Model of Future Teacher's Professional Labor Training (Art & Craft Teacher)

Valentyna Tytarenko

Doctor of Pedagogical Sciences, Professor, Dean of the Faculty of Technology and Design, Korolenko National Pedagogical University
0000-0002-0553-4277 БурикЗоряна

Andriy Tsyna

Doctor of Pedagogical Sciences, Professor, Faculty of Technology and Design, Head of the Department of Theory and Methods of Technological Education, Korolenko National Pedagogical University 0000-0002-8353-9153

Valerii Tytarenko

PhD of Pedagogical Sciences, Senior Lecturer of the Department Of Production And Information Technologies and BJD, Korolenko National Pedagogical University 0000-0003-2362-2876

Mykola Blyzniuk

Doctor of Pedagogical Sciences, Professor, Faculty of Technology and Design, Department of Theory and Methods of Technological Education, Korolenko National Pedagogical University

0000-0002-8339-4118

Oksana Kudria

PhD of Pedagogical Sciences, Associate Professor of the Department of Production Information Technologies and Life Safety, Faculty of Technology and Design, Korolenko National Pedagogical University 0000-0002-4602-9883

Abstract

Economic transformations have led to an increase in the role of creative assets and their central role in public life. Changes in creative activity have led to a change in the organization of the work of institutes engaged in the training of specialists, in particular teachers of labor education. Methods and approaches to training determine the development of creative industries, being the basis for models of professional training of future teachers of labor training. The purpose of an article was to develop a modern model of professional training of future teachers of labor training based on the concept of creative economy. The methodology is based on the concepts of holistic craft and creative economy. Based on the integration of pedagogical learning models "Craft as design and problem-solving", "Craft as skill and knowledge building", "Craft as product-making" and "Craft as self-expression" developed and experimentally confirmed the conceptual model of professional training of future teachers of labor training. The proposed model forms a practitioner with professional, technical, digital and creative skills who is able to transfer the experience to students. The training course "Creativity and creative thinking" has been developed. The model provided for the development of a course based on the strategy of developing professional creativity, flexibility, improvisation, openness, student activity, joint practice, student-oriented approach. The practical value implies the adaptation of the developed model of professional training of future teachers of labor education during the training of teachers in higher education, which is confirmed in the experiment.

Keywords:

creativity in labor training, the concept of holistic craft, studentoriented approach, creative economics.

1. Introduction

The model of professional training of future teachers is characterized by problems of formation of professional competence of the teacher of labor training and technologies. The scientific educational environment discusses the prospects for the development of technological education in modern secondary school, the problems of specialized and vocational education of young people in the modernization of educational standards. The issues of formation and formation of modern professional education of future teachers of labor education, improvement of draft standards of professional training of teachers, development of technological educational branch are of active interest among scientists. Among the problems are also the effectiveness of the educational process in the economic crisis and quarantine, the impact of the fourth

industrial revolution on the formation of content, methods of teaching labor disciplines in secondary education.

Proponents of art, economists and politicians argue for active economic transformations due to the influence of creative industries (globalization, digitalization and the emergence of new professions, changing the role of educators, the boom of intellectual property and products, changes in consumption due to leisure problems). These trends significantly affect art and culture. In particular, art is now understood as a driver of economic growth and development. Scientists and experts note the central role of creative cities, creative clusters, creative economies, and the "rise of the creative class" (Tepper, 2002). "Learning, living, and working in a changing world challenges us to redesign our educational practices and extend the boundaries of traditional learning" (Pöllänen & Urdzina-Deruma, 2017). Governments of different countries assess the impact and scale of the creative economy as an important indicator of the economic condition of the country. Thus, economic transformations have led to an increase in the role of creative assets and their central role in public life. This means changes in creative activity and a change in the organization of work of institutes that train specialists, in particular teachers of labor training. The development of creative industries depends on the methods and approaches to training. Models of professional training of future teachers of labor education are transformed, taking into account certain economic and social transformations of society. The development of students' creativity and creative thinking in future work, life and society is becoming an increasingly important task for teachers (Sawyer, 2017). In many countries, there is a transformation of students' learning at school in order to enhance creative outcomes (Sawyer, 2017). The European Union designated 2009 "The European Year of Creativity and Innovation," proclaiming that "Europe's future depends on the imagination and creativity of its people (2009). The OECD, with membership including 35 advanced economies, has concluded that creativity is increasingly necessary for individuals and for societies (OECD, 2008). At the national level, schools integrate creative approaches to student teaching (Craft et al., 2014). However, little research has been done on the development of creativity of the studentfuture teacher and his transfer of creative skills to students. The purpose of the article is to develop a modern model of professional training of future teachers of labor education based on the concept of creative economics and by integrating the course "Creativity and creative thinking" in the educational program of students of pedagogical university.

