

INNOVATIVE CRITERIA AND LEVELS OF DEVELOPMENT OF PROFESSIONAL COMPETENCIES OF FUTURE SPECIALISTS IN THE FIELD OF INFORMATION TECHNOLOGY

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Abstract. This article discusses the fact that the development of professional competence of future IT specialists is one of the main conditions for an innovative educational environment, as well as its criteria and levels.

Keywords: information technology, professional competence, innovative educational environment, interactive technologies, social and pedagogical mechanisms, psychological and pedagogical features

Introduction

Globally, significant attention is being paid to developing interactive technologies aimed at fostering professional competence in future specialists in information technology, as well as improving the pedagogical mechanisms for creating innovative educational environments. Priority is also given to refining the socio-pedagogical mechanisms that ensure the personal and professional socialization of future IT specialists, based on the development of professional competence. The particular importance is the integration of linguistic, sociolinguistic, and pragmatic components into the content of higher education, along with the development of systems to prepare future IT specialists for effective communication.

Analysis of relevant literature

A future specialist in information technology is characterized by their ability to practically apply information and communication technologies (ICT) in their professional activities. This competency extends beyond merely acquiring the components of computer literacy, encompassing ICT competence, which significantly involves not only knowledge but also personal and professional qualities pertinent to educational specialists. Such a specialist is highly prepared to purposefully and routinely utilize a comprehensive set of computer tools and technologies in their professional practice.

Moreover, future IT specialists demonstrate a propensity to identify and address challenges related to the formation of their motivational domain. This includes recognizing the relevance of these issues through individualized work with practitioner-educators and fostering a sense of belonging to the shared goals of a pedagogical team. The ability to perceive one’s contribution to the team’s success as a primary motivational factor underscores their readiness for collaborative and goal-oriented professional activity.

To clarify the concept of “motivation for professional self-development,” it is essential to examine several foundational terms: “motive,” “motivation,” and “professional motivation.” According to E.P.Ilyin’s research [8], a motive can be understood as a stable characteristic that determines an individual’s activity, while motivation is viewed as a stable set of motives that define the content, direction, and nature of an individual’s activity.

In the context of higher education, professional motivation refers to an individual’s awareness of the need to fulfill educational tasks that satisfy their current needs (such as obtaining higher education, self-development, self-knowledge, professional growth, and enhancing social status) while preparing for future professional activities. Alongside educational and cognitive motives,

professional motives (or motives for professional activity) play a significant role in academic endeavors.

The approaches of E.Deci and R.Ryan, who studied intrinsic and extrinsic motivation, suggest that intrinsic motivation, within the framework of self-determination theory, reflects a future specialist's interest in the labor process itself and their desire to perform tasks for the enjoyment and satisfaction derived from the activity. In contrast, extrinsic motivation involves performing work activities to achieve external goals beyond the activity itself. Activities driven by intrinsic motivation, unlike those driven by extrinsic motivation, are associated with a greater sense of effort and a higher level of subjective well-being. Such activities persist even in the absence of external rewards or punishments and contribute to the development of professional skills.

Extrinsic Motivation

In self-determination theory, extrinsic motivation is considered a heterogeneous phenomenon. Within the framework of extrinsic motivation, E.Deci and R.Ryan identify four levels of activity regulation that differ in the degree of motivation [9]:

1. **External regulation** – Activity is performed to obtain external rewards or avoid negative consequences.
2. **Introjected regulation** – Activity is associated with internal rewards or punishments, such as feelings of pride, guilt, or conditional self-worth.
3. **Identified regulation** – Activity is consciously chosen by the individual and directed toward achieving subjectively important goals, such as career advancement.
4. **Integrated regulation** – Activity becomes harmonized with other aspects of the individual's life and is experienced as part of their identity, for example, engaging in a profession.

Research Methodology

The methodology for exploring the topic in this scientific article employed theoretical approaches (analytical-synthetic, compositional-typological, and content analysis), as well as comparative, classification, and descriptive methods.

