

Transformation of learning motivation in the context of digitalization of education

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Abstract. The article examines the impact of digitalization on the transformation of learning motivation, which significantly affects all aspects of the learning process and creates new challenges for education. Particular attention is paid to the impact of digital technologies on the motivational subsystems of the individual, including extrinsic and intrinsic motivation, achievement motivation, safety, antimotivation, extracurricular motives, self-realization, and motivational stereotypes. The main extrinsic motive for learning is the motive of assessment, which is significantly transformed in the context of digitalization. Digitalization leads to a shift and expansion of motivationally attractive areas, especially in the field of virtual reality, which affects learning activities and students' interaction with technology. There is an increase in the intensity and strength of extrinsic motivational attitudes under the influence of digital learning tools that facilitate the implementation of evaluative motives. Intrinsic motivation, in particular cognitive interests, is undergoing significant changes due to increased access to information. While this contributes to the development of cognitive interests, the ease of obtaining information can lead to a decrease in intellectual activity associated with processing complex information. This creates an ambivalent effect on motivation, combining positive and negative trends. In terms of achievement motivation and failure avoidance motivation, digital technologies act as a tool that enhances the ability to solve learning problems by stimulating the development of these motivational subsystems. Digital learning tools contribute to an increased need for new achievements, which leads to an increase in achievement motivation. The findings emphasize that the impact of digitalization on the motivational sphere is complex and multifaceted, including positive and negative trends. Different motivational subsystems have different sensitivities to the impact of digitalization, with intrinsic and achievement motivation being more sensitive than extrinsic motivation. The impact of digitalization also differs at different age stages, which requires further research to examine the specifics of this impact in detail, taking into account the age and individual characteristics of students and learners.

Keywords: educational environment, digitalization, digitalization, educational process, motivation, educational technologies.

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Трансформація навчальної мотивації в умовах діджиталізації освіти

Анотація. У статті досліджено вплив діджиталізації на трансформацію навчальної мотивації, що суттєво впливає на навчальний процес та породжує нові виклики для освіти. Особлива увага приділяється впливу цифрових технологій на мотиваційні підсистеми особистості: зовнішню та внутрішню мотивацію, мотивацію досягнення, безпеку, антимотивацію, позанавчальні мотиви, самореалізацію та мотиваційні стереотипи. Основним зовнішнім мотивом є мотив оцінювання, який у контексті цифровізації значно трансформується. Цифровізація призводить до зміщення та розширення мотиваційно привабливих сфер, особливо у віртуальну реальність, впливаючи на навчальну діяльність та взаємодію учнів з технологіями. Відзначається зростання інтенсивності зовнішніх мотиваційних установок під впливом цифрових засобів навчання. Внутрішня мотивація, зокрема пізнавальні інтереси, також змінюється завдяки розширенню можливостей доступу до інформації. Це сприяє розвитку пізнавальних інтересів, але легкість отримання інформації може призводити до зниження інтелектуальної активності. Цифрові технології підвищують можливості вирішення навчальних завдань, стимулюючи мотивацію досягнення та мотивацію уникнення невдачі. Висновки підкреслюють, що вплив цифровізації на мотиваційну сферу є комплексним, поєднуючи позитивні та негативні тенденції. Різні мотиваційні підсистеми мають різну чутливість до цифровізації. Вплив цифровізації також відрізняється на різних вікових етапах, що вимагає подальших досліджень для детального вивчення цього впливу з урахуванням вікових та індивідуальних особливостей учнів та студентів.

Ключові слова: освітнє середовище, діджиталізація, цифровізація, навчальний процес, мотивація, освітні технології.

Introduction

The digitalization of education significantly affects all aspects of the educational process, creating new challenges for educational psychology. These challenges require careful scientific reflection and practical solutions. Particular attention should be paid to the transformation of students' learning motivation in the context of the active introduction of digital technologies. Thus, there is a need for a systematic study and scientific substantiation of how digitalization affects the motivational subsystems of the individual, including extrinsic and intrinsic motivation, achievement motivation, safety, antimotivation, extracurricular motives, self-realization, and motivational stereotypes.