2. LITERATURE REVIEW

In the scientific literature, four main models of professional training of future teachers of labor training

have been developed (Figure 1). "Future-oriented pedagogical models illustrate the shifting focus from the end product and a person's skillfulness to abilities that can be recontextualized" (Pöllänen & Urdziņa-Deruma, 2017). These models take into account creativity, which is usually used to denote the act of producing new ideas, approaches or actions; whereas innovation is the process of both generating and applying such creative ideas in a specific context (Tillander, 2011). As a process, creativity is defined as the application of synthetic, analytical and practical thinking (Tillander, 2011). "Art education is a site where creativity can be developed and nurtured for all students with emphasis on both individual processes and cultural practices" (Zimmerman, 2009). Problem-finding, problemsolving, divergent and convergent thinking, self-expression, and adaptability in new situations are all traits commonly associated with general creativity (Zimmerman, 2009). There is a research, which demonstrates, that problemfinding and problem-solving skills can be taught and students' abilities to be productive thinkers and creative problem-solvers can be nurtured (Zimmerman, 2009). The integration of a creative approach provides a greater level of opportunities for future employment professionals (Ashton, 2015) and increased interest in learning, perception of non-artistic disciplines as art (de Arriba, Girardi & Vidagan, 2019). "Crafts have recently been experiencing a renaissance" (Jakob & Thomas, 2017); "Creative skills and capacities are emerging as a central focus of twenty-first century learning" (Harris, & Ammermann, 2016). Therefore, higher education institutions are aimed at implementing the state policy of "creative economy" (Banks & Oakley, 2016) due to concerns about the future employment of professionals in the field of labor training (Frenette & Tepper, 2016; Bridgstock & Cunningham, 2016). Teachers of labor education shape value and their creative skills become increasingly important (Bridgstock & Cunningham, 2016).

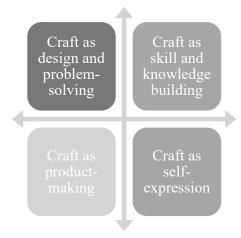


Figure 1. Pedagogical models for learning craft teacher

Source: generated by the author.

Craft is seen as a design and problem solving. Craft is understood as the creation of a product in accordance with the instructions and the use of ready-made models. Training in this case is based on clear instructions and the use of the usual traditional approach. As a model use drawing, instructions from books or magazines, needlework, photographs. The technique or material is determined in advance. Students work according to the proposed scheme of work and the curriculum in order to complete the production of the artifact. The main disadvantage of this approach and model of training is the lack of creativity, the student in the process does not develop skills for critical cognitive thinking. Among the main advantages - the formation of technical skills, including the ability to clearly complete the product. Thus, as a pedagogical model, craft as a production is based on instructions. Teaching takes place according to the internal logic of the subject, and the content is sequentially distributed and arranged by episodes (Reigeluth, 1999). Practice forms the understanding and awareness of objects. The learning process contains clearly defined goals, knowledge in a structured form for skills development and control of acquired knowledge (Romiszowski, 1999). Independent work is stimulated by automatic procedures, practices and instructions. At the same time, there is no feedback, there is a need to develop the inner essence, in the psychological preparation of students to understand students' assessment of products and improve student assessment skills (Romiszowski, 1999). Providing information or skills in the form of a ready-made package can lead to passive participation in the learning process. To form the value of labor training and awareness of the importance. The transition from simple mechanical imitation to reflexive imitation requires explanations, advice and feedback from students to future teachers (Hiebert, Morris & Glass, 2003). It also takes into account error correction, question formation, communication, knowledge modeling, skills and workflow. Self-regulation develops through an indirect process of modeling and explicit guidance, through teacher-directed thinking of students (Paris & Winograd, 2003).

The main goal of the Craft as design and problem-solving model, in addition to developing basic skills, is to solve design problems or problems. During the training, the solution of real design problems is achieved, for example, in the lower grades we have to develop a homemade toy, which is functional according to the standards of convenience and technical and aesthetic qualities. The Craft as design and problem-solving model includes long-term research, use of many sources, theoretical and practical

materials, collaboration with other students and experts, reliable assessment and reflection.

The Craft as skill and knowledge building model involves the formation of specific skills and a specific form of craft, which includes aspects of understanding techniques, materials and traditions (Pöllänen & Kröger 2004). This type of pedagogical model provides a context for craft education based on cultural traditions and heritage (Garber, 2002).

