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DEVELOPMENT OF INFORMATION CULTURE, SELF-EDUCATION, AND IMPROVED LEVEL OF KNOWLEDGE IN STUDENTS AS FACTORS IN THE COMPETITIVENESS OF A FUTURE SPECIALIST

EL DESARROLLO DE LA CULTURA DE LA INFORMACIÓN, LA AUTOEDUCACIÓN Y LA MEJORA DEL NIVEL DE CONOCIMIENTO EN LOS ESTUDIANTES COMO FACTORES DE COMPETITIVIDAD DE UN FUTURO ESPECIALISTA

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ABSTRACT

The paper is devoted to the importance of developing the information culture, self-education, and knowledge of students as factors in the competitiveness of future economists. The development of information culture is noted to be a significant characteristic of a future specialist in the economic sector. The authors explore the overall level of students' satisfaction with the teaching of economic disciplines and identify the main problems, advantages, and needs in the development of their information culture. The current state and specifics of the development of information culture in economics students are analyzed. The paper reports the results of a student survey detecting the problems and needs experienced by students in the development of their information culture. The analysis of responses suggests that the development of information culture, self-education, and knowledge of economics students is a purposeful activity taking place not only in the study of specialized professional software in informatics courses but also in the use of general-purpose software as part of other disciplines.

Keywords:

Information culture; logical culture; competitive specialist; software; economics students.

RESUMEN

El trabajo está dedicado a la importancia de desarrollar la cultura de la información, la autoformación y el conocimiento de los estudiantes como factores de competitividad de los futuros economistas. El desarrollo de la cultura de la información se destaca como una característica importante de un futuro especialista en el sector económico. Los autores exploran el nivel general de satisfacción de los estudiantes con la enseñanza de disciplinas económicas e identifican los principales problemas, ventajas y necesidades en el desarrollo de su cultura de la información. Se analiza el estado actual y las especificidades del desarrollo de la cultura de la información en los estudiantes de economía. El trabajo reporta los resultados de una encuesta estudiantil detectando los problemas y necesidades que experimentan los estudiantes en el desarrollo de su cultura de la información. El análisis de las respuestas sugiere que el desarrollo de la cultura de la información, la autoeducación y el conocimiento de los estudiantes de economía es una actividad útil que se lleva a cabo no solo en el estudio de software profesional especializado en cursos de informática, sino también en el uso de software de propósito general como parte de otras disciplinas.

Palabras clave:

Cultura de la información; cultura lógica; especialista competitivo; software; estudiantes de economia.

INTRODUCTION

At present, in the face of the development of information technology, a difficult economic situation, and international competition, there is a need to ensure a high level of training for economics specialists. However, the established Russian practice of training economics students leads to the labor market being overflooded by certified but uncompetitive graduates of economic specialties (Zhadanova, 2023).

In this light, improving the competitiveness of graduates in economics calls for the implementation of new practices in the improvement of the higher education system. Such measures should include, most importantly, the provision of comprehensive development of specialists' competencies (Kapustina et al., 2022). It is also critical to train students in the use of modern information and communications technologies (ICTs). The use of ICT in education supports the development of students' creativity, communication skills, including those necessary for professional communication, and experimental and research skills (Tolmachev et al., 2022).

Given that ICT in economics continues to develop rapidly, there is a growing need for new scientific and methodical support for professional training. The ability to navigate information flows, use modern data processing methods, and apply programming skills with the use of ICT is of decisive importance to future competitive economists, and it is important to ensure that economic education programs are designed with these needs in mind (Pivneva et al., 2022).

To attain this goal, economic education has to transition to a more practice-oriented and interactive approach that will provide students with practical experience in using modern technology. This may include integrating into the educational process such ICTs as virtual modeling, data analysis software, and e-learning platforms to give students the practical skills so highly demanded in today's labor market (Kotlyarova et al., 2023; Lipopvenko et al., 2022).

