The Role of Competencies in the Educational Process of Training Future Specialists in the "Labour Training and Technologies" Speciality

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Abstract

From a theoretical point of view, Ukrainian education for teachers of the "Labour training and technologies" specialty is in the process of searching for effective methods that would ensure the future education of schoolchildren through the transfer of relevant competencies, which are regulated by education standards. Such competencies have been analyzed in the present research. In addition, the theoretical developments of both domestic and foreign teachers, in particular, of Scandinavian countries, are taken into account in the formation of labor education for schoolchildren. The present research pays particular attention to the newest standpoint in the assessment of the perception of competencies and their understanding by students of the "Labour Training and Technologies" specialty. The academic paper represents the results of acquiring the competencies by students of the "Labour training and technologies" specialty at the Central Ukrainian State Pedagogical University named after Volodymyr Vynnychenko. The main revealed regularities indicate the fact that students of the corresponding specialty quite superficially understand the role and significance of mastering the competencies defined by the standard of Ukrainian education. A characteristic feature of acquiring the competencies by students is their awareness of civic and social competencies. Competencies in the field of natural sciences, engineering and technology, and innovation are perceived by them to a lower rank. The research has identified the most painful problems regarding competencies that are not perceived by students, namely: creative activity, information, a communication component, and culture. Insufficient attention is paid to mathematical competence, financial literacy, and the environmental component. The results of the present research have indicated the need for additional discussions on the methods of perception of competencies by students to improve the educational process and curricula towards increasing learning efficiency. The research results obtained create opportunities for a more flexible expansion of applying existing digital systems in the formation of competencies according to educational standards and the implementation of a motivational approach in increasing the level of self-development of students and teachers of the "Labour Training and Technologies" specialty.

Keywords: competencies, education standards, labor education of schoolchildren, self-development, lifelong learning of creative activity

1. Introduction

The modern system of providing educational services to students is based on the approach of learning through the formation of relevant competencies (Brauer, 2021). It is assumed that the system of competencies will ensure the transfer of knowledge and skills to schoolchildren by graduates of pedagogical higher educational institutions (López-Meneses, 2020). Therefore, the educational standards of Ukraine distinguish the following competencies: mathematical competence, entrepreneurial and financial literacy, engineering competence, fluency in the state language and the ability to communicate in native and foreign languages, environmental competence, competence in natural sciences, innovative competence, information, and communication competence, lifelong learning, civic and social competence, cultural competence, etc.

Future teachers of Ukrainian secondary schools specializing in labor training and technology should develop not only the competencies defined by the education standards, but also understand and form the so-called soft competencies that arise in the process of educational services among schoolchildren. The task of the Ukrainian teacher is to develop the student's creative inclinations and direct them toward their progress and achievements, which becomes a generator of further motivation in self-development and creativity. Such an approach should positively and effectively influence the quality of the entire educational process, from a schoolchild to a student and a practicing school teacher. Bazurin (2018) adheres to this opinion and points out that the main problem for students of the "Labour training and technologies" specialty lies in the content of students' interdisciplinary responsibilities. In particular, Tsisaruk (2020) derives a structural-functional model of the future teacher of labor education and technologies, which includes the social direction of the teacher's continuous professional development through life-long learning in the process of carrying out his professional activities. Tereshchuk & Abramova (2020) explain the competencies differently. According to their viewpoint, competencies should be formed based on the student's portfolio. This is a new tendency in the “New Ukrainian School” strategy, which obliges students towards engaging in creative projects during lessons. Borodina et. al. (2019) prove that competencies should be formed at the expense of students’ project activities and the activation of their creative abilities in the implementation of specific practical tasks facing the projects.

Tsvilyk (2018), and Kulinka note the direction of improving the competency-based approach of future teachers through project activities (2018). The COVID-19 pandemic and the transition to online learning have become a promising direction for developing students’ competencies. (Baek, 2020; Hamdan et. al., 2021; Kumar et. al., 2021). Following such conditions of study, a new approach has been initiated, and it is being developed, which requires the possession of information and communication competencies (Njoroge, 2019; Vanslambrouck, 2019).