The model of teaching "Craft as product-making" involves the provision of recommendations by the teacher regarding the appearance, and in the educational process uses a student-oriented approach. This means that the teacher chooses tasks focused on the needs of the student and his abilities, knowledge, skills. The learning process is key, where the learning situation is transformed into experience and resource formation.

The pedagogical model of teaching "Craft as self-expression" is based on the concept of "holistic craft". The manufactured artifact can be defined as a craft (Karppinen, 2008) or avant-garde craft (Ihatsu, 2002). This type of craft means not only making objects, but also demonstrating students' skills, knowledge, thoughts, experiences, perceptions and feelings to other people (Karppinen, 2008). The study of models of professional training of future teachers of labor education allows us to conclude that there is no holistic student-oriented approach to teacher education in the context of creative economics. This requires the integration of existing models in terms of the needs of professionals with creative thinking skills in the field.

3. METHODOLOGIES

This article uses the concept of creative economics to integrate into the model of training future teachers of labor education to form the value of learning through the prism of originality (Tepper, 2002). We developed a model of professional training of a labor education specialist and tested this model during the educational process of students of future teachers of labor education of Drohobych State Pedagogical University named after Ivan Franko (DSPU). To develop the model, the Educational Program "Secondary Education - Labor Training and Technology" was analyzed for the first (bachelor's) level of higher education, field of knowledge "Pedagogy", specialty Specialty 014 Secondary Education (Labor Training and Technology). After identifying approaches, features of the educational process. Approaches used for training and formation of competency frameworks,

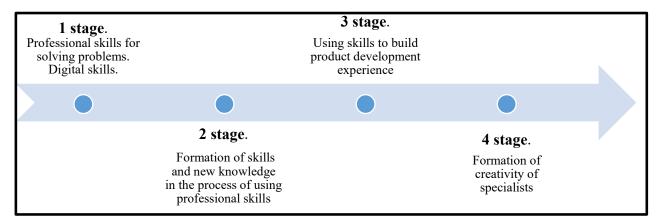


Figure 2. Conceptual model of professional training of future teachers of labor education Source: developed by the author.

At the first stage of training, based on the studentoriented approach, the teacher transfers to the future teacher knowledge (methods, principles of preparation of pupils), skills of the decision of problems in the course of receiving education, digital skills for the best communication are formed. This process correlates with the considered model of training "Craft as design and problem-solving", where clear instructions and training schemes are key in the educational process. This stage is necessary to obtain basic knowledge, without which it is impossible to form creativity, the formation of technical skills, in particular the skill of clear completion of the product. At the 2nd stage, skills and new knowledge are formed in the process of using professional skills. This means that the future teacher develops the skills of self-reflection and critical thinking in practice, thus forming new knowledge in the process of their own professional experience. At the 3rd stage the skills are used to form the experience of product development. This stage correlates with the learning model "Craft as product-making", where teachers actively interact with the student, the future teacher as a mentor, providing feedback and evaluation of the final products. In fact, this stage involves the provision of recommendations by the teacher regarding the appearance of products, and the educational process uses a student-oriented approach. Stage 4 involves the formation of creativity of professionals for selfexpression, which correlates with the model of learning "Craft as self-expression", which is based on the concept of "holistic craft". Thus, the proposed model forms a practitioner with professional, technical, digital and creative skills who is able to transfer the experience to students.

The conceptual model was tested during the training of students of Drohobych State Pedagogical University named after Ivan Franko (DSPU) in September - December 2020. The experiment involved 40 3rd and 4th year students. The experiment involved the development of the course "Creative Craft" and their integration into the educational process and the practice of professional activities of students. The course contained 5 lectures and 13 practical

classes, where within small groups there were discussions of modern art products, the practice of integrating heritage and cultural traditions in the works of students within the team activities (in groups). Students are encouraged to use software to develop products AutoCad in order to create an idea, design the design of a future work. For value, students are invited to develop a design industrial product. The experiment showed that professional training is based on the pedagogical model "Craft as design and problem solving". During the experiment, the training model was transformed in order to form creativity and the ability to generate ideas for design within the concept of creative economy.

4. RESULTS

Teaching and learning within the Educational Program "Secondary Education - Labor Education and Technology" is based on such basic approaches as student-centered learning (student-oriented), self-study with problem-oriented learning and learning through laboratory and practical training. The main forms of education are classroom, extracurricular activities and independent work. Among the teaching methods: abstract-deductive, research, problem-searching and partial-search, practical and interactive teaching methods. The pedagogical model of preparation of the future teacher of labor training provides formation of integral competence of students in the course of acquisition of knowledge, acquisition of abilities, communicative skills, responsibility and autonomy (Figure 3).



