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## Development of Creative Competence in the Process of Preparing Students for Innovative Engineering Activity

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**Abstract:** *Creative competence serves to ensure the strength and perfection of students' acquired knowledge, to form active and independent thinking personality traits in them, and to develop their mental abilities.*

*In the article, the issues of developing creative competence in the process of preparing students for innovative engineering activities, in mastering the basics of science, in the implementation of direct leadership in this process, and in the development of forms of creative works are highlighted.*

**Keywords:** *engineer, innovative, creativity, competence, understanding, imagination, knowledge, memory, psychology, technique.*

In the process of preparing students for innovative engineering activities, it is appropriate to use pedagogical and technical knowledge to develop their creative competence. Also, the use of modern pedagogical and information and communication technologies in the educational system as the main driving force of development and an important activity leading to the goals of sustainable development is of great importance in preparing students, future engineers for professional activities, developing their creative competence.

It is necessary to take into account two interrelated tasks in the development of creative competence of students. The first of them is the development of students' independent thinking, their eagerness to acquire knowledge, and the formation of a scientific outlook; the second is determined by teaching independently apply acquired knowledge in education and practical activities.

Creative competence serves to ensure the strength and perfection of students' acquired knowledge, to form active and independent thinking personality traits in them, and to develop their mental abilities. This is of great importance in the process of preparing students for innovative engineering activities, mastering the basics of science, and later in the development of forms of creative works in the implementation of direct leadership of this process.

We will consider the clarified definitions of knowledge, skills and competences specific to the development of students' creative competence. In pedagogical literature, the concept of "knowledge" is usually "a true reflection of existence in the minds of people; it is defined as a product of the knowledge

process confirmed in the practice of society. Objects and events perceived by a person are transformed into subjective images as a result of cognitive and thinking activities, which in turn are transformed into concepts, ideas and their systems confirmed in practice, and knowledge in this form is stored in memory. For this reason, in the pedagogical-psychological concept, the systematic reflection in the human mind of the concepts and imaginations required for the development of a new technical solution represents the creative competence of students.

The concept of skill, from a traditional point of view, is formed before competence and is transferred to it as a result of practice. In the "Brief Pedagogical Dictionary"<sup>1</sup> skills are defined as "The acquisition of new actions based on known laws and their use in solving relevant problems." Skills can be theoretical or practical. A person's level of conscious control over the process is different, and it depends on the strength of conditioned reflex connections formed as a result of repetition of actions, that is, the stronger it is, the higher the student's skills and the ability to perform certain tasks. At first, the skill is fully realized in practice, then as conditioned reflex connections are strengthened, this control weakens. For this reason, the skill of creativity represents the level of rapid and complete implementation of the stages of the mental process, while weakening the conscious control of the goal-oriented creative activity of a person.

The speed and ease of acquiring skills depends on the innate and acquired qualities that make up the human experience. As a result of the exercises, conscious control is not required and the work is done automatically, that is, the skill becomes a skill. Actions formed through repetition, characterized by a high level of mastery and implementation without conscious control, are called skills; perceptual, intellectual and motor skills differ. When the skill is fully formed, the means, methods and conditions involved in the action automatically become its constituents. A temporal system with high independence serves as the physiological basis of competence. According to it, the initial actions start the operation and follow the system of all subsequent actions. The lower the level of conscious control in the performance of actions, the higher the level of skill formation, but the performance of actions cannot be fully automated. Based on this, taking into account that the development of creative competence is a creative process, the improvement of the qualities presented in the student is of great importance in the development of their creative competence.

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<sup>1</sup>Краткий психологический словарь / Под.ред. А.В. Петровского и М.Г. Ярошевского.- М.: Изд. Политической литературы,1985.-432 с.

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