Thus, according to various pedagogical authors' viewpoints, multifaceted competencies constitute the basis of training future teachers of the "Labour training and technologies" specialty. At the same time, they should be improved throughout the teacher’s pedagogical activity through his self-development and creative inspiration. This will encourage students to get involved in practicing labor technologies and to be engaged in implementing their creative projects, ideas, etc.

Therefore, educational standards and scientists unanimously affirm the need to develop students’ competencies. Such a vision causes the fact that educational services should be provided exclusively according to the competencies’ data. At the same time, students’ awareness of the role of competencies and their importance in further employment after graduation from the university falls outside the scope of the present research. That is, the issue of acquiring knowledge has become one-sided, without taking into account feedback from students. Along with this, the mass research of competencies has excluded the feedback reaction of the student audience. Thus, our research is based on assessing the perception of the competencies outlined by students based on the standards of Ukrainian education and their understanding and subsequent implementation in their further professional activities.

The purpose of the research is to characterize the domestic system of higher education for students of the “Labour training and technologies” specialty from the standpoint of understanding professional competencies in the future pedagogical activity of a teacher of labor training and technologies. According to the purpose, the objectives of the research are as follows:

- to assess the perception of competencies criteria by students that set standards for Ukrainian education;
- to identify the main problems in the formation of professional competencies for future teachers of the "Labour training and technologies" specialty.

2. Methodology

In the course of the research, a comprehensive approach has been applied that corresponds to the tasks set, as well as the specifics of the social component of training future teachers of labor education and technologies. For this purpose, the survey method was used. Identification and outlining of competencies was implemented based on fundamental analysis – induction and deduction. Qualitative and quantitative approaches in the processing of answers to questionnaires have been applied. The questions of the questionnaire were open and closed. There were also questions of choice according to the level of difficulty, from the significant rank to the little significant one. The student's knowledge of the definitions of official education standards was verified. The open questions were related to the essence of understanding competencies and awareness of their role in the educational process and the development of students’ creative activity. The questions of the questionnaire also determined the possibility of assessing students’ acquired skills during education in two directions, namely: the theoretical-methodological approach of the

procedural-content direction and the interactive direction. Another direction is the manifestation of understanding the purpose, conceptual principles, structural components, means, levels, and indicators to improve educational programs and complexes.

The survey was conducted among students of the "Labour training and technologies" specialty at the Central Ukrainian State Pedagogical University named after Volodymyr Vynnychenko (Ukraine). 100 masters and 350 bachelors took part in the survey. At the same time, the survey was included in the structure of auditorium classes on the relevant topics; consequently, the duration of the entire survey was 2 semesters. Additional points in the assessment of topics became a motivational mechanism for the surveyed students.

3. Results

The analysis of the questionnaire was carried out exclusively based on the assessment of the understanding of the competencies of future teachers. As a result, only 46% of respondents are aware of clarification and understanding of competence categories, and in fact, 34% of surveyed students have insufficient understanding of the need and role of competence both in university education and in professional activities as a teacher of labor education at school. In addition, 11% of respondents do not have a strategic vision for the change and cyclical deployment of secondary school teachers' competencies. Students have the same problem with the formation and development of creative activity (10%).

The system of training future teachers of labor education and technologies lies in understanding students exclusively through knowledge and comprehension (the purpose of the labor training teacher, his social role in the school and Ukrainian society, and applying the methodological approaches in the labor education of schoolchildren). This answer was obtained from 77% of the surveyed students. The role of the procedural-semantic block in the formation of the competencies of schoolchildren is noted by only 14% of the respondents, and mainly masters (8%). The lowest understanding of the impact on the formation of competencies by students, including masters, was manifested in the misunderstanding of the theoretical and methodological block and social order. Such survey results point to the fact that young people mainly prefer the cultural heritage of the people in education, and almost do not take into account the proposed legislative norms for the formation of competencies. This conclusion reveals in more detail and complements the third block of understanding and perception of competencies by students according to educational standards.

Civic and social competencies, perceived by students, occupy the leading place (52%); students also give preference to competence in the field of natural sciences, engineering, and technology - (47%) and innovativeness - (46%), which indicates the strong creative potential of students; however, at the same time, mathematical abilities are relatively low, they are noted only by 32% of surveyed students.