Analysis and Results

Numerous empirical studies indicate that these types of extrinsic motivation differ in their outcomes. Integrated and identified forms of regulation are more often associated with positive outcomes and are closely related to intrinsic motivation. Conversely, introjected and external forms of regulation may lead to negative outcomes. Given that the components of intrinsic and extrinsic motivation are positioned on two opposing poles, they can be categorized as autonomous and controlled motivation.

- **Autonomous motivation** encompasses intrinsic motivation along with integrated and identified forms of regulation.
- **Controlled motivation** typically includes introjected and external forms of regulation.

This classification underscores the nuanced interplay between the different forms of motivation and their effects on individual behavior and performance.

According to Deci and Ryan, the primary factors underlying intrinsic motivation for activity and psychological well-being include the satisfaction of basic psychological needs such as autonomy, competence, and relatedness with others. Activities driven by intrinsic motivation provide higher opportunities to meet these fundamental needs, leading to experiences of psychological well-being. Among the factors influencing extrinsic motivation, the authors highlight the following:

- The persistence of specialists and their readiness to adaptively modify their behaviors.

- Enthusiasm for effectively performing tasks, achieving high performance, especially in creativity-demanding tasks, cognitive flexibility, and conceptual thinking.
- A high degree of satisfaction with their chosen profession.
- A positive attitude toward the chosen profession and loyalty to it.
- Psychological adaptation in the workplace.

K.Zafir is one of the scholars who has studied the issue of extrinsic and intrinsic motivation among employees. The researcher developed a conceptual framework for intrinsic and extrinsic motivation, where intrinsic motivation is defined as the individual's recognition of the activity itself as inherently important. Conversely, extrinsic motivation is examined in terms of the desire to satisfy other needs, such as social status, financial rewards, and similar motives.

K.Zafir categorizes extrinsic motives into positive and negative forms, asserting that positive motives are always more effective than negative ones. Based on the analysis of psychological and pedagogical literature, professional self-development motivation can be considered as a set of motives that determine the direction and nature of professional self-improvement.

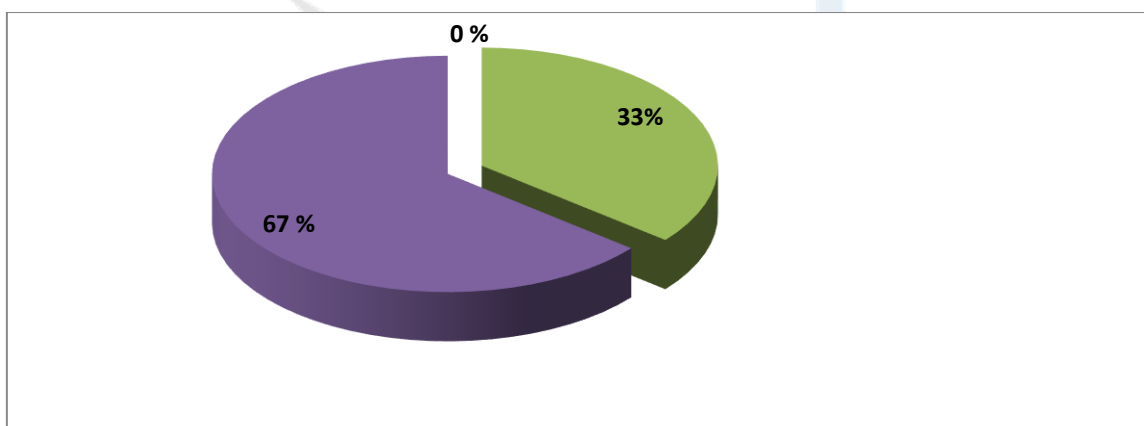


Figure 1. Analysis of the “Assessment of Development and Self-Development Needs” Study

The results of the study are presented in the form of a diagram. According to the findings, two-thirds (67%) of future information technology specialists possess a strong motivation for self-development, which, in turn, serves as a positive indicator of the engagement of practitioner-educators in their professional growth. The remaining 33% of practitioners' development is dependent on external and internal conditions.