Figure 3. Pedagogical model of training future teachers of labor education Source: generated by the author.

Integral competence means the ability to solve specialized complex practical problems that arise in the process of teaching students in secondary education. This involves the use of conceptual teaching methods, namely: psychology, theory, teaching methods, characterized by the complexity and uncertainty of the conditions of the educational process in secondary education (Table 1).

Conceptual knowledge that future teachers receive in the process of learning and professional activity, involves obtaining information from modern sciences and in the field of technology, technology of artifact formation. At this stage, students develop critical thinking. The learning process involves mastering and understanding the basic theories, methods, principles and concepts of educational professional activity.

The formation of skills occurs in the course of solving complex problems and problems in specialized areas of education and professional activity. it also includes the collection and interpretation of information, data, the choice of methods and tools for applying innovative approaches to learning.

Communication means conveying to future teachers of labor training information, ideas and problems, possible solutions and personal experience in the field of professional activity. Students develop and develop the ability to form a communication strategy effectively.

Autonomy and responsibility include the management of complex actions within the group, projects, responsibility for failure to make their own decisions in unforeseen conditions, professional development of individuals, groups of persons. Autonomy is also interpreted as the ability to further teach a future teacher with a high level of autonomy.

Table 1. General competencies of future teachers of labor training

labor training	
General Competences (LC)	Essence
Value, understanding	Ability to self-realization of rights and
of rights and	responsibilities in society,
responsibilities	understanding of self-worth
Basic knowledge	Generalization of the main categories
	and concepts of the subject area
Self-study	The ability to constantly learn and
	acquire modern knowledge
Teamwork	Group and team skills
Communication	Ability to establish contacts,
	including foreign languages in
	various forms
Skills formation	Ability to use knowledge in practice
Digital skills	Use of information and
	communication technologies.
Understanding ethics	Integration of ethical motives and
	considerations in the course of
	activity
Adaptability	Flexibility and self-adaptation to new
	conditions
1	

Source: generated by the author.

In addition to the teacher's general competencies of labor education in the training process are formed professional competencies of the specialty: subject, interdisciplinary links; basics of goal setting, planning and designing the learning process of students; ability to objectively monitor and assess the level of student achievement; ability to find effective ways to stimulate the student's internal motivation self-development (interest, self-determination, conscious attitude to learning); protection of life and health of students, physical activity in the educational process; ability to educate in lessons and extracurricular activities, pedagogical support of the process of socialization and formation of students' culture; ability to think critically and analyze, diagnose and correct pedagogical activities, evaluation of pedagogical experience; use of systematized theoretical and practical knowledge about the properties of technology and materials; graphic and verbal description of the project, application of knowledge of technology and technique, graphic literacy, practical skills and abilities of design project documentation in the process of product development and manufacture; rapid development of new types of equipment, innovative technologies, advanced methods of organizing creative activities of students; knowledge of general issues (historical, methodological, economic, environmental, ergonomic, etc.) of technology and production, construction and principles of operation of technical systems; processing of raw materials, materials, product manufacturing using hand-held electrified tools, devices and machines; organization of technical, artistic, creative activity for the purpose of formation, development of knowledge of ornamentation, coloring, artistic drawing, plastic art, technologies of artistic processing of materials; use of pedagogical methods and educational technologies in order to ensure the quality of the educational process in secondary schools; control of labor discipline and safety of the educational process; organization and conduct of extracurricular activities.

Analysis of the curriculum "Secondary education - labor training and technology" shows the development of integrated competence of the future teacher, who has professional competencies, communication skills, teamwork skills, digital skills. This model of training requires the integration of teacher creativity, which will positively affect the motivation of students. The development of creativity based on the current model is appropriate: the teacher has a sufficient level of professionalism to be able to form creative thinking in the context of applying his knowledge in the creative economy. To form creativity in this study, a training experiment was conducted and a training course "Creativity and creative thinking" was developed. The course strategy included the following principles of teaching:

- 1. Flexibility, openness and improvisation of pedagogical practice.
- 2. Activity and independence of students.
- 3. The classroom is a community for practice.
- Pedagogy is aimed at developing professional creativity.
- 5. Student-centered approach.