Information culture is defined as the ability to use various digital media and ICT, understand and critically evaluate various aspects of digital media and media content, access digital media and ICT, and be able to communicate efficiently in different contexts. According to Bochkareva et al. (2023), information culture assumes confident and critical use of ICT for employment, education, self-development, and social participation.

One of the most detailed definitions, in our view, is the one presented in Biryukov et al. (2022), which summarizes that information culture is a set of knowledge, skills, and abilities (among which are capabilities, strategies, values, and familiarity) necessary for the use of ICT and digital media to solve the established tasks and problems, communicate, manage information, cooperate, and create and distribute content and knowledge – effective, proper, critical, precise, autonomous, flexible, ethical, and reflexive for work, leisure, education, communication, and more (Ponyaeva et al., 2022).

Some researchers also interpret information culture as a set of advantages and abilities of a subject as compared to those like them in the struggle to achieve a goal under the laws of a particular environment (system) (Pisarevskiy et al., 2022); the potential or realized ability of an economic subject for effective long-term functioning in the relevant external environment (Litwinowa et al., 2022); compliance of a specialist's professional training level with the requirements of the labor market to perform a certain type of activity.

The ability to use ICTs in professional practice is a vital quality of a modern specialist, but it is not enough by itself. To maintain competitiveness, specialists must constantly engage in self-education and advance their level of knowledge.

Self-education is an integral part of shaping the information culture of future economists. The ability to learn and adapt to new technology and software is critical to maintaining competitiveness in an ever-changing job market. Self-education activities may include learning new software, attending seminars, participating in online courses, and keeping abreast of industry news and trends. Therefore, the ability to self-study is closely tied to the development of information culture.

The characteristics of a modern economic specialist include high theoretical training, fast learning ability, computer skills, and communication skills. A specialist should have competencies in accounting, planning, commercial law, mathematics, financial management, entrepreneurship, information technology, and marketing and should easily adapt to new business needs. One of the important requirements is the ability to work with computers and digital devices in an information-rich environment, organized local networks with text, graphic, and other editors, spreadsheets, databases and knowledge bases, other applied software, etc.

Panova et al. (2023), points out that future economists need to be able to act quickly in the context of competition and professional risk and be ready to continuously update and improve their professional knowledge throughout their lives. Certainly, the development of information culture as

a complex characteristic of a specialist's personality is an ongoing process that does not stop at the end of a particular course of study but continues throughout life.

Modern ICTs are defined by researchers (Grigorieva et al., 2022; Kudashkina et al., 2022) as an important tool in training economics students. ICT can be utilized to support the learning process through the introduction of learning management systems, visualization devices, and independent project support. ICT is useful at all stages of the learning process, including the presentation of new information, consolidation of knowledge, and the completion of educational tasks. It is also helpful for self-education and informal learning. By studying and using ICT, future economists can cultivate their abilities to work with these tools and apply them to a variety of professional activities, particularly the use of application software.

As an object of the study ICT allows for the development of future economists' abilities to employ these tools in various types of professional activities, in particular in the aspect of working with application software.

Under the general approach, there are two main groups of application software: general-purpose and professional. The first group refers to general-purpose applications designed and used by a wide range of users to solve a broad spectrum of information tasks. In particular, these include text, spreadsheet, and graphical processors, database management systems, network programs, etc. The second group includes applications, the use of which requires the user to have certain professional knowledge. They allow for solving professional tasks within a particular subject area.

Thus, the purpose of this study is to assess the level of competence of economics students in the use of modern ICT and software and the level of their potential ability to use it in professional practice, as well as to develop organizational and pedagogical recommendations that will promote the improvement of future economists' information culture.

MATERIALS AND METHODS

The adopted research design was a qualitative study based on the examination and description of collected data.

To determine the features of information culture development in economics students, the study employed a survey of economics students (specialty "Accounting and Taxation"), including 1st-year students (150 people) and 3rd-year students (80 people), 230 people in total, aged 17-22.