The worst state in terms of competence formation is the information and communication component (15%) and culture (17%). Such a low level is also explained by the environment of young people. By the way, this environment has a huge overall significant impact on the psychological aspect of the student. Almost a third of students pay attention to language competence formation, while the emphasis is on the native language compared to English (36% and 28%, respectively). It should be noted that students understand the role of the English language; however, the low level of the information and communication component does not allow students to reveal their creative potential and thereby develop life-long learning (throughout life) - 34 %. Considering the low level of financial literacy (26%) - the issue of commercialization of one's specialty on the market among students is just being formed.

The low level of environmental competence (25%) is a reflection of the real environment of students and their lives. Ecological problems in Ukraine at the mundane level do not occupy a priority level.

Thus, the obtained results are not the real state of affairs in the formation of competencies. They only generally characterize the signs, and, thus, outline the basis for scientific discussion and further investigation.

Several innovative methods can be used to encourage and convince education seekers of the need for lifelong learning:

1) Personalized learning experiences: Using data analytics and AI-driven technologies to create personalized learning experiences can help education seekers understand the relevance and importance of lifelong learning. These experiences can be tailored to each individual's needs, interests, and learning styles, making the learning experience more engaging and effective.
2) Digital badges and micro-credentials: Digital badges and micro-credentials can be used to recognize and validate the skills and knowledge that education seekers acquire through lifelong learning. These badges can be displayed on online platforms and social media, providing tangible evidence of the value of ongoing

learning and development.

3) Gamification: Gamification techniques can be used to make lifelong learning more fun and engaging. By incorporating game-like elements such as points, badges, and leaderboards into the learning experience, education seekers are more likely to be motivated and committed to ongoing learning.
4) Social learning: Social learning platforms and communities can be used to create a sense of community and support for education seekers pursuing lifelong learning. These platforms enable learners to connect with peers, mentors, and experts in their field, providing opportunities for networking, collaboration, and knowledge sharing.
5) Mobile learning: Mobile learning technologies can be used to make lifelong learning more accessible and convenient. By leveraging mobile devices such as smartphones and tablets, education seekers can access learning materials and resources anytime, anywhere, and at their own pace.

Overall, by using these innovative methods to encourage and convince education seekers of the need for lifelong learning and the role of information and communication competence and culture, individuals and organizations can create a culture of continuous learning and development that benefits both individuals and society as a whole.

4. Discussion

The issues of labor education competencies are widely considered in world science regarding the development of the subject field of labor education and technologies. Let's note the main provisions. Pöllänen & Urdziņa-Deruma (2017) define craft education as a description of the existing craft education and its problems that will intensify shortly, as well as models of its future development. The authors clearly defined the role of labor training and technologies and characterized their further development.

School education of labor training was considered by Lepistö & Lindfors (2015) as the study of individual topics of the school course. The investigations conducted at the University of Turku, Faculty of Pedagogy (Rauma) have revealed that the education of crafts is subject to significant gender influence. At the same time, the authors emphasize that the training crafts are implemented in the following directions: the formation of various skills in physical labor, the development of the reflexive activity of schoolchildren, and the ability to use multi-functional materials. In the conceptual approach, teaching children crafts is focused on mastering the whole craft and further transferring it into entrepreneurial activity. At the same time, it is possible to feel and perceive the craft as a source of creativity that brings mental satisfaction to craft education.

Problems of the gender factor in the labor education of schoolchildren were examined by Niiranen & Ilmola (2016). According to their recommendations, it is necessary to attract more women to technological education in higher educational institutions. The authors propose educational complexes, according to which women can master crafts during university studies and implement them after graduating from university in various technological areas of modern production.

The study of craft education in higher educational institutions was conducted by Kokko (2018), where the scholar notes that her approaches and differences in various higher educational institutions are related to the learning goals and career prospects of students. By the way, the factors taken into consideration in the process of its formation have been identified, namely: traditional crafts, crafts of cultural heritage, and crafts based on design. Subsequent studies conducted by Kokko & Räisänen (2019) are related to the priority of the UNESCO Convention on the Safeguarding of the Intangible Cultural Heritage. Therefore, in Finland, the development of craft education towards supporting and developing the traditions of textile crafts has been determined as a priority one. And school teachers should set this development.

