their product:

$$p_1q_1 = 0.48 * 0.52 = 0.2496 \cdot 0.25$$

It confirms the validity of the use of the value of  $p = 0.5$  in the previous case. We can also evaluate the following in the same way for the second line:

$$p_2q_2 = (47/181) * (134/181) = 0.26 * 0.74 \approx 0.19$$

After that, their average value can be taken and substituted in the first formula. We use the approximate value of  $pq \approx 0.25$ . Substituting the values of  $Z^2$ ,  $PQ$  and  $N$  and setting the marginal error of the non-repeated random sample  $\Delta$ , which characterizes the deviation of the sample mean from the mean of the general population equal to 0.05, that is equal to 5%, we estimate  $N$ :

$$n = (Z^2pqN) / (\Delta^2N + Z^2pq) = (3.84 * 0.48 * 0.52) * 5525 / [(0.05 * 5525) + (3.84 * 0.48 * 0.52)] = 0.96 * 5525 / (0.0025 * 5525 + 0.96) = 3132 / (8.16 + 0.96) = 3132 / 9.12 \approx 343.$$

Thus, the size of the representative sample must be at least 343 respondents. We took 360 people with a margin. Considering the state of motivation to study among students of the Municipal Establishment “Kharkiv Humanitarian-Pedagogical Academy”, we use an objectively assessed indicator — their academic performance, which describes their ability to perceive the curriculum, to master the profession, which is important for successful educational activities. Appropriate gradations of students’ motivation to study were revealed by analysing the results of students’ grades for the past semester. Table 3 shows the results of this study.

**Table 3**  
*Study of the students’ motivation to study*

	Opportunity			Need			
	Male	Female	Total	Male	Female	Total	
1. There is an opportunity	37	1	8	24	5	0	101
2. There is no opportunity	3	1	23	9	2	1	48
					9	9	

Four groups of students are distinguished according to the state of motivation to study. The first of them (1a) includes those who aspire to study and demonstrate good abilities (fully ready to study at the higher educational institution). These included students who properly attended classes, responsibly performed assignments on time, and the average score at the end of the examinations exceeded 4.5.

The second group (1b) includes those who do not aspire to study, although they have certain abilities and a good background after school. These included students who inconsistently attended



classes, but showed some activity in learning the material, thus receiving good grades (average score for the examinations is about 4).

The third group (2a) includes those who feel the need for learning, but do not have the opportunity to do so. These included students who attended classes throughout the semester, but received mostly satisfactory grades for their knowledge of material (the average score for the examinations was less than 4).

The fourth group (2b) includes those who are not completely ready to learn, that is those who do not feel the need for learning and do not have the opportunity to do so. These include students who did not attend classes for the entire semester and as a result were expelled, transferred to another speciality or had to take tests and exams later than the deadline. Also, a study of readiness to implement digital educational tools showed that students are not ready to accept a new assessment system using asynchronous remote testing, because they have not had similar experience before (Figure 2).

