HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

THE PEDAGOGICAL MEANING AND INTERRELATIONSHIP OF PROFESSIONAL COMPETENCE AND THE HEURISTIC APPROACH

Masharipov Ibrat Yangiboevich
commander of the Southwestern Special Military District, lieutenant colonel
Doi: https://doi.org/10.5281/zenodo.23600892

Abstract: This article provides a theoretical analysis of the pedagogical meaning of professional competence and the heuristic approach, focusing on their interrelationship. Professional competence is understood as the capacity to mobilize knowledge, practical skills, values, motivation, and reflection in response to the demands of a specific activity. The heuristic approach is examined as an approach to organizing learning through problem identification, questioning, hypothesis generation, comparison of alternative solutions, and evaluation of outcomes. In the context of preparing future military educators, the article establishes a conceptual alignment between the components of professional competence and forms of heuristic learning activity. Based on the theoretical analysis, stages for organizing heuristic learning and criteria for assessing its outcomes are proposed. No claims of empirical effectiveness are made; the proposed framework is intended to inform subsequent empirical research.

Keywords: professional competence, competence, heuristic approach, military educator, problem situation, pedagogical reflection, independent inquiry, instructional scaffolding.

INTRODUCTION

One of the important tasks of professional education is to prepare the learner for reasonable application of acquired knowledge in various situations. Knowing the same rule in professional activity does not give the same result in different conditions. It is necessary for the specialist to understand the characteristics of the situation, analyze the available information, choose a course of action and evaluate the consequences of the decision made. Therefore, examining the relationship between designing the content of professional training based on competencies and orienting the educational process toward independent inquiry holds pedagogical significance.

This relationship is particularly evident in the work of a prospective military educator. Beyond explaining professional knowledge, such an educator must account for the individual characteristics of learners, analyze interpersonal dynamics within a group, identify the causes of learning difficulties, and select appropriate pedagogical interventions. In such tasks, the use of established guidelines is integrated with independent, context-specific reasoning.

The purpose of this article is to clarify the pedagogical content of professional competence and the heuristic approach, reveal the mechanisms of their interrelation, and develop conceptual recommendations for the training of prospective military educators.

The research question is defined as follows: which characteristics of heuristic learning activities create the conditions for the manifestation and development of specific components of professional competence?

RESEARCH METHODOLOGY

This article is based on theoretical and conceptual research. Conceptual analysis, comparison of scientific approaches, generalization, and pedagogical modeling methods were employed. Sources

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

were selected based on their relevance to the composition of professional competence, the nature of pedagogical knowledge, and the role of pedagogical support in problem-solving and inquiry-based learning.

The analysis is not presented as a systematic review or meta-analysis. The components, stages, and assessment criteria proposed in this article are conceptual solutions developed through a pedagogical interpretation of the sources.

The Pedagogical Content of the Concept of Professional Competence

Limiting professional competence to a mere list of specific knowledge or skills fails to fully capture its essence within the context of actual practice. The OECD approach defines competence as a concept encompassing knowledge, skills, and attitudes. In this framework, a distinction is made between an individual's possession of resources and their ability to mobilize those resources to perform a specific task [1].

In this article, professional competence is defined as a specialist's ability to integrate knowledge, skills, values, motivation, and reflection—in accordance with the requirements of a given situation—to perform a specific professional task. Three aspects are significant in this definition: the orientation of an activity toward a specific objective, the integrated application of personal resources, and the evaluation of the outcome based on established criteria.

The usage of the terms "competence" (*kompetensiya*) and "competency" (*kompetentlik*) varies across scientific literature. Therefore, within the scope of this article, "competence" refers to a specific domain of abilities related to professional activity, while "competency" denotes the degree to which these abilities are manifested in an individual's performance. This distinction serves as a working definition and is not intended as a universal interpretation applicable to all academic schools of thought.