The survey of future economists was carried out to establish their general satisfaction with the teaching of information disciplines, as well as to determine the main problems, advantages, and needs in the process of development of their information culture.

The survey was conducted in September-November 2022 based on the Nizhny Novgorod State University of Engineering and Economics, Kazan Federal University, National University of Science and Technology MISIS, Khabarovsk State University of Economics and Law, and Moscow Polytechnic University.

Data collection was performed with an anonymous survey consisting of four parts. The students were asked the following questions:

- describe the characteristics of a competitive specialist in the economic sector;
- assess your experience in using various software, including general and professional tools, based on the level of knowledge of their language (i.e. fluent, qualified, familiar only with the name, or unfamiliar with);
- assess your competence in using modern ICT and software, as well as the potential need to use them in professional practice;
- etermine the factors that affect the level of proficiency in ICT.

Statistical data processing was performed using Excel.

RESULTS AND DISCUSSION

Table 1 provides the results of the survey addressing the characteristics of a competitive specialist in the economic sector.

Table 1. Characteristic of a competitive specialist by economics students, %.

Characteristic	1st year	3rd year
Professional competence	69.7	48.1%
High-level ICT experience	56.4	46.2%
Deep theoretical and methodological knowledge	67%	42.3%
Understanding of modern economic processes	50.9	37.8%
Knowledge of a foreign language	60.8	34.4%
High social competence	46.2	31.6%

Students in the 3rd year are found to prioritize characteristics related to proficiency in ICT, while 1st year students emphasize theoretical and methodological knowledge, as well as mastery of a foreign language.

Study of Malyuga & Petrosyan (2022), confirm that the ability to use modern ICT is a critical condition for the competitiveness of a modern specialist, including in economics.

Figures 1 and 2 report on students' responses about their experience with different software.

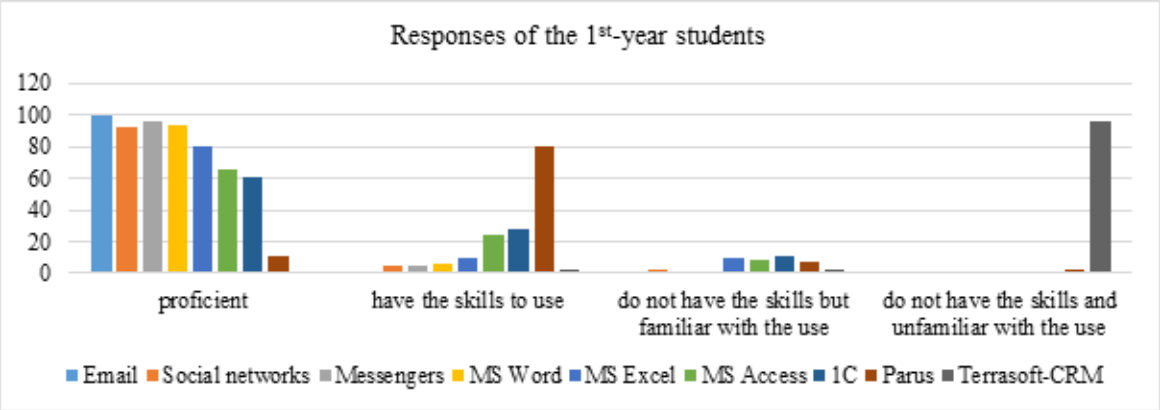

Figure 1. Responses of the 1st-year students.