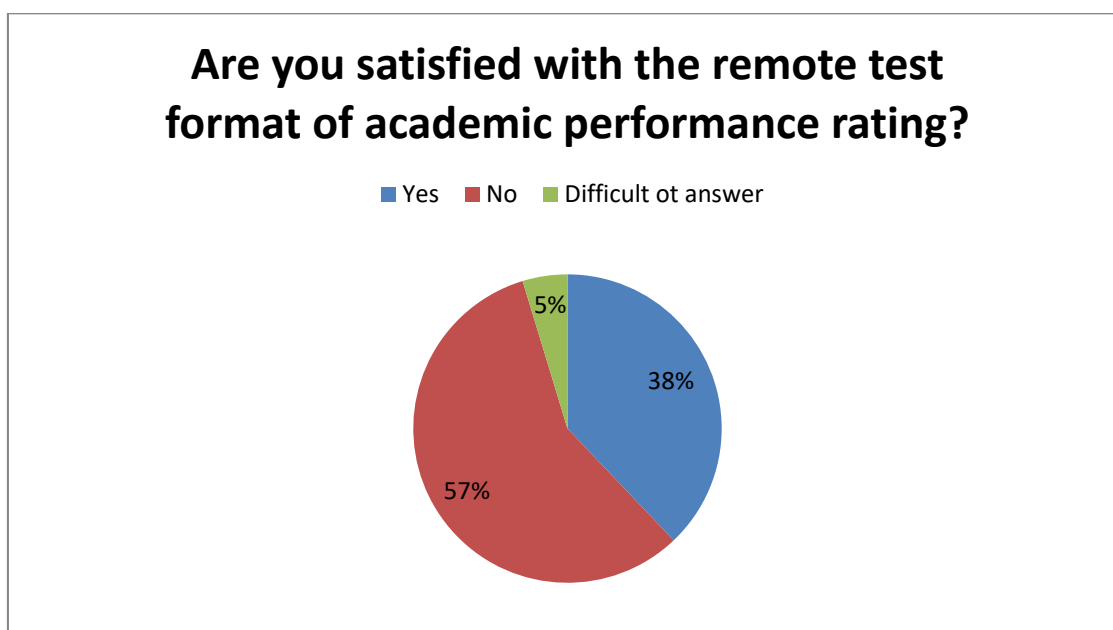


Figure 2. Study of students' satisfaction with distance learning

The study found that students are introduced to distance learning with the involvement of teachers. A significant proportion of surveyed students learned the system of distance education on their own (Figure 3).

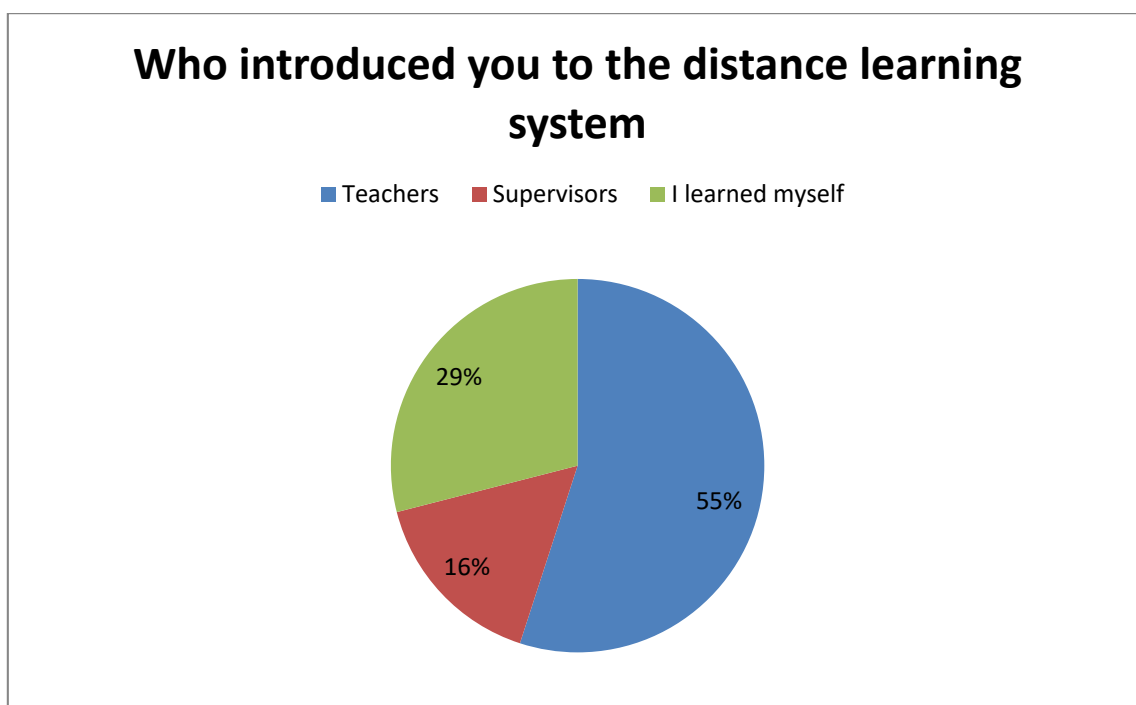


Figure 3. Study of students' acquaintance with the conditions of distance learning

This indicates a lack of students' knowledge of modern electronic educational technologies, but at the same time indicates a high level of interest of both teachers and students in the implementation of innovative educational tools. The results of the study show that a large proportion of respondents do not consider traditional assessment objective at all (Figure 4).