An analysis of recent research and publications shows a significant interest of the scientific community in studying the impact of digital technologies on learning motivation. In particular, the study of V. Aro et al. is devoted to a systematic review of the impact of digital technologies on the development of argumentative competence and subject-specific knowledge, emphasizing the significant impact on student motivation [2]. K.R. Mahan studied the introduction of digital technologies in the context of integrated content and language learning (CLIL), pointing out the importance of supporting learning through structured assistance [3].

H. S. Bobro in her research focuses on the use of artificial intelligence in higher education institutions, noting its potential to increase learning motivation [4]. A textbook on the philosophy of education states that digital technologies create new opportunities for individualizing the learning process, which directly affects student motivation [5]. M. Kaku examined the future of work in the context of robotics and artificial intelligence, emphasizing the importance of adapting curricula to new conditions [6].

C. Yagodzinsky analyzed anthropomorphic information networks and convergent technologies, emphasizing their impact on social aspects and learning motivation [7]. T. Luo et al. studied the integration of inquiry-based learning into engineering education, noting the positive impact on student motivation [9].

These studies emphasize the importance of an integrated approach to studying the impact of digital technologies on learning motivation, the need to develop new pedagogical strategies that take into account the specifics of the digital environment, and the adaptation of existing methods to improve the efficiency of the learning process in the context of digitalization of education.

The purpose of this article is to study the transformation of learning motivation in the context of the digitalization of education. The objectives of the article include analyzing existing research on the impact of digitalization on learning motivation and identifying the main trends and changes in motivational subsystems, such as extrinsic and intrinsic motivation, achievement motivation, safety, antimotivation, extracurricular motives, self-realization, and motivational stereotypes.

Thus, this article aims to fill in the existing gaps in the study of the impact of digital technologies on learning motivation, to propose a comprehensive and differentiated approach to analyzing this impact, and to develop recommendations for practical application in the educational sphere.

Results

Moving on to the realization of this goal and referring to the first of the above-mentioned motivational subsystems - extrinsic motivation - we can differentiate the following areas of its influence. First of all, it should be noted that the main extrinsic motive for learning activities is the so-called assessment motive. However, it is not inherently final, but performs mostly instrumental functions, i.e., it acts as a means and condition for the realization of other, more personally significant motivational attitudes.

In this context, it should be borne in mind that the digitalization of all spheres of society has led to a significant shift and expansion of such motivationally attractive areas, types and forms of personally meaningful, primarily leisure activities. It has mostly moved into the sphere of virtual reality, into the computer plane, and virtual reality itself has largely replaced "real reality." Therefore, the evaluative motive as a basic motive for the extrinsic motivation subsystem, while maintaining and even increasing its importance, is transforming in a meaningful way. It begins to fulfill its instrumental functions in relation to completely different forms and spheres of activity. For example, it can act as a means of obtaining permission to use a computer for a long time and intensively, to purchase new and more advanced gadgets, etc. [8, p.90].

It is typical that the intensity and strength of such motivational attitudes usually increase significantly. In addition, it is known that computer-based tools can be used as a toolkit to provide assistance in solving certain learning tasks, for example, in the form of learning applications. In this way, they facilitate and facilitate the realization of evaluative motives, contributing to greater effectiveness of learning activities. It should also be noted that the impact of digitalization on the extrinsic motivation subsystem differs depending on the age of the student and generally increases with age. For example, in high school, which is already associated with the need for professional self-determination, the evaluation motive itself can be specified and act as a necessary means of entering prestigious IT-related specialties that require high rates of final school preparation (primarily, the NMT score). Thus, this demonstrates not only the instrumental nature of extrinsic motivation and its transformation under the influence of digitalization, but also its diversification, or rather genetic relativity.

The impact of digitalization on another motivational subsystem, intrinsic motivation, is even more significant and multifaceted. It is known to include such a motivational formation that is crucial for it and most specific to learning activities - what is denoted by the concept of cognitive interests. At the same time, it is obvious that digitalization itself is a consequence and manifestation, in fact, of the transition to a new era - the information one, which is characterized by a sharp expansion and enrichment of forms and means, as well as the amount of information, knowledge, and content available to students in general [1;9].

Accordingly, much greater opportunities are opening up for the development of cognitive interests themselves, their stimulation, and the diversification of their types. Moreover, the possibilities for the development of the personality itself are also dramatically expanding through transforming and enriching information opportunities and resources for satisfying cognitive motives. All of this is certainly positive for the development and motivation of the student's personality. However, one cannot ignore the opposite side of this, which is not only well-known but also constitutes one of the main subjects of consideration in modern cyberpsychology. It lies in the fact that increasing the ease of obtaining information and access to it usually leads to the replacement and displacement of active search for it by the so-called "receiving on demand".