These principles were used in the process of practical activities of students in seminars on the development of creativity. The problem-oriented approach was used in classes where students autonomously identified one of the socio-economic problems, selected methods for solving the problem, materials and techniques of implementation in accordance with the problem. This technique and practice stimulated creative thinking and the formation of new ideas based on existing methods of product production. Structured and unstructured tasks are used by the teacher to stimulate creativity, self-expression. This ensured unpredictable results. At the end of the development, design, production of the product, each student received an

assessment, diagnosis from colleagues, which provided awareness of their own strengths and weaknesses.

In the process of practice, students faced the following main obstacles to the development of creativity: lack of understanding and sufficient knowledge of cultural traditions, concepts of art, design, history, socio-cultural problems of society in the XXI century. These obstacles led to the lack of problems and ideas for further product design. Cultural blocks did not lead to an understanding of artistic concepts, and some students could not evaluate the product of colleagues without further interpretation of the idea. As a result, there were difficulties in interpreting the work, discomfort in public discussion of the work. This indicates the need for differentiation of students - future teachers and taking into account the individual needs of the student, the development of various work strategies based on the proposed in these article models of training future teachers of labor training. This means, that the development of creativity is a difficult process, and creativity is not always possible to develop in all students. The learning environment should enable students to express or not to express their own creative ideas. Creativity as a skill can be formed only in mature students-specialists with developed professional skills. Creativity development courses should be integrated in the early stages of training through courses where students will develop an understanding of modern issues of society and the possibility of integrating problems as ideas in the creative process.

5. DISCUSSION

Curricula for vocational training of teachers of labor training in EU countries are based on the concept of a holistic craft process, including design and production. A holistic approach to the profession of labor education teacher stages of the process are carried out by an individual independently within the group, which is the manufacturer responsible for all phases of the process (idea, design, preparation of materials, artifact evaluation, manufacturing process) (Darling-Hammond, 2005). A holistic approach to the training of teachers of labor training does not involve teamwork, and therefore synergies because of the production process. If a certain phase is missed, the craft becomes normal reproductive, which means no influence on the design phase. The manufacturer uses a ready-made design that contains technical and aesthetic requirements for the finished product, or technical solutions (using instructions, copying ready-made models) (Pöllänen & Kröger 2004). In this case, the previously created model is reproduced (Pöllänen, 2009). The development of the concept of creative economy requires from the future teacher the formation of students not only professional technical skills, but the development of creativity as an integral component of a professional specialist in crafts and art.

The above requires the use of special methods and models of training future teachers of labor training. For example, brainstorming in small groups, presentation of the most famous creative works and their analysis in groups to understand not only the technology of creation and production, but also the source of the idea, design.

Skills, experience and various incentives during the educational process are the basis of effective future pedagogical activities of teachers in order to solve the problems of modern creative economy. The role of the teacher is to activate students through meaningful learning to increase motivation, creativity and interest in the development of professional skills. Students need an understanding of the value of the craft as part of a creative economy. To do this, the student must not only see the necessary images, tools or drawings, examples of completed work, but also understand how the design was created, what software products are used, concepts and approaches to design (heritage, mythology, memories and nature). For example, industrial design and design craft can also serve as ideas for implementation.

The teacher must use a variety of creative techniques to stimulate students' ideas. These ideas can be concretized through sketches, composition methods and the design can be brought to life, for example, by experimenting with the possibilities of materials or by making a model or prototype (Pöllänen, 2009). Our research confirms the effectiveness of a holistic approach: the development of sketches of compositions and 3D models of future work of the teacher in AutoCAD software makes it possible to determine the combination of the most suitable materials. As a result, not only creativity is formed, but also abstract thinking and digital skills, and the level of motivation to make the product increases due to greater predictability of the result. The next stage - the stage of designing a holistic craft process - is seen as a transformation, when internal ideas take on a symbolic form, concretized and documented (Lindfors 1999). Visual and technical design provide the formation of product quality, its aesthetic and functional values. The purpose of this phase is to provide the aesthetic appeal of the artifact together with the functionality that corresponds to the level of skills of students, materials, time, costs and tools. The teacher should encourage and provide design advice, support ideas, and provide feedback. This stage provides ease of execution and motivates students. Feedback is required at the initial design stage (Seitamaa-Hakkarainen, 2000). As the experiment shows, the design provided feedback, motivation and understanding of product functionality, aesthetic value. Aesthetics at the design stage was the main motive to continue manufacturing the product.

Technical design in the production process requires the use of exercises to maintain students' skills in developing prototypes or models, technical experiments. At the stage of technical design, the teacher must have the skills to develop working prototypes, parts, use software to simulate the game (Pöllänen, 2011). The results of the experiment confirm that the lower level of digital skills and the speed of mastering such skills affected the quality of the prototype and the level of creativity. Creativity was more pronounced in the student with a higher level of development of digital skills.