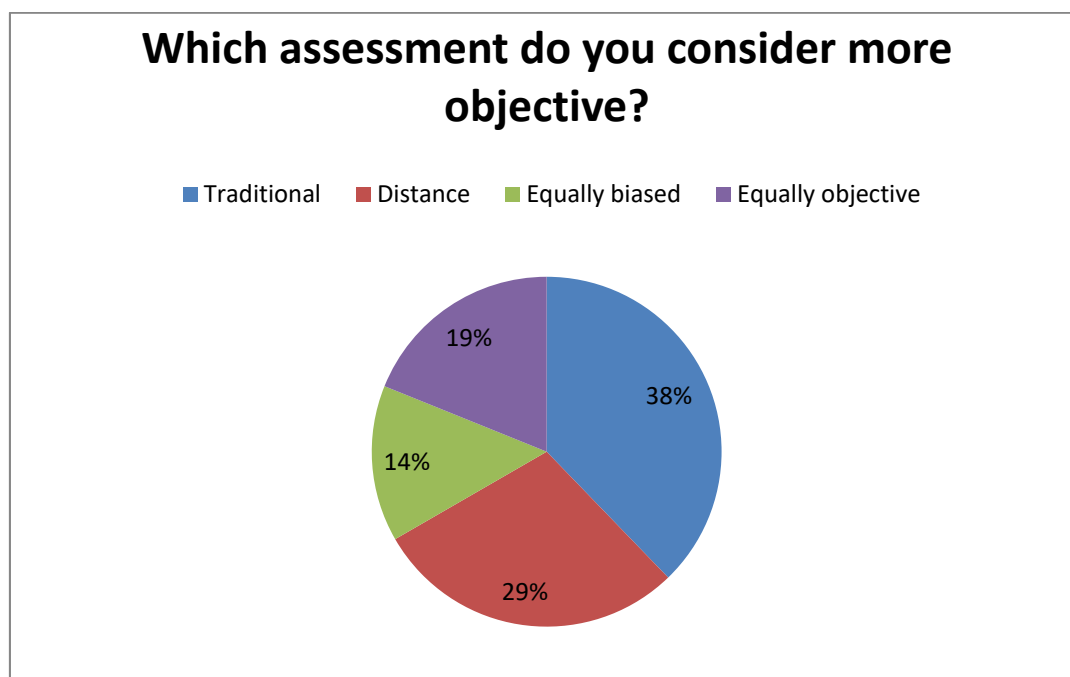


Figure 4. Study of students' attitude to the assessment system

The introduction of distance education did not significantly affect students' perception of knowledge control and assessment of knowledge, which certainly indicates more significant problems of the control system. The results of the study show a slight decrease in the assessment objectivity level with the use of the new system. The study showed increased student motivation to better learn the material. Despite one or another form of education, students' motivation to study remains high (Figure 5).

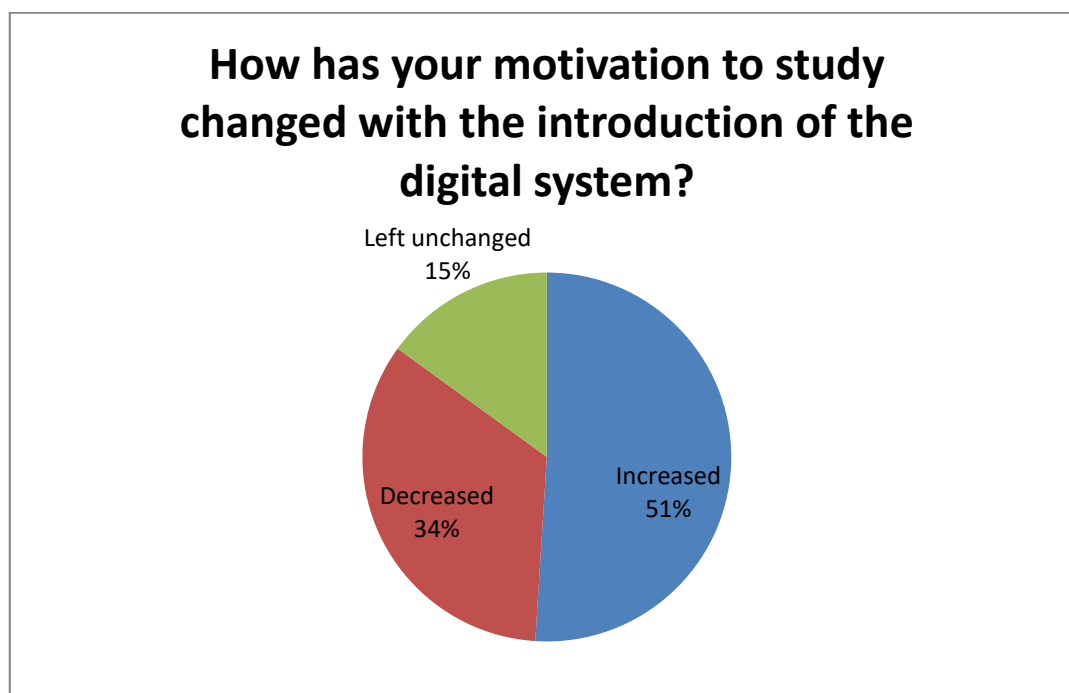


Figure 5. Study of changes in students' motivation to study

This indicates that students are aware of the importance of acquiring knowledge, skills and abilities that they will later need in future professional activities. According to the survey, most respondents believe that the use of an automated system does not contribute to the control of students' knowledge (Figures 6, 7).