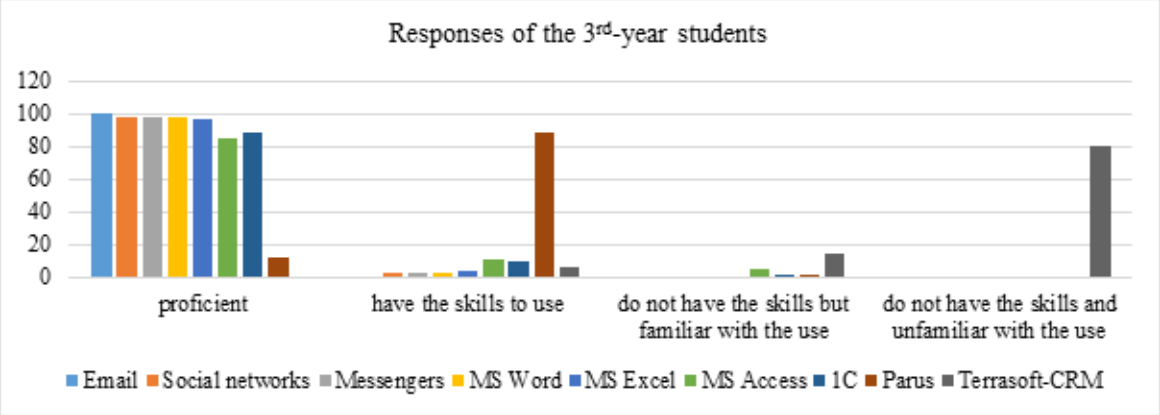

Figure 2. Responses of the 3rd-year students.

The list of software for self-assessment was compiled with regard to the expediency of their use in the professional practice of future economists.

The responses of 1st-year students regarding general-purpose software are almost identical to those of 3rd-year students, except for fewer students fluent in MS Excel and MS Access. Considering professional software, 1st-year students are yet unfamiliar with the use of such systems, although they have heard of 1С, Parus, and Terrasoft-CRM.

The use of specialized software and economic information systems in the educational process can help economics students understand processes within an enterprise and the performance of various financial and analytical tasks, such as data processing, accounting, and reporting.

Considering the vital role of modern ICT and digital information systems in the operation of enterprises and managerial decision-making, knowledge and mastery of these technologies by future economists are crucial for the development of their information culture and for preparing them to become competent professionals.

Responses about the level of competence in using modern ICT and software are distributed as follows (Figure 3).

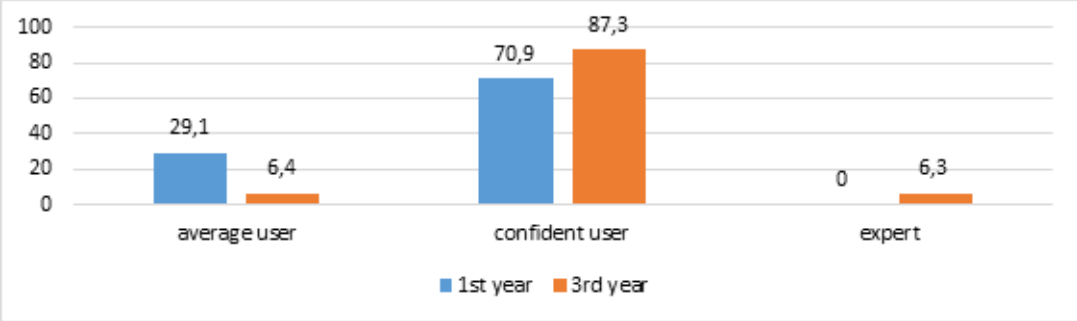

Figure 3. Students' self-assessment of their competence in using modern ICTs.

Regarding the level of competence in using modern ICT and software and potential readiness to utilize them in professional practice, the majority of 3rd-year students rate themselves as confident users (87.1%) able to work with a variety of software tools and easily mastering information disciplines at the university; 9.7% assess themselves as average users who know how to work with individual applications and more or less successfully master information disciplines at the institution; 3.2% believe themselves to be experts who are fluent in many software tools and often have better knowledge and skills than those provided by the university. In the meantime, only 68.2% of 1st-year students assess themselves as confident users, 31.8% rate themselves as average users, and no one yet places themselves at the expert level.