In a teacher's professional competence, knowledge of subject matter is intrinsically linked to knowledge of the methods used to teach it. L. Shulman's approach to "pedagogical content knowledge" highlights the importance of transforming specific content into a form that is comprehensible to the learner [2]. For a military educator, this manifests in a deep understanding of professional concepts, the ability to anticipate challenging aspects, and the skill to select appropriate examples, questions, and exercises. (Lee S. Shulman, 1986)

Based on theoretical generalization, the following components of a future military educator's professional competence are proposed:

- Cognitive component – understanding pedagogical and professional knowledge, and explaining the connections between them.
- Operational-methodological component – planning training sessions, selecting teaching methods, and evaluating educational outcomes.
- Communicative component – asking questions, listening, providing explanations, and facilitating collaboration.
- Value-motivational component – professional responsibility, respect for the learner as an individual, and a commitment to improving one's own practice.
- Reflective component – analyzing one's own decisions, errors, and outcomes.

This framework can serve as a foundational basis for assessing competence. However, the completeness of the components and their distinctness from one another must be specifically examined through empirical research.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

The Pedagogical Essence of the Heuristic Approach

The heuristic approach is a method of organizing instruction that engages the learner in posing questions, reformulating problems, generating hypotheses, and verifying solutions. Its defining characteristic is not the presence or absence of a pre-existing answer, but rather the learner's active participation in the cognitive processes that lead to a solution.

In G. Polya's perspective on problem-solving, the process is described through a series of interconnected actions: understanding the problem, devising a plan, executing the plan, and reviewing the result [3]. In a pedagogical context, this logic guides learners to plan and evaluate their own inquiry.

Heuristic methods are cognitive tools that facilitate the discovery of solutions. These include using analogies, breaking a problem down into parts, modifying conditions, posing inverse questions, and comparing alternative explanations. However, the application of a heuristic method does not automatically guarantee a correct result. Therefore, the solution arrived at must be verified through evidence, professional requirements, and assessment criteria.

The level of pedagogical guidance in inquiry-based learning is also significant. Kirschner, Sweller, and Clark have discussed the limitations of minimally guided instruction [4]. Meanwhile, Hmelo-Silver, Duncan, and Chinn have argued that problem-based and inquiry-based learning should not be equated with "discovery learning" that lacks pedagogical support [5]. This discussion highlights the necessity of balancing learner autonomy with appropriate support when employing a heuristic approach.

Accordingly, at an initial stage of preparation, learners may be provided with examples of problem analysis, guiding questions, and assessment criteria. As the learner gains more experience, this support is gradually reduced, allowing for greater scope for independent decision-making.

The Interrelationship Between Professional Competence and the Heuristic Approach

According to the core conceptual premise of this article, professional competence defines the expected learning outcomes, while the heuristic approach structures the educational activities through which these outcomes are demonstrated and developed. Although they are distinct concepts, they are interconnected through their shared goals and processes. This connection can be explained through three mechanisms.

First, knowledge is mobilized in accordance with the task. A problematic situation requires the learner to select the necessary knowledge; this reveals the link between recalling information and applying it.

Second, the need to justify a decision arises. Comparing multiple potential solutions prompts the learner to establish selection criteria, examine evidence, and address counterarguments.

Third, a process of reflective restructuring takes place. By analyzing the outcome, the learner identifies which of their actions were effective, which assumptions proved incorrect, and what adjustments should be made for future tasks.

The following correspondences represent the author's interpretation of this theoretical relationship.

Professional competence component.	**Form of heuristic activity.**	**Observed result.**
Cognitive.	Identifying the problem, connecting concepts, and putting forward hypotheses	Selecting relevant knowledge and explaining the situation
Active-methodical.	Developing and comparing	Justifying the method based

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

	multiple potential solutions	on the objective and the target audience
Communicative.	Heuristic dialogue, Q&A, and evidence-based discussion	Formulating questions precisely and expressing ideas clearly
Value-motivational.	Discussing the consequences of pedagogical decisions	Exercising responsibility and considering the learner's interests
Reflexive.	Re-evaluating the solution and analyzing errors	Recognizing limitations and adjusting one's approach

To apply a heuristic approach in military pedagogical training, it is advisable to select scenarios that are professionally relevant yet can be analyzed safely within an educational setting. For instance, the following situation could be used:

"Cadets answer review questions correctly but struggle to apply the knowledge they have acquired to a new practical task. How should the training session be modified?"

In this case, the aspiring military educator identifies potential causes for the problem: an overemphasis on rote memorization, a lack of variety in the exercises, gaps in foundational knowledge, or unclear instructions for the task. They then determine what information is needed to verify each hypothesis.