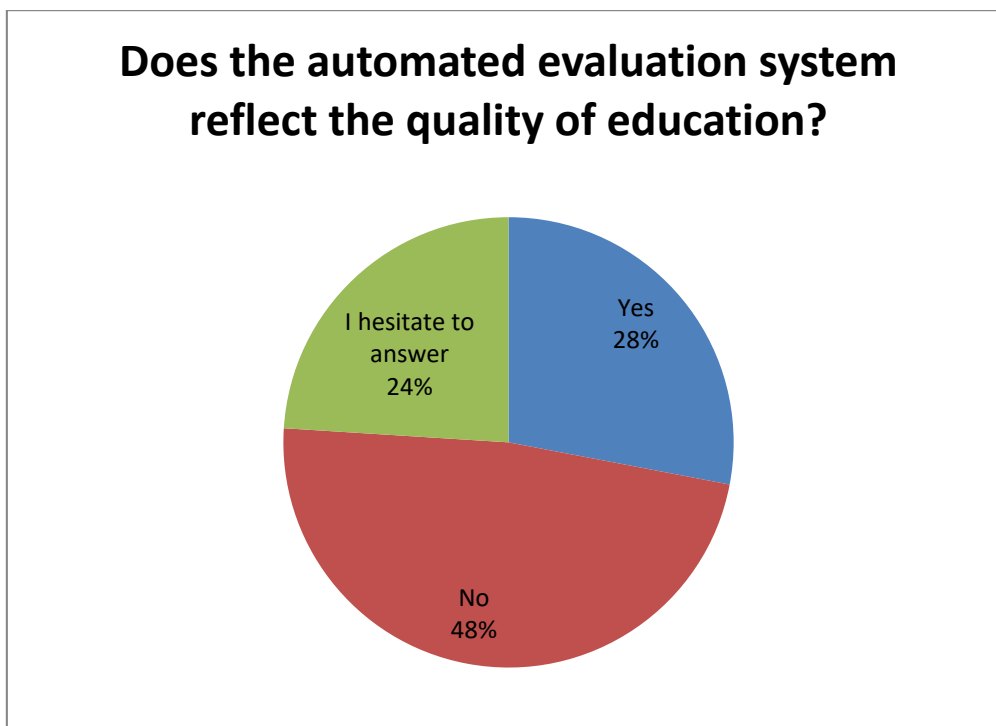


Figure 6. Study of the reflection of the quality of education through automated assessment systems

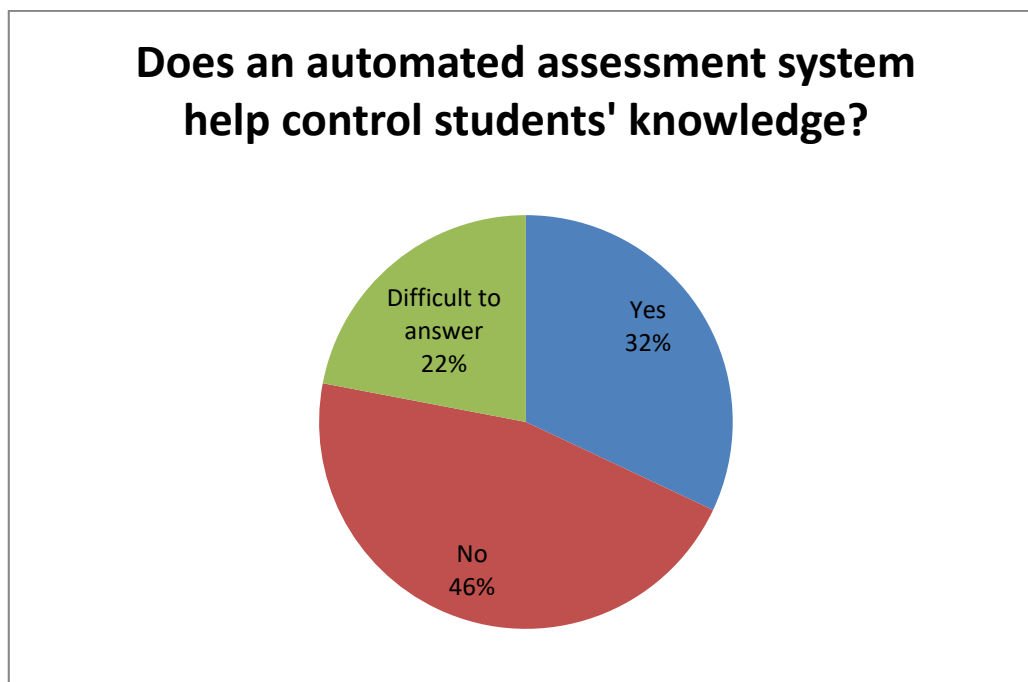


Figure 7. Study of the impact of an automated knowledge control system

The results obtained indicate that the system does not adequately reflect these indicators, therefore, the need to improve the system itself to improve the existing situation with students' perception of the automatic assessment and control system. The implementation of the student-centred approach is aimed at developing the experience of independent solution of professional

