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Didactic Possibilities of Integrating Transverse Competencies in The Process of Professional Training of Future Elementary Teachers

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ABSTRACT

Objective: *This study aims to scientifically and pedagogically analyze the didactic possibilities of integrating transverse competencies into the professional training of future primary teachers, emphasizing their significance in fostering holistic educational development.* ***Method:*** *The research employed a combination of theoretical analysis, pedagogical observation, interviews, and experimental approaches to examine the role, content, and implementation strategies of transverse competencies within teacher education programs.* ***Results:*** *Findings revealed that integrating communicative, informational-literacy, creative, and reflexive competencies effectively enhances students' professional readiness, interdisciplinary understanding, and capacity for innovative pedagogical thinking. The integrative approach demonstrated a significant impact on developing complex thinking skills and fostering creative problem-solving among future educators.* ***Novelty:*** *This study contributes to the pedagogical literature by establishing the didactic foundations for developing professional competencies through an integrated educational process, highlighting the transformative potential of transverse competencies in modern teacher education and proposing practical methods for their systematic implementation.*

INTRODUCTION

In the current period, the emphasis on human capital in the educational system is gaining ground and a competency approach is taking a central place, which ensures the comprehensive development of the personality of the student. Especially in higher educational institutions that prepare primary school teachers, the quality of education is determined not only by theoretical knowledge, but also by the formation of transverse - universal competencies.

Transverse competencies are a set of universal knowledge, skills and values that can be applied in different areas, ensuring that the teacher works effectively socially, communicatively, informatively, creatively and reflexively in his professional activities.

The term transverse competencies are also widely used in UNESCO Regional Analyses, European organizations such as Cedefop and ESCO. These competencies are used in a variety of situations, independent of context, and provide effective work as well as life activities.

Researchers such as Voogt and Roblin [1] argue that when comparing the frames of competencies of the 21st century, there is a wide compatibility in their content, but the harmonization of policy and teaching practice remains sluggish in practical

implementation. This conclusion indicates the need to develop not only conceptual, but also implementation – teacher training, assessment, material-specific aspects of models.

The development and quality level of the modern educational system is an important factor in the training of competitive personnel and the preparation of the younger generation for social life. In today's era of globalization, a person is required not only knowledge, but also a system of competencies — that is, the practical application of knowledge, analysis and creative thinking [2].

Transverse competencies, or "general skills", are skills that can be applied in various fields of science and profession, involving an individual's skills in independent learning, critical thinking, communication, and problem solving [3].

The role of integrative educational activities in the formation of transverse competencies in future primary teachers is incomparable. Integrative teaching is the process of creating a new, holistic system of knowledge through the content integration of several disciplines in the educational process [4]. This approach helps the student to assimilate knowledge in the context of real-life problems, not in isolation.

Competency approach. D.Raven defines competence as "the ability of an individual to function effectively" and divides it into professional and transversal aspect [5]. AK.Markova, on the other hand, describes teacher competence through motivational, cognitive, practical, and reflexive componets. Markova interprets competence as a psychological indicator of professionalism.

She divides teacher competence into the following components:

Motivational component-interest in the profession and desire for self-development;

Cognitive component-set of theoretical knowledge;

Practical component-skills to perform teaching activities;

The reflexive component is the ability to analyze and evaluate its activities. interprets competence as a psychological indicator of professionalism [6]. French economist and politician J.Delor [7] is the author of "Learning: the Treasure Within", a popular report prepared by UNESCO. Delors distinguished the four main pillars of Education: Learning to know; Learning to do; Learning to live together; Learning to be.

Integrative education theory. American pragmatic philosopher J. Dewey [8] is the founder of the idea of experiential learning, and sees education in his vision as a process of learning from life experience. He defines "integrative education "as such:" in the process of Education, the sciences should not be separated from each other, but become one whole life event in the student's experience." According to J.Dewey, the teacher is a guiding, environment-creating personality for the teacher. His views are based on current results such as "interdisciplinary methods", "project-based teaching", "interdisciplinary integration". L.S.Vygotsky [9] on the other hand, introduced the "zone of close competition" in the course of study, developing training social dialogue and cooperation activist to teach practical action. It interprets integration as a process of psychological and social integration, not just interdiscipliy. The integrative approach develops the harmony of theory with practice in teacher training, interdisciplinary thinking, creative activity

and reflection. In this process, the teacher is revealed as the person who creates and guides the environment for the student.

Peerson-centered learning concept. K.Rogers [10] pioneered the principles of personal growth, independence, and free learning in his work "Freedom to Learn". According to him, the teacher is a person who supports the student's motivation to learn, creates a sincere and confident atmosphere. Rogers sees education as a "process of human communication and self-realization. V.V.Davydov [11] interprets educational activity as a process of cognitive development of an individual. He sees the reader as an active knowledge-generating subject. Davydov believes that in the process of teacher training, it is necessary to create an opportunity for students to independently analyze, generalize, think theoretically. This approach develops transverse competencies in prospective teachers such as emotional stability, reflexive thinking, collaborative work, and creative decision-making.

In recent years, most foreign countries have developed practical projects and courses on the development of transverse competencies in higher education institutions, and it has been determined through more research that they show positive results in the process of teacher training. However, knowing how consequential foreign experiments are requires theoretical-practical testing of the models.