Technical and visual design is the most important stage of a holistic craft. These phases include finding information, conducting experiments, solving problems, evaluating solutions and possible outcomes, reflecting personal and group work processes and balancing the outcome with available resources. Only at the end of the design phase does the student have a visual and technical plan to support the implementation phase (Pöllänen & Kröger 2004). Visualization is important for the design process in order to solve the problem of processing large amounts of information (Seitamaa-Hakkarainen 2000). Thus, the design process is non-linear and time-consuming, and is therefore perceived as a challenge for teachers in the context of effective planning. As the experiment showed, the visual and technical plan significantly influenced the further desire to complete the manufacturing process. The level of cooperation in groups has doubled due to the interest of the participants in the work of colleagues.

The next stage is students' awareness and evaluation of their own design. Students usually consider the stage of production key in creating an artifact. However, design is more important in the context of the concept of creative economy (Al-Amri, 2006). At this stage of preparation, the project is implemented, the use of knowledge and skills in order to form the experience of producing a creative artifact. The teachers must develop the ability to evaluate objectively their own product. Assessment is a key step that involves the processes of visualization, articulation and reflection. Assessing the artifact and the production process, understanding metacognitive skills is part of this phase. Sketches and notes provide discussion within artifact groups and evaluation (Seitamaa-Hakkarainen, 2000; Roccetti, Marfia & Zanichelli, 2010). Evaluation of their own design by colleagues during the experiment on the one hand, ensured the avoidance of design errors, on the other increased the level of competition in the context of creativity between students. Students had the opportunity to actively discuss the acquired skills, and the teacher - to assess the level of theoretical and practical skills with greater ease compared to traditional classes.

The sold product, its quality and equipment are only part of the assessment. Evaluation also includes the preliminary phases of the process, up to the visual and technical design and the idea phase. In order to increase creativity, it is advisable to identify weaknesses and strengths (Nickerson 2004). The teacher's task at this stage is to direct assessment and reflection to different phases of the process of holistic craft. In the context of reflection, it is often said that the student is directed from instrumental and practical reflection to critical self-awareness. However, in the school context, this means in practice that the student moves to different levels of reflection in the learning process (Zeichner 1994). Contextual craft learning and the teacher support students' development of self-regulation through metacognitive discussions and self-assessments (Paris & Winograd, 2003; Daichendt, 2009).

In various countries around the world, handicraft education has changed over the last twenty years due to the development of creative industries (Shimahara, 1998; Pöllänen, 2009; Mannathoko, 2009; Mannathoko & Major, 2012; Hursen & Islek, 2016). New models of training take into account professional development through cooperation, management and planning, the formation of the craft as an independent discipline, with its own content, consisting of various technical, digital and creative components. The holistic approach is actively integrated into the National Basic Curricula (Pöllänen, 2011). Teachers need to ensure a greater level of authenticity of the learning context and professional activities that go beyond the traditional curriculum, in order to address the issues of successful life of a teacher in modern society. Among the possible solutions is the development of pedagogical models that implement the concept of holistic craft. The pedagogical model discussed in this article is based on the curriculum, materials published on the ZVO website, and research by other scholars (Pöllänen, 2009; Pöllänen, & Urdzina-Deruma, 2017).

Experiments within the educational programs "Labor Learning" are conducted by integrating virtual reality and webinars, the integration of authentic learning space (Nortvig, Petersen, Helsinghof & Brænder, 2020). "In Craft & Design, the online webinars are experienced as authentic, digitally expanded learning spaces because they provide an opportunity to think and speak in the practical modes of the subject" (Nortvig, Petersen, Helsinghof & Brænder, 2020). Thus, digital skills and technologies of blended learning are important components of the proposed model of training future teachers of labor training.

6. CONCLUSION

The study shows the active integration of a creative approach in the educational programs of future teachers of labor training. Creativity becomes an important skill that can be developed in a student with a sufficient level of professional knowledge, skills and understanding of artistic concepts, communication skills and teamwork. The studentcentered approach prevails over the teacher-centered approach as a subject of knowledge transfer, concepts and ideas. The development of creativity takes place to varying degrees in the practice of training based on different models: "Craft as design and problem-solving", "Craft as skill and knowledge building", "Craft as product-making" and "Craft as self-expression". This study experimentally confirms the proposed conceptual model of professional training of future teachers of labor education based on the integration of these models of teacher training in labor education. The experiment revealed the main obstacles to the development of creativity, such as lack of understanding and sufficient knowledge of cultural traditions, concepts of art, design, history, socio-cultural problems of society in the XXI century. These obstacles caused the difficulty of forming the problem by students and ideas for further product design, the difficulty of understanding artistic concepts and the difficulty of evaluating the product of additional interpretation of the idea. This indicates the need for differentiation of students - future teachers and taking into account the individual needs of the student, the development of various work strategies based on the proposed in these article models of training future teachers of labor training. Creativity development is a difficult process, and it is not always possible to develop creativity in all students. The learning environment should enable students to express or not express their own creative ideas. Creativity as a skill can be formed only in mature studentsspecialists with developed professional skills. Creativity development courses should be integrated in the early stages of training through courses where students will develop an understanding of modern issues of society and the possibility of integrating problems as ideas in the creative process.