problems in students, so independent work becomes the most important factor in the development of these competencies.

We studied the attitude of students to the organization of independent work. The results of the study showed that students are generally positive about increasing share of independent work in the learning process. Thus, the distance assessment system is a means of pedagogical qualimetry. It is a tool that allows the teacher to objectively present the student's learning outcome, which consists of a multi-component assessment. The results of the study show the constant contribution of students to independent work. According to the surveyed students, they spend much time for independent work (Figure 8).

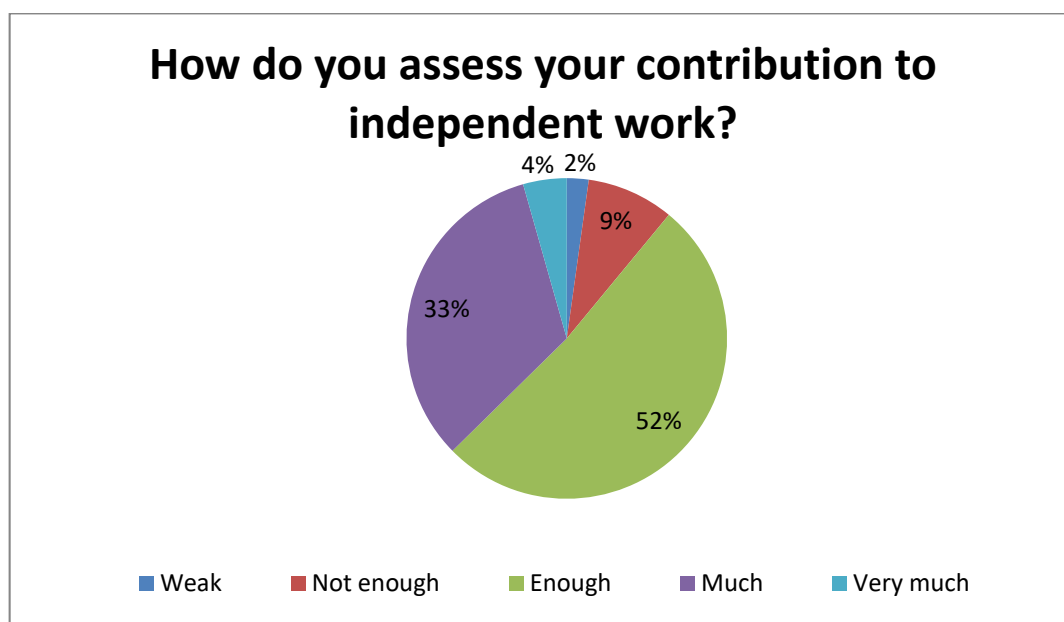


Figure 8. Determining the level of students' contribution to independent work

In our opinion, one of the reasons for the insufficient contribution of students to independent activities may be the unpreparedness of some students for its organization, lack of knowledge and skills for proper allocation of time to perform independent work. This is confirmed by research results: more than 70% of students have difficulty performing independent tasks, for some students performing independent work is a source of stress. and skills in the proper allocation of time to perform independent work. This is confirmed by research results: more than 70% of students have difficulties when completing independent assignments, performing independent work is a source of stress for some students.

The study revealed the reasons for students' dissatisfaction with independent work. According to most respondents, it takes too much time, which causes students' stress. Most teachers believe that students do not know how to work independently, and one of the serious reasons is that the proposed forms of work are not interesting to students.

Doing independent work and preparing for classes at the higher educational institution is directly related to the academic backlogs of students. We have identified the main causes of academic backlogs: “poor self-training”, “a large number of absences”, “insufficient ability to learn”. Our study found the most common reason for missing classes, which is disrespectful — “we overslept, so did not come to the classes”. This fact confirms the problem of self-organization of students. This attitude to attending classes is associated with students’ lack of understanding of the purpose of study and independent work, which is to consolidate the acquired knowledge through independent activities, namely meaningful work with educational material, scientific information, attempts to apply the acquired knowledge in practice.