It should be noted that craft education is studied in the Scandinavian countries (Kokko et al., 2020); the scholars pay particular attention to the practicing teaching methods: multidisciplinary methods and methods in various theoretical courses. In Sweden and Norway, craft studies have been based mainly on the field of architectural and social heritage conservation, with attention to ancient crafts and informative fundamentals of intangible cultural heritage. At the same time, the educational program for the development of the craft in Norway and Sweden is aimed at the field of architecture and design.

Finland is characterized by the process of restructuring the education of teachers of general crafts. Such changes are caused by insufficient state funding of school and academic education. However, despite such changes, Finland's leading educational institutions are fruitfully dealing with these problems and have developed a learning scheme

through slide learning, craft skills education, and design (Ronkko et. al., 2016). At the same time, the emphasis is on creativity in the skills of performing various project tasks, developing a plan, and implementing projects. In general, the education of Finnish teachers is focused on training teachers of general crafts. Teachers are focused on the technical aspect of education, and the participation of students in design projects is superfluous because it is a complex and responsible process (Kokko, 2018; Kokko et al., 2020). The situation in the country with education and training is characterized by the general influence of basic education on the development of the concept of craft education (Porko-Hudd et al., 2018).

In general, certain types of craft education are distinguished for the Scandinavian countries, namely: extraction of the craft and reconstruction of the craft, its interpretation in modern conditions, expansion of the craft, and socialization to the rank of entrepreneurship of the craft.

World experience has developed separate effective provisions on the system of labor training through its combination with craft. After all, it is expedient to use it in the Ukrainian system of training teachers of labor education and technology.

5. Conclusions

The system of training future teachers of labor training and technologies is a system that has been developed in the country due to cultural and social relations. Consequently, it is implemented in different ways for different countries. However, the general regularities dictated by the environment of market relations are also followed; they include the elements of introducing an entrepreneurial approach and modern elements of design education. Foreign scientists study labor training from the standpoint of vocational training, which is characteristic of Scandinavian countries. However, this approach has its problems, which are primarily based on the level of state funding of educational institutions.

For Ukrainian education in the direction of labor training, the effectiveness of the training of the specialists comes through the formation of a systematic approach in educational programs due to the creation of students' competencies of the relevant specialty. Educational subjects are combined with a contextual approach (which forms the professional competence of future teachers and ensures self-development through professional development) and a creative approach in the practical training of schoolchildren in the relevant subject.

The dynamics of the professional competence formation of university students is carried out as an interconnected system with the following elements: content, motivational-value, analytical-corrective, and activity. It is these elements that provide separate components of professional competence, namely: cognitive, activity, reflexive, and motivational-value ones.

The analysis of the questionnaire responses of the students of the "Labour training and technologies" specialty have revealed the necessity to create recommendations regarding the model of the formation of priority components in the development of competence that students should acquire during their studies:

- the student is an integral subject of the educational process of the corresponding program; therefore, teachers should focus on the development of the student’s self-esteem;
- it is necessary to link the professional orientation of the content of educational programs and courses with the future professional activity of the future teacher;
- orientation of professional education on the student's features to reveal his creative potential;
- technologies of professional education should be aimed at revealing the patterns of professional development of an individual;
- the profession of a labor and technology teacher should break new ground.

Regarding education standards, which determine the formation of priority competencies of the future school teacher of labor and technologies, student youth most perceive civic and social competencies, as well as competencies in the field of natural sciences, engineering, technologies, and innovativeness. The problem for students is a lack of awareness of information and communication competence and culture. In addition, two-thirds of student youth aren’t aware of the necessity of life-long learning (throughout life). Along with this, the development of mathematical competence and business acumen, and financial literacy remains a problem for students. Thus, the pedagogical orientation of teachers should be focused on increasing financial literacy and commercialization of labor education at school.

The further direction of the study on competencies should be aimed at improving the educational process and curricula

to increase the student's awareness of those competencies that are perceived by students as insufficient.

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