References

- [1] Al-Amri, M. (2006). Art and craft education and its institutions in Oman. In Conference paper for The 1st World Conference on Arts Education, UNESCO, Lisbon (pp. 6-9).
- [2] Ashton, D. (2015). Creative work careers: pathways and portfolios for the creative economy. Journal of Education and Work, 28(4), 388-406. https://doi.org/10.1080/13639080.2014.997685
- [3] Banks, M., & Oakley, K. (2016). The dance goes on forever? Art schools, class and UK higher education. International Journal of Cultural Policy, 22(1), 41-57. https://doi.org/10.1080/10286632.2015.1101082

- [4] Bridgstock, R., & Cunningham, S. (2016). Creative labour and graduate outcomes: Implications for higher education and cultural policy. International journal of cultural policy, 22(1), 10-26. https://doi.org/10.1080/10286632.2015.1101086
- [5] Bridgstock, R., Goldsmith, B., Rodgers, J., & Hearn, G. (2015). Creative graduate pathways within and beyond the creative industries. Journal of Education and Work, 28(4), 333-345. https://doi.org/10.1080/13639080.2014.997682
- [6] Craft, A., Cremin, T., Hay, P., & Clack, J. (2014). Creative primary schools: developing and maintaining pedagogy for creativity. Ethnography and Education, 9(1), 16-34. https://doi.org/10.1080/17457823.2013.828474
- [7] Daichendt, G. J. (2009). Redefining the artist-teacher. Art Education, 62(5), 33-38. https://doi.org/10.1080/00043125.2009.11519035
- [8] Darling-Hammond, L. (2005). Teaching as a profession: Lessons in teacher preparation and professional development. Phi delta kappan, 87(3), 237-240. https://doi.org/10.1177%2F003172170508700318
- [9] de Arriba, R., Girardi, G., & Vidagan, M. (2019). Contemporary art in higher education: Creative pedagogies in political economy. Thinking Skills and Creativity, 33, 100577. https://doi.org/10.1016/j.tsc.2019.100577
- [10] European Union (2009). Official launch of the European Year of Creativity and Innovation 2009. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_09
- [11] Frenette, A., & Tepper, S. J. (2016). What difference does it make? Assessing the effects of arts-based training on career pathways. Higher education and the creative economy: Beyond the campus, 83-101.
- [12] Garber, E. (2002). Craft education in Finland: definitions, rationales and the future. International Journal of Art & Design Education, 21(2), 132-145. https://doi.org/10.1111/1468-5949.00308
- [13] Harris, A., & Ammermann, M. (2016). The changing face of creativity in Australian education. Teaching Education, 27(1), 103-113. https://doi.org/10.1080/10476210.2015.1077379
- [14] Hiebert, J., Morris, A. K., & Glass, B. (2003). Learning to learn to teach: An``experiment" model for teaching and teacher preparation in mathematics. Journal of mathematics teacher education, 6(3), 201-222.
- [15] Hursen, C., & Islek, D. (2016). Art and craft teachers' views regarding outdoor education approach along with identification of their training needs. International Journal of Educational Sciences, 15(1-2), 1-13.
- [16] Ihatsu, A. M. (2002). Making sense of contemporary American craft. University of joensuu Publications in Education. Available from URL: https://ci.nii.ac.jp/naid/10016762081/
- [17] Jakob, D., & Thomas, N. J. (2017). Firing up craft capital: the renaissance of craft and craft policy in the United Kingdom. International Journal of Cultural Policy, 23(4), 495-511. https://doi.org/10.1080/10286632.2015.1068765
- [18] Jeffrey*, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: distinctions and relationships. Educational studies, 30(1), 77-87. https://doi.org/10.1080/0305569032000159750