The results of the study show a difference in attitudes towards learning of successful students and those who have difficulties in learning. Unlike successful university students, unsuccessful students do not consider it necessary to engage in self-education, do not use additional literature for self-training, miss classes, show little activity, do not take notes of educational material. Successful students are more satisfied with their performance than other students. Let us note that in general, students that have “good” and “excellent” marks pay much more attention to learning than unsuccessful ones. The contradiction is that successful students are more likely than unsuccessful students to worry about the grades obtained if it does not meet expectations, which indicates the great importance of learning for this category of students.

### **Discussion**

The validity and reliability of the research results are determined by their correlation with the results obtained by other authors using alternative research tools, in the fact that reliable source data processed with the involvement of reliable and proven scientific methods were used to obtain the author’s results. As Cendon and Gillen (2016) note, in the context of globalization, the dynamically evolving digital technologies, both the strategic goals of education and the existing educational model are constantly improving. Šušnjar and Hovhannisyan (2020) also indicate that only the introduction of new technologies, changes in the concept, structure of education will allow higher educational institutions to maintain their market share. The study showed that through the use and participation in digital platforms, higher educational institutions operating in the digital environment will have expanded access to all resources available on the market, which will provide a fundamentally new highly efficient method of acquiring knowledge. Hibert and Lesic-Thomas (2017) also pointed out the importance of the introduction of the latest digital technologies in their research as an integral component of the development of a student-oriented educational environment.

Also, the study showed that the adaptation of the universal digital platform to the specifics and features of particular educational systems together with the developed mechanism for providing

educational services, provides a sound and effective methodology for implementing digital transformation of education, which Bourque and Bourdon (2017) emphasized in their research. At the same time, the processes of digitalization and digital transformation of education are characterized by increased dynamics (Evans, 2018). The study showed that it is due to the continuous development of digital technologies themselves, which means the need for continuous improvement, methodology, mechanism, conditions and tools for their implementation and operation.

In analysing students' motivation to learn, many of its forms were not taken into account (motivation by the social significance of the speciality, professional perspective, the amount of possible salary). This motivation was determined by assessing the degree of satisfaction with the acquired speciality, which serves as an indicator of the effectiveness of secondary professional self-determination of students, which takes place in several stages. The first stage, which lasts during the first year of study, involves adaptation to the learning conditions. There are some doubts about the correctness of the choice made (Lundie, 2017).

At the second stage, professional interests and long-term plans are actualized. A set of priorities, goals, values of professional development are being formed in the minds of students. Their opinion on the motives of educational activity is already influenced by the learning experience, satisfaction or dissatisfaction with the higher educational institution and the chosen speciality. Sometimes there can be disappointment in the choice made.

The introduction of innovative digital technologies and the development of new pedagogical methods based on those technologies will not only change the forms and means of teaching, but the whole physical environment of teaching (Kusmin & Laanpere, 2018). The modern educational system is experiencing a crisis of creativity. Most classes weakly encourage students to learn new things on their own, to establish an objective connection between the acquired knowledge and the real world, to use their imagination to find non-standard answers to standard questions instead of using stereotypical models. The study showed that students' perceptions of the education digitalisation processes are quite heterogeneous, Lundie (2017) provides the same data in the study. The surveyed students see the main problem both in the material offered for study, and in the knowledge assessment system. Laanpere (2017) and Leask, Jones and De Wit (2018) indicate the same problems of digitalisation of education, in particular, the need for comprehensive involvement of new technologies to create a participation effect in the organization of virtual laboratories and workshops. The obtained data on the evaluation of the quality of distance assessment are similar to the data obtained by De Wit (2019) and Shagrova (2019).

### **The main limitations of the study**

It is necessary to mention a number of opinions regarding the survey. Respondents usually try to present themselves well in answering the questions, thus reducing the objectivity of the survey. Respondents are also limited in time when answering questions, that can cause a feeling of psychological pressure and have an impact on the results of the survey. Several practical steps were taken to solve these problems: screening was carried out at the stage of sampling to avoid negligence in the study; each respondent was previously interviewed to indicate the importance of the study; the study was conducted remotely to avoid psychological pressure when answering questions. Thus, the results of the study reflect the real situation as much as possible.

### **Conclusions**

The research topicality is due to the trend towards digitalisation of the educational process. The development of digital educational technologies is accompanied by more and more new challenges that need to be addressed in a timely and quality manner. Therefore, the issue of the impact of digitalisation on the transformation of the student-centred approach could not escape the attention of researchers studying the development of the educational process. The study revealed certain trends in students' perception of the introduction of digitalisation into the educational environment. Most students pay attention to the quality of teaching materials and express some concern about it, because teaching materials are usually low-quality.

