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PSYCHOLOGICAL-PEDAGOGICAL FOUNDATIONS OF DEVELOPING SCIENTIFIC-PEDAGOGICAL COMPETENCIES AT THE MASTER'S LEVEL IN HIGHER EDUCATION

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A B S T R A C T

The article is dedicated to the psychological-pedagogical foundations of developing scientific-pedagogical competencies at the master's level in higher education. It analyzes the psychological patterns in the formation and development of competencies—such as motivational components, self-assessment, cognitive and emotional processes—as well as pedagogical foundations, including the design of educational content, individualization, practical application, and the use of innovative technologies. The stepwise complexity of scientific research competencies in master's programs, their qualitative transformation from the bachelor's level, and characteristics of heterochrony and cumulativity are examined. Psychological-pedagogical approaches are emphasized as serving to foster students' abilities to independently develop research programs, make decisions, and engage in reflection.

K E Y W O R D S

Master's degree, scientific-pedagogical competencies, psychological foundations, pedagogical foundations, development, motivation, practice.

INTRODUCTION

The psychological-pedagogical foundations of developing scientific-pedagogical competencies at the master's stage in higher education are formed with consideration of the complexity of the educational process, as this stage is aimed at deepening students' professional preparation. Psychological foundations are based on the laws of human cognitive and emotional development, which ensure the involvement of master's students in scientific research activities. Pedagogical foundations encompass principles of designing and managing educational content, enabling the development of competencies in individual and group settings. The development of competencies begins at the bachelor's stage, undergoes qualitative changes in the master's program, and is oriented toward specialization in subsequent stages. This process is grounded in continuous, recurring connections in forming scientific research competencies, which enhance students' motivational and goal-setting abilities.

At the master's stage, the development of scientific-pedagogical competencies is psychologically dependent on students' internal motivation, consisting of the formation of systemic quality

characteristics. Competencies comprise personal-motivational, goal-setting, research program development and implementation, decision-making, information base management, and self-monitoring components. Psychological foundations account for discrepancies between students' self-assessment and expert evaluation, aiding the development of realistic self-evaluation abilities in master's programs. Pedagogical foundations include diagnostic-based design of the educational process, allowing for the creation of individual development trajectories. The development of competencies is stepwise: basic skills are formed at the bachelor's level, while qualitative restructuring occurs in the master's program, leading to increased complexity in research work.

The development of scientific research competencies is based on psychological-pedagogical laws, reflecting changes in students' learning process. The indeterminacy and cumulativity of development ensure the stepwise complexity of competencies, which, despite a decline in the motivational component in master's programs, enhances the ability to develop research programs. Psychological foundations are grounded in students' self-diagnosis of their activities, developed through comparing teacher evaluations with self-assessments. Pedagogical foundations encompass group decision-making and monitoring methods, facilitating the testing of competencies in practical conditions. In master's programs, competency development is linked to the convergence of self-assessment with expert evaluation, ensuring students attribute personal meaning to scientific work.

Results and Discussion

Psychological-pedagogical foundations in organizing master's students' scientific-pedagogical activities account for motivational-value indicators, implemented through university scientific communities. The competency development process begins with increasing students' interest in scientific research, psychologically strengthening internal motivation. Pedagogical foundations include enriching educational content with innovative technologies, fostering master's students' abilities to develop research projects. The heterochrony of development accounts for asynchronous phases within competency blocks, allowing for the expansion of the information base in master's programs despite a decline in the goal-setting component. Psychological foundations consider students' personal characteristics in the learning process, while pedagogical foundations aim to eliminate differences between teachers and students.

At the master's stage, the development of scientific-pedagogical competencies is psychologically based on students' abilities to control their activities, activating self-correction mechanisms. Pedagogical foundations incorporate the application of modern psychological-pedagogical research methods in designing the educational process, aiding the analysis and optimization of competencies. Competency development undergoes qualitative changes from bachelor's to master's levels, ensuring a transition to more complex forms of research work. Psychological laws account for declines in student motivation, while pedagogical foundations address this issue through individualization of the learning process. The development process ensures students attribute personal meaning to scientific work, enhancing their abilities to independently develop research programs.

The psychological foundations of developing scientific-pedagogical competencies account for students' cognitive processes, fostering decision-making abilities in implementing research projects at the master's level. Pedagogical foundations include enriching educational content with psychological-pedagogical support, enabling the application of innovative technologies in personnel development. Competency development is based on continuous changes in the learning process, refining criteria for

evaluating students' scientific activities. Psychological foundations consider students' emotional states, while pedagogical foundations develop competencies through managing group dynamics. In master's programs, this process is reinforced through publishing research work and participating in conferences.

Psychological-pedagogical foundations account for practice and internships in developing master's students' scientific-pedagogical competencies, aiding the formation of skills in real conditions. The practice process develops students' abilities to provide psychological support, implemented with consideration of age and individual characteristics. Pedagogical foundations include designing practice in educational institutions and enterprises, developing competencies through teamwork and research. The cumulativity of development ensures systemic complexity of competencies, deepening research skills in pre-diploma practice at the master's level. Psychological foundations activate students' reflection, while pedagogical foundations focus on developing leadership abilities.