Further on, among 3rd-year students, 74.2% deem their proficiency in ICT sufficient for professional practice. On the other hand, less than half (46.8%) of 1st-year students believe their level of competence in ICT sufficient to use them in professional work, and less than half (53.2%) consider it inadequate.

In this respect, research suggests (Kotlyarova, et al., 2023) that future economists need to be able to not only use the specified software but to compare various software products, know their characteristics and functions, and issue tasks to programmers to develop those that will solve the given professional problem in the best and most rational way. These abilities are developed as part of the practical use of different software not only in the study of information disciplines but also in the profile, economic disciplines, and in the performance of educational and professional tasks of various types and complexity. Practically, the development of future economists' information culture should be continuous (Ramazanova et al., 2022), carried out throughout the whole period of professional training, and continued in the future through self-education.

Among the factors promoting the development of information culture, the respondents note: more class hours for information disciplines; introduction of special additional disciplines and electives of informational and professional direction; ensuring the availability of ICTs and Internet access at university and home (in the dormitory); more time for independent work.

The conducted survey shows that 3rd-year students are more interested in the introduction of additional informational and professional profile courses and electives in the educational program as compared to 1st-year students. This can be attributed to the fact that 3rd-year students, having studied for more than two years, are more focused on the practical application of the obtained skills and gaining practical knowledge and skills in the sphere of information technology.

The presented study gives grounds to offer some recommendations on the organizational and pedagogical conditions for the development of information culture in economics students.

These conditions include:

- sufficient level of technical support,
- high level of information culture among the faculty,
- introduction of ICT at different stages of the educational process,
- continuous development of students' information culture,

- introduction of a system of measures to stimulate participants in the educational process. These recommendations can ensure that all participants in the learning process have a general understanding of the expediency of using modern ICT at different stages of the educational process with the systematic study and practical work on the use of general and professional software, which fosters information culture and promotes the competitiveness of economics students.

The importance of ICT in the training of economics students has been repeatedly emphasized in research. Gladilina et al. (2022), find that the application of ICT in economic education can improve academic performance and learning outcomes. A study demonstrates that the use of e-learning platforms and multimedia materials in economic education can provide a better understanding of complex economic concepts and theories. Thus, the recommendations developed in this study are consistent with previous findings and can establish a valuable foundation for the development of economics students' information culture.

Furthermore, Baideldinova et al. (2021), identify several factors that can affect the development of ICT competence in students, which include the availability of ICT resources, the quality of ICT training programs, and the level of teacher engagement. Our study also emphasizes the importance of the technical conditions of education and the implementation of ICT at various stages of the learning process in the development of information culture in economics students.

Overall, both the present study and previous research support the importance of integrating ICT into the educational process and offering students opportunities to advance their information culture.

CONCLUSIONS

Our work is aimed at investigating the means and organizational and pedagogical conditions for the development of students' information culture, self-education, and knowledge as factors in the development of competitiveness of economics students.

The research findings give evidence that self-education plays a vital role in the development of ICT skills and knowledge of a modern specialist.

It should be emphasized that the development of information culture is a continuous process requiring constant self-improvement and learning. For this reason, it is critically important to provide students with the necessary resources and support for their self-education. As an example, educational institutions can offer access to online resources and databases, provide learning materials and manuals, as well as encourage students to take various online courses and join educational programs that relate to the field of their studies.

Furthermore, it is essential to foster a culture of continuous learning in students, which involves not only obtaining new knowledge and skills but developing critical thinking and problem-solving skills. Encouraging students to take an active part in their learning and providing them with the necessary resources can help them become more competitive specialists able to adapt to new challenges and changes in the labor market.

Despite the successful steps outlined above, it is worth noting some aspects that need improvement, in particular, balancing the number of hours of practical training for a deeper mastery of professional software and expanding the range of software studied by adding what is in high demand in the economic sector.

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