The obtained data are of great practical importance both for further research of the student's educational environment, and for taking the necessary measures aimed at improving the quality of educational services. Further research in this area may aim at identifying more acceptable forms and methods of interaction between students and teachers on the basis of digital educational platforms to improve the quality of education and increase motivation to learn. The development of methods for transforming the student-centred approach in the use of digital learning platforms is also a promising area of further research.

### **References**

- Agibova, I. M. (2019). Fundamental education in university in development of future teachers' professional competences. In I. M. Agibova, & O. V Fedina (Eds.), *European proceedings of social & behavioural sciences* (pp. 249-259). Kazan, Russia: IFTE. <https://doi.org/10.15405/epsbs.2020.01.31>



- Bicheva, I. B., & Filatova, O. M. (2018). Prospects of vocational training of teachers: axiological approach. *The Bulletin of the Minin University*, 6 (2), 3. <https://doi.org/10.26795/2307-1281-2018-6-2-3>
- Bourque, C. J., & Bourdon, S. (2017). Multidisciplinary graduate training in social research methodology and computer-assisted qualitative data analysis: a hands-on/hands-off course design. *Journal of Further and Higher Education*, 41 (4), 475-491. <https://doi.org/10.1080/0309877X.2015.1135882>
- Bukeikhanov, N. R., Gvozdkova, S. I., & Butrimova, E. V. (2020). Automated resource-saving system for the use and regeneration of epilam-based lubricating-cooling technological liquid. In A. Radionov, O. Kravchenko, V. Guzeev, & Y. Rozhdestvenskiy (Eds.), *Proceedings of the 5th International Conference on Industrial Engineering (ICIE 2019)* (pp 1435-1442). Cham, Switzerland: Springer.
- Buzady, Z. (2017). Flow, leadership and serious games - a pedagogical perspective. *World Journal of Science, Technology and Sustainable Development*, 14 (2/3), 204217. <https://doi.org/10.1108/WJSTSD-05-2016-0035>
- Cattik, M., & Odluyurt, S. (2017). The effectiveness of the smart board-based small-group graduated guidance instruction on digital gaming and observational learning skills of children with autism spectrum disorder. *Turkish Online Journal of Educational Technology*, 16 (4), 84-102. <https://eric.ed.gov/?id=EJ1160646>
- Cendon, E., & Gillen, K. (2016). Das Spannungsfeld zwischen Hochschule und Arbeitsmarkt - zur Rolle der Hochschuldidaktik [The tension between the university and the labor market - the role of university didactics]. <http://wissenschaft-bildet.userblogs.uni-hamburg.de/forschungstagung-2016/forschungstagung-abstracts-2016/cendon-elsholzgillen-kreutz/>
- Curaj, A., Deca, L. & Procopie, R. (Eds.). (2018). *European higher education area: The impact of past and future policies*, Volume 1. Cham, Switzerland: Springer. <https://www.springer.com/gp/book/9783319774060>
- De Wit, H. (2019). Evolving concepts, trends, and challenges in the internationalization of higher education in the world. *Educational Studies Moscow*, 2, 8-34. <https://doi.org/10.17323/1814-9545-2019-2-8-34>
- Demarle-Meusel, H., Sabitzer, B., & Sylle, J. (2017). The teaching-learning-lab: Digital literacy & computational thinking for everyone. In H. Demarle-Meusel, B. Sabitzer, & J. Sylle (Eds.), *Proceedings of the 9th International Conference on Computer Supported Education - Volume 2: CSEDU*. Porto, Portugal. <https://doi.org/10.5220/0006367001660170>