For specialists, external factors influencing self-development and growth include circumstances that are beyond the individual's control but significantly impact their professional life. These factors can be categorized as follows:

1. General Social Factors.

This category traditionally includes situations that arise on a more global level within the organization where the specialist operates, often linked to professional relationships. Examples of general social factors include relationships within the family, the organizational structure, and the cultural level of colleagues.

2. Specific Factors.

These are conditions that emerge in relation to specific professional activities and are often referred to as the “professional conditions for the specialist's growth.” Leadership plays a significant role in the development and influence of these factors. Furthermore, it is essential to consider various

internal rules of the organization, which often affect all members of the team. These factors include the personal characteristics of employees, the composition of the team, intra-organizational relationships, working conditions, and various legal norms that regulate these processes.

Internal Factors for Specialist Self-Development and Growth.

In addition to external factors, internal factors play a crucial role in self-growth. While it may be tempting to attribute responsibility solely to external circumstances, many aspects of internal growth are dependent on the individual. Internal factors combine motivation, self-confidence, and the effective integration of objective outcomes of personal and professional development.

Specialists who are driven by internal factors tend to take on complex tasks willingly and perform them with high quality, seeking opportunities for self-improvement within their field. Such individuals demonstrate readiness to assume new responsibilities and challenges. Internal factors include:

Ambition.

In the context of self-development among professionals, “unhealthy” ambitions can exist, characterized by striving for growth driven solely by the desire for status and power without substantive support. However, when individuals are prepared to work diligently and carefully assess their abilities, ambition can inspire and motivate them toward self-improvement.

Knowledge and Experience.

A lack of sufficient expertise in the relevant field can raise challenges for self-development among specialists. A new professional must feel a sense of responsibility and understand what needs to be done. Continuous work on building a robust knowledge base is essential for achieving goals efficiently and maintaining direction.

Professional Interest.

N.D.Solovyov defines professional interest as a selective, actively positive attitude toward a specific type of professional activity, associated with a desire to engage in it [5, 24]. The professional interest component reflects an individual's emotional attitude toward a specific activity, manifesting as satisfaction with its results, enthusiasm, a positive outlook on the profession, and confidence in its appropriate choice.

Psychological Characteristics.

Attributes such as stress resilience, the ability to resolve conflicts effectively, and emotional regulation, along with other psychological traits, play a significant role in professional growth.

Personal Traits.

Qualities such as integrity, responsibility, diligence, determination, and a positive attitude toward life, combined with active engagement in work, can accelerate opportunities for career advancement.

Analysis and Conclusions.

Based on the analysis, it is reasonable to identify three interrelated components of professional self-development: cognitive, volitional, and activity-based.

Cognitive Component: This is defined by the desire to gain a deeper understanding of professional activity, playing a crucial role in interpreting its meaning as a prerequisite for self-development. It manifests in cognitive activities, reflecting a desire to acquire professional knowledge and an awareness of the essence of the chosen profession.

Volitional Component: This component is significant in mobilizing internal resources to overcome difficulties in mastering a profession. It involves determination and confidence in addressing challenges encountered during professional development.

The Activity Component: The activity component encompasses both an individual's need for specific activities and their proactive engagement in mastering professional skills. It manifests in practical endeavors, including a desire to test one's abilities, challenge one's competencies, and pursue self-realization in the chosen profession.

These components are interconnected, yet at any given time, one may dominate over the others. The cognitive component strengthens a positive attitude toward the profession and reveals its deeper meaning. The volitional component of professional self-development becomes evident when a student perseveres in their activities despite initial failures or, conversely, abandons them. The degree of development of a student's willpower determines the extent to which professional self-development will advance or stagnate in the future.

Conclusion

The above considerations lead to the following conclusions: the analysis of scientific studies provides a foundation for interpreting professional self-development as an actively positive and selective attitude toward a particular type of professional activity, primarily associated with a desire for self-improvement.

The process of professional self-development is expressed through volitional, selective cognitive, and emotional activities as individuals encounter various objects and phenomena of reality. Considering the emphasized features of this concept, it is justified to distinguish three interrelated components within professional self-development: cognitive, volitional, and activity-based.

The interplay of these components forms the foundation for fostering stable professional interest, which is essential for sustained growth and development in the chosen profession.

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