According to some scholars [4;6], Internet search engines themselves largely act not as assistants in solving information problems, but as substitutes for the student's activity itself. Information processing is replaced by its search, filtering, and use, which results in a sharp decline in intellectual activity related to the processing of complex and voluminous information, and the comprehension of semantically rich texts. As a result, the accessibility of large amounts of information results in the lack of mechanisms for processing and assimilating information, including motivational mechanisms related to the development of cognitive interests and motives. We can agree that the digital environment, specific Internet content, and the possibilities of infographics in general are such that they provide unprecedented means of generating new, original, unusual, etc. images that go far beyond the most developed imagination. Of course, this simply frees the user from "working with imagination", replacing activity with searching and filtering the finished product, leaving no room for the formation of internal motives related to interest in obtaining independent results of this work.

All of the above leads to a significant and multifaceted decline in cognitive functions, which is reflected in one of the most well-known and widely studied consequences of digitalization today - the cognitive decline syndrome. A characteristic feature of the vast majority of real-life situations that pupils and students face on the Internet is the speed and low labor intensity of achieving certain goals, as well as the high probability of achieving them and, accordingly, the feeling of comfort in being online. As a result, this situation "attracts and attracts" - not only the habit but also the need to be online is quickly formed.

As a result, the intrinsic motivation for learning activities is also significantly reduced, being replaced by another - also intrinsic, but extracurricular motivation, i.e. motivation associated with the implementation of other activities and behaviors. Thus, the impact of digitalization on this subsystem of intrinsic motivation is even more pronounced and characterized by a clear ambivalence, as it includes pronounced positive aspects with obvious negative features. In addition, the significant severity of the motivational transformations of this subsystem compared to the previous one allows us to record another feature of motivation transformation - unevenness, and different sensitivity of different motivational subsystems to the effects of digitalization.

Concerning the other two motivational subsystems that are traditionally analyzed together and in relation to each other - the achievement motivation and the failure avoidance motivation (safety motivation) - the impact of digitalization is similar in many aspects. This similarity is due to the fact that the aforementioned function of computer technology and digital

learning tools in general - instrumental - is very clearly and multifacetedly manifested to them. In other words, it should be borne in mind that this technique initially acts as a technique - as a means of solving certain tasks, including educational ones. Accordingly, it increases the possibilities of solving them, and the motivation to master it and use it also increases. Thus, in terms of achievement motivation, it acts as a way and means to realize achievement motives as such, and thus stimulates the development of this subsystem.

In addition, it should be borne in mind that the essence of achievement motivation is that it is not subject to the homeostatic but to the heterostatic principle. This means that, as a rule, it does not weaken after the satisfaction of certain achievement motives, but, on the contrary, increases: achieving the desired success does not lead to a reduction of the original motive, but to its strengthening - to an increased need for new achievements.

Conclusions

Thus, summarizing the entirety of the materials presented above, we can draw the following conclusions. They, in turn, allow us to identify and explain the main features and patterns, as well as the dominant directions of transformation of the motivational sphere of the individual in educational activities, which are caused by digitalization factors. Firstly, its impact on the motivational sphere is complex and multifaceted, as it affects all major motivational subsystems. Secondly, this impact is diversified, combining both positive and negative trends, which, as a result, determines the complex and internally contradictory nature of the transformations themselves, and ultimately, the development of the entire motivational sphere of the individual in educational activities. Moreover, the comparative proportion of positive and negative trends is also different in relation to the main motivational subsystems. Thirdly, the considered subsystems are characterized by varying degrees of exposure to the influence of digitalization factors, that is, different sensitivity to them. Thus, some of them, such as the extrinsic motivation subsystem, are relatively more resistant to these influences, while others, such as the intrinsic or achievement motivation subsystem, are much more sensitive to them. Fourth, the transformational impact of digitalization factors on motivational subsystems varies at different age stages. In this regard, we can state another general pattern - the genetic relativity of transformational influences on basic motivational subsystems.

Further research should focus on a more detailed study of the specifics of the impact of digitalization on individual motivational subsystems, taking into account the age and individual characteristics of students and students.

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