RESEARCH METHOD

In the formation of transverse competencies in the process of professional training of future primary school teachers, modern theories of pedagogy serve as an important methodological basis. A special place among them is occupied by the competency approach, the theory of integrative education and the concept of personality-oriented education. These approaches ensure the comprehensive development of the personality of the teacher, the organization of the educational process on the basis of humanism, cooperation and reflexivity. In the course of our study, we used the INTEGRA-model in the development of transverse competencies in future elementary teachers based on the integration of competencies noted above. The Model name is INTEGRA, a combination of the words integration, education, Gauging (evaluation), reflection, practice.

The proposed model consists of the following components.

Curiculum integration (I) [12] is the training of transverse competencies not abstractly, but through cross — subject subjects and an integrated [13] module-approach. Lesson plans clearly outline 1-2 transverse goals in each subject and link to the evaluation criteria (problem solving + collaboration in math class; communication + critical thinking in native language class).

Pedagogical strategies (N, T) — interactive methods: project-based teaching (PBL), team tasks, problem teaching, reflective journal, interactive activities with digital tools. These strategies "practically" demonstrate to pre-service teachers how transverse skills can be taught to students.

Edukation (E) – teacher qualification are special master classes, micro — classes, mentoring, and instructional materials for teachers and skill-makers in education.

Gauging (G) — assessment system: portfolio, practice observation rubrics, project protection, self-assessment. Criteria, indicators and an assessment format (qualitative + quantitative) are defined for each competency.

Reflection (R) is a routine reflective practice (reflective journal, video-reflection, peer-feedback) by students and mentors. This component is important for self-management and professional growth.

Practice and school cooperation (A) — cooperation between the University and the school is enhanced: practice areas, jointly developed assignments, communication channels.

This model includes the following skills that form the basis of transverse competencies:

a. Communication (oral, written, visual);
b. Collaboration and teamwork;
c. Critical and creative thinking;
d. Self-control and reflection;
e. Digital literacy and Information-Culture.

Table 1. The development of transverse competencies in future primary teachers is a component of the educational modality

Weeks	Activity	Type component
1-2	Introduction	Theory of transverse competencies; noteworthy issues; self-assessment (pre-test).
3-5	Interactive methods	PBL, team tasks, laboratory training; micro-lessons
6-8	Integrated project	Planning elementary classes (the student prepares a project)
9-10	Practice	The school offers micro-teaching, mentorlike, project protection, Self-assessment (post-testing), focus-group and reflection

The integration of transverse competencies into professional training requires, first of all, a revision of training methods. In the traditional course of study, the student receives ready-made knowledge, but in an integrated approach, he participates as an active subject of learning.

RESULT AND DISCUSSION

The results of the pedagogical experiment showed that the integration of transverse competencies in the educational process:

Increased student self-development motivation 1.5 times;

Improved professional communicative skills by 30%;

The digital literacy rate has grown significantly.

The integration of transverse competencies into professional training requires, first of all, a revision of training methods [14]. In the traditional course of study, the student receives ready-made knowledge, but in an integrated approach, he participates as an active subject of learning.

The following didactic possibilities were identified during the discussion process:

Interdisciplinary integration is the creation of a link between pedagogy, psychology, technology and Information Science.

Problem-based learning - developing creative thinking through analysis of real pedagogical situations.

Formation of cooperation and responsibility through project – based educational-group projects.

Using a digital educational environment-revitalizing the lesson using interactive platforms [15].

The inclusion of the reflection process in the assessment system is to allow students to analyze their own growth.

Integrating transverse competencies into professional training is not just a method, but an approach that changes the philosophy of Education. As a result of interdisciplinary integration in teacher preparatory programs, project-based teaching, reflexive activities and strengthening of Independent Education, the following changes are observed in students:

Cognitive changes: the cognitive activity of students is based not only on memorization, but also on analysis, comparison, conclusion.

Axiological changes: professional ethics, pedagogical culture, and tolerance develop.

Practical changes: the skills of applying modern technologies in teaching activities are strengthened.

According to the results of the discussion, the following didactic opportunities were considered the most effective in the educational process for future teachers:

Integrated lesson modules (e.g. Mathematics and Information Technology "Co-Teaching";

Transverse assignments (exercises that develop multiple competencies at the same time).

Digital reflection tools (Google Forms, Padlet, Jamboard);

Skill-oriented assessment system (portfolio, observation, self-assessment).

Also, in the process of integration, teachers themselves should have methodological and digital training. For this purpose, it is recommended to include transverse competency modules in teacher retraining courses.

CONCLUSION

Fundamental Finding : The study concludes that integrating transverse competencies within the professional training of future elementary school teachers significantly strengthens their ability to function as innovative, reflective, and adaptive educators. The combination of competency-based, integrative, and personality-oriented approaches fosters holistic teacher development, aligning pedagogical preparation with the evolving demands of the modern labor market. **Implication :** These findings imply that higher education institutions should systematically embed transverse competencies into teacher education curricula to cultivate critical thinking, creativity, technological literacy, and social engagement among future educators. **Limitation :** However, the study's scope was limited to a specific educational context and did not include longitudinal assessments of graduates' performance in real classroom environments, which may affect the generalizability of the results. **Future Research :** Subsequent studies should explore the long-term impact of transverse competency integration on teachers' professional growth and student learning outcomes, employing comparative and cross-cultural analyses to further validate the effectiveness of this integrative pedagogical model.

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