Subsequently, alternative solutions are developed—such as working from a model, using tasks with modified conditions, requiring learners to explain their own solutions, or conducting group analysis. The selection process is not limited to asking "which method is interesting?" but is instead guided by the criterion: "which method directly addresses the identified cause of the difficulty?" It is proposed to organize this work in the following stages:

1. Defining the problem: identifying known facts, assumptions, and missing information within the situation.
2. Establishing criteria: specifying the pedagogical, ethical, and organizational requirements for an acceptable solution.
3. Generating hypotheses and alternatives: developing at least two distinct explanations or solutions.
4. Substantiating and selecting: comparing the advantages, limitations, and potential consequences of the alternatives.
5. Modeling: testing the chosen solution within a micro-lesson or an instructional scenario.
6. Reflection and transfer: evaluating the outcome and determining the conditions under which the solution could be applied in a different context.

In military education, the freedom of inquiry is exercised within the framework of established safety requirements and service regulations. Autonomy is primarily demonstrated through the reasoned selection of pedagogical tools and the analysis of educational problems.

ASSESSMENT CRITERIA AND DISCUSSION

Evaluating the results of heuristic activity solely based on the final answer may obscure certain aspects of professional competence. Therefore, both the resulting solution and the thought process that led to it must be assessed. The article proposes the following criteria: accurate identification of the

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

problem; selection of relevant knowledge; substantive differentiation among alternatives; quality of evidence; alignment with pedagogical objectives; ethical responsibility; and reflective analysis.

A large number of solutions does not, in itself, signify high competence. A few well-vetted, contextually appropriate solutions may be pedagogically more valuable than a multitude of unsubstantiated options. Similarly, active speaking is not a comprehensive indicator of communicative competence; skills such as listening, clarifying questions, and considering the arguments of others are also subject to evaluation.

Empirical validation of the proposed approach may involve comparing groups with similar initial preparation, utilizing standardized assessment tasks, and engaging independent experts. Inter-rater reliability—the degree of agreement among evaluators—should also be assessed. Furthermore, a final task performed in a novel context allows for the evaluation of how effectively the learned method transfers to different conditions.

The limitation of the article is that it does not analyze primary empirical data related to the context of military education. Therefore, no firm conclusions can be drawn about the effectiveness of the proposed model or its uniform impact on all competencies.

CONCLUSION

The pedagogical content of professional competence includes not only the possession of knowledge and skills, but also the ability to responsibly apply them in a specific task. The heuristic approach allows organizing this application process through problem identification, hypothesis generation, comparison of alternatives, and reflection.

Their interrelationship is manifested in the mechanisms of mobilization of knowledge, justification of decisions, and revision of actions. In the training of future military educators, these mechanisms can be implemented through the analysis of professional situations, micro-training, and structured discussions.

For the effective application of the heuristic approach, the complexity of the task, the level of initial knowledge, and pedagogical support must be coordinated. The proposed components and evaluation criteria form a conceptual framework that should be tested in further empirical research.

Used literature

1. OECD. *The Survey of Adult Skills: Reader's Companion*. Third Edition. Paris: OECD Publishing, 2019. «The Survey of Adult Skills (PIAAC) and "key competencies"» бўлими. OECD
2. Shulman L. S. Those Who Understand: Knowledge Growth in Teaching // *Educational Researcher*. 1986. Vol. 15, No. 2. P. 4–14. DOI: 10.3102/0013189X015002004.
3. Pólya G. *How to Solve It: A New Aspect of Mathematical Method*. Princeton: Princeton University Press, 2004.
4. Kirschner P. A., Sweller J., Clark R. E. Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching // *Educational Psychologist*. 2006. Vol. 41, No. 2. P. 75–86. DOI: 10.1207/s15326985ep4102_1.
5. Hmelo-Silver C. E., Duncan R. G., Chinn C. A. Scaffolding and Achievement in Problem-Based and Inquiry Learning: A Response to Kirschner, Sweller, and Clark (2006) // *Educational Psychologist*. 2007. Vol. 42, No. 2. P. 99–107. DOI: 10.1080/00461520701263368.