- [19] Karppinen, S. (2008). Craft-Art as a Basis for Human Activity. International Journal of Art & Design Education, 27(1), 83-90.
- [20] Lindfors, L. (1999). Sloyd Education in the Cultural Struggle. Part VIII. An Outline of a Sloyd Educational Theory. Report No. 4. Department of Teacher Education, Faculty of Education, Abo Akademi University, PO Box 311, 65101 Vasa, Finland (30 Finnish marks).
- [21] Mannathoko, M. (2009). Interpreting the new lower primary art and craft component of the Creative and Performing Arts, the Botswana National Curriculum. Case studies of four primary schools in the South Central and Central North Regions. An illuminative evaluation (Doctoral dissertation, University of Wales).
- [22] Mannathoko, M. C., & Major, T. E. (2012). Family-School Relationships in the teaching of Art and Craft at Primary schools: A case study of four primary schools in the South Central and Central North Regions. National Teacher Education Journal, 5(1).
- [23] Nickerson, R. S. (2004). Enhancing creativity, in Sternberg, R. J. (Ed.). (1999). Handbook of creativity. Cambridge University Press.
- [24] Nortvig, A. M., Petersen, A. K., Helsinghof, H., & Brænder, B. (2020). Digital expansions of physical learning spaces in practice-based subjects-blended learning in Art and Craft & Design in teacher education. Computers & Education, 159, 104020. https://doi.org/10.1016/j.compedu.2020.104020
- [25] OECD (2008). Innovation and growth rationale for an innovation strategies. Available at: https://www.oecd.org/sti/39374789.pdf
- [26] Paris, S. G., & Winograd, P. (2003). The Role of Self-Regulated Learning in Contextual Teaching: Principals and Practices for Teacher Preparation. (online). Available from URL: https://eric.ed.gov/?id=ED479905
- [27] Pöllänen, S. & Kröger, T. (2004). Näkökulmia kokonaiseen käsityöhön, in J. Enkenberg, E. Savolainen & P. Väisänen [Eds] Tutkiva opettajankoulutus – taitava opettaja. Savonlinnan opettajankoulutuslaitos, pp. 160–72
- [28] Pöllänen, S. (2009). Contextualising craft: Pedagogical models for craft education. International Journal of Art & Design Education, 28(3), 249-260. https://doi.org/10.1111/j.1476-8070.2009.01619.x
- [29] Pöllänen, S. H. (2011). Beyond craft and art: A pedagogical model for craft as self-expression. International Journal of Education through Art, 7(2), 111-125. https://doi.org/10.1386/eta.7.2.111 1
- [30] Pöllänen, S., & Urdzina-Deruma, M. (2017). Future-oriented reform of craft education. In Reforming teaching and teacher education (pp. 117-144). Brill Sense.
- [31] Reigeluth, C. M. (1999). The elaboration theory: Guidance for scope and sequence decisions. Instructional-design theories and models, 2, 425-453.
- [32] Roccetti, M., Marfia, G., & Zanichelli, M. (2010). The art and craft of making the tortellino: playing with a digital gesture recognizer for preparing pasta culinary recipes. Computers in Entertainment (CIE), 8(4), 1-20.
- [33] Romiszowski, A. (1999). The development of physical skills: Instruction in the psychomotor domain. Instructional-design theories and models: A new paradigm of instructional theory, 457-481.

- [34] Sawyer, R. K. (2017). Teaching creativity in art and design studio classes: A systematic literature review. Educational research review, 22, 99-113. https://doi.org/10.1016/j.edurev.2017.07.002
- [35] Seitamaa-Hakkarainen, P. (2000). The weaving-design process as a dual-space search (Doctoral dissertation, University of Helsinki).
- [36] Shimahara, N. K. (1998). The Japanese model of professional development: Teaching as craft. Teaching and teacher education, 14(5), 451-462. https://doi.org/10.1016/S0742-051X(97)00055-3
- [37] Tepper, S. J. (2002). Creative assets and the changing economy. The Journal of Arts Management, Law, and Society, 32(2), 159-168. https://doi.org/10.1080/10632920209596971
- [38] Tillander, M. (2011). Creativity, technology, art, and pedagogical practices. Art Education, 64(1), 40-46. https://doi.org/10.1080/00043125.2011.11519110
- [39] Zeichner, K. M. (1994). Research on teacher thinking and different views of reflective practice in teaching and teacher education, in Carlgren, I., Handal, G., & Vaage, S. (Eds.). (1994). Teachers' minds and actions: research on teachers' thinking and practice. Psychology Press, pp. 9–27.
- [40] Zimmerman, E. (2009). Reconceptualizing the role of creativity in art education theory and practice. Studies in Art Education, 50(4), 382-399. https://doi.org/10.1080/00393541.2009.11518783