The development of scientific-pedagogical competencies is psychologically based on students' tolerant acceptance of social, ethnic, and cultural differences, ensuring participation in team projects at the master's level. Pedagogical foundations encompass integrating the educational process with psychological-pedagogical support, enabling the development of innovative management solutions. Competency development accounts for heterochrony in the learning process, strengthening the motivational component. Psychological foundations consider laws of students' psychophysiological development, while pedagogical foundations develop competencies through designing educational content. In master's programs, this process enhances students' abilities to apply scientific research methods.

Psychological-pedagogical foundations account for modern educational technologies in developing master's students' scientific-pedagogical competencies, aiding diagnostic-based management of the learning process. Competency development is implemented with consideration of students' personal development characteristics, psychologically ensuring the creation of individual trajectories. Pedagogical foundations include enriching educational content with professional pedagogical concepts, fostering the implementation of research projects in master's programs. The indeterminacy of development accounts for competency pace, ensuring qualitative changes from bachelor's to master's levels. Psychological foundations strengthen students' self-evaluation of activities, while pedagogical foundations ensure development through integrating expert evaluation.

The psychological foundations of developing scientific-pedagogical competencies account for students' emotional intelligence, aiding the overcoming of challenges in the research process at the master's level. Pedagogical foundations include enriching the educational process with psychological-pedagogical research methods, enabling competency analysis and optimization. Competency development is based on continuous connections in the learning process, increasing students' attribution of personal meaning to scientific work. Psychological foundations strengthen motivation, while pedagogical foundations develop competencies through individualization. In master's programs, this process reinforces students' abilities to publish research results.

Psychological-pedagogical foundations account for practical skills in developing master's students' scientific-pedagogical competencies, ensuring psychological support in real conditions. Competency development is implemented with consideration of students' age and individual characteristics, psychologically aiding the resolution of development crises. Pedagogical foundations include designing practice with teamwork, deepening research skills in master's programs. The cumulativity

of development ensures systemic progression of competencies, increasing reflection. Psychological foundations consider students' psychophysiological states, while pedagogical foundations focus on developing leadership.

The development of scientific-pedagogical competencies is psychologically based on students' social adaptation, ensuring participation in projects accounting for cultural differences at the master's level. Pedagogical foundations encompass integrating educational content with innovative management solutions, enabling competency development. Competency development accounts for heterochrony in the learning process, strengthening the motivational component. Psychological foundations optimize emotional states, while pedagogical foundations ensure development through diagnostic management. In master's programs, this process enhances the application of scientific methods.

Psychological-pedagogical foundations account for modern technologies, enriching the learning process with individual trajectories. Development considers personal growth, integrating professional concepts. Pedagogical foundations enrich content with projects, resolving methodological tasks. The indeterminacy of development accounts for pace, ensuring qualitative changes. Psychological foundations strengthen evaluation, while pedagogical foundations integrate assessment.

The development of scientific-pedagogical competencies optimizes cognitive processes, increasing creativity. Pedagogical foundations enrich with research, enabling analysis. Development is based on connections, increasing meaning attribution. Psychological foundations strengthen motivation, pedagogical foundations individualize. In master's programs, presentation of results is reinforced.

Psychological-pedagogical foundations account for practical skills, ensuring psychological support. Development considers age characteristics, resolving crises. Pedagogical foundations design with teamwork, deepening skills. Cumulativity ensures systemic development, increasing reflection. Psychological foundations consider states, pedagogical foundations develop leadership.

The development of scientific-pedagogical competencies is based on adaptation, accounting for differences. Pedagogical foundations integrate with solutions, enabling development. Development accounts for heterochrony, strengthening motivation. Psychological foundations optimize emotional states, pedagogical foundations manage diagnostics. In master's programs, method application is enhanced.

Psychological-pedagogical foundations account for technologies, enriching with trajectories. Development considers personal growth, integrating concepts. Pedagogical foundations enrich content, resolve tasks. Indeterminacy accounts for pace, ensuring changes. Psychological foundations strengthen evaluation, pedagogical foundations integrate.

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Conclusion

The psychological-pedagogical foundations of developing scientific-pedagogical competencies at the master's stage in higher education manifest as a complex and systemic mechanism for deepening students' professional preparation. Psychological foundations, accounting for cognitive, emotional, and motivational processes, are based on strengthening internal motivation, activating self-assessment and reflection mechanisms, thereby ensuring master's students attribute personal meaning to research activities. Pedagogical foundations ensure the stepwise complexity and qualitative transformation of competencies through designing educational content, individualization, integration of innovative technologies, and practice processes. Competencies consist of personal-motivational, goal-setting, research program development, decision-making, and self-monitoring components, exhibiting heterochrony, cumulativity, and indeterminacy in the transition from bachelor's to master's levels. Skills formed through practice and scientific seminars are tested in real conditions, enhancing students' abilities to independently implement research projects, develop innovative solutions, and engage in teamwork. As a result, psychological-pedagogical approaches adapt master's students' scientific-pedagogical competencies to modern educational demands, ensuring their creativity, critical thinking, and professional development, while serving to increase the overall effectiveness of pedagogical education. These foundations create a reliable basis for preparing future pedagogue-researchers as highly qualified personnel in the higher education system.

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