- Dewey, J. (1980) Democracy and education. In: J. A. Boydston (Ed.), *John Dewey. The middle works, 1899–1924. Volume 9: 1916* (pp. 1-370). Carbondale/Edwardsville, IL: Southern Illinois University Press. [https://www.uio.no/studier/emner/uv/uv/UV9406/dewey-john-\(1980\).-democracy-and-education.pdf](https://www.uio.no/studier/emner/uv/uv/UV9406/dewey-john-(1980).-democracy-and-education.pdf)
- Evans, L. (2018) Reshaping the EHEA: After the demise of neoliberalism: A UK-Informed perspective. In A. Curaj, L. Deca, & R. Pricopie (Eds.), *European higher education area: the impact of past and future policies* (pp 23-42). Cham, Switzerland: Springer. [https://link.springer.com/chapter/10.1007/978-3-319-77407-7\\_3](https://link.springer.com/chapter/10.1007/978-3-319-77407-7_3)
- Evans, L., & Nixon, J. (2015). *Academic identities in higher education: The changing European landscape*. London, UK: Bloomsbury.
- Gryaznova, E., Kozlova, T., & Sulima, I. (2018) Forming and realizing a pedagogue's philosophical culture. *The Turkish Online Journal of Design, Art and Communication, S2018*, 2136-2142. <https://doi.org/10.7456/1080SSE/287>
- Hibert, M., & Lesic-Thomas, A. (2017). On wolves, sheep and shepherds: on Bosnian comedy of errors. In W. Halfman & H. Radder (Eds.), *International responses to the academic manifesto: reports from 14 countries*. <https://social-epistemology.com/2017/07/13/international-responses-to-the-academic-manifesto-reports-from-14-countries-willem-halfman-and-hans-radder/>
- Jones, A., & Bennet, R. (2017). Reaching beyond an online/offline divide: invoking the rhizome in higher education course design. *Technology, Pedagogy and Education*, 26 (2), 193-210. <https://doi.org/10.1080/1475939X.2016.1201527>
- Klemenčič, M. (2017). From student engagement to student agency: Conceptual considerations of European policies on student-centered learning in higher education. *Higher Education Policy*, 30 (1), 69-85. <https://doi.org/10.1057/s41307-016-0034-4>
- Klemenčič, M. (2018). The student voice in quality assessment and improvement. In E. Hazelkorn, H. Coates, & A. McCormick (Eds.) *Research Handbook on Quality, Performance and Accountability in Higher Education* (pp. 332-343). Cheltenham, UK: Edward Elgar Publishing.
- Knowles, M. S. (1975). *Self-directed learning: a guide for learners and teachers*. New York, NY: Association Press.
- Kusmin, M., Saar, M., & Laanpere, M. (2018). Smart schoolhouse – designing IoT study kits for project-based learning in STEM subjects. In C. Gonzalez, M. Castro, & M. Llamas (Eds.), *Proceedings of the global engineering education conference (EDUCON)*. Santa Cruz de Tenerife, Spain. <https://doi.org/10.1109/EDUCON.2018.8363412>

- Leask, B., Jones, E., & De Wit, H. (2018, December 7). Towards inclusive intercultural learning for all. <https://www.universityworldnews.com/post.php?story=20181205093157690>
- Lundie, D. (2017). The givenness of the human learning experience and its incompatibility with information analytics. *Educational Philosophy and Theory*, 49 (4), 391-404. <https://doi.org/10.1080/00131857.2015.1052357>
- Maxwell, A. Jiang, Z., & Chen, C. (2017). *Mobile learning for undergraduate course through interactive apps and a novel mobile remote shake table laboratory*. <https://www.asee.org/public/conferences/78/papers/18403/view>
- Piaget, J. (2004). *The psychology of intelligence*. Moscow, Russia: Piter.
- Quarles, A. M., Conway, C. S., Harris, S. M., Osler II, J. E., & Rech, L. (2018). Integrating digital/mobile learning strategies with students in the classroom at the historical black college/university (HBCU). In *Handbook of research on digital content, mobile learning, and technology integration models in teacher education* (pp. 390-408). Hershey, PA: IGI Global.
- Rogers, C. R. (1983). *Freedom to learn for the 80's*. Columbus, OH: Charles Merrill Publishing Company.
- Rubinstein, S. L. (1999). *The basics of general psychology: manual*. St. Petersburg, Russia: Piter Kom.
- Shagrova, G. (2019). Innovative approaches to the organization of students: independent learning in accordance with the digital economy requirements. In J. Rugelj, & M. Lapina (Eds.) *Proceedings of SLET-2019 – International Scientific Conference Innovative Approaches to the Application of Digital Technologies in Education and Research*. Stavropol, Russia: Dombay. [http://ceur-ws.org/Vol-2494/paper\\_19.pdf](http://ceur-ws.org/Vol-2494/paper_19.pdf)
- Sukhomlinsky, V. A. (1982). *On upbringing*. Moscow, Russia: Politicheskaya literatura.
- Šušnjar, A., & Hovhannisyán, G. (2020). Bridging the policy-practice gap: Student-centered learning from the students' perspective. In S. Hoidn, & M. Klemenčič (Eds.) *The Routledge handbook on student-centered learning and instruction in higher education*. New York, NY: Routledge. <https://doi.org/10.4324/9780429259371>
- Wagenaar, R. (2019). *Reform! Tuning the modernisation process of higher education in Europe. A blueprint for student-centred learning*. Groningen, Netherlands: University of Groningen