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Diagnosis of creative potential of future teachers as a mental basis for professional self-improvement

Abstract: The need for innovative approaches to the training of future teachers is determined by the renewal and creation of the content of the educational process in higher education institutions, taking into account the creative development of the individual. Unfortunately, the traditional methods and forms of teaching used in higher education do not provide full and continuous effectiveness of professional training of future teachers. While the specialists of the new formation are required to acquire thorough professional knowledge and skills, a high level of intellectual development and civic position, the ability to constant personal and professional self-improvement. The purpose of the study is to reveal the essence of the creative potential of future teachers as a mental basis for professional self-improvement of high school teachers and experimental analysis of the components of the creative potential of future teachers, the study of teachers' attitudes to professional development. Based on the results of the research, the criteria and indicators of the formation of the creative potential of future teachers were determined; developed diagnostic and methodological tools for certain criteria and indicators. Psychological and pedagogical diagnostics were carried out to differentiate the levels of formation of the creative potential of students of pedagogical specialties.

Keywords: *Pedagogical activity, Knowledge and skills, Originality, University, Emotional and creative intelligence*

INTRODUCTION

In modern research related to the study of professional training of future teachers N. Melnyk et al. (2019), N.I. Melnyk and S.O. Dovbnia (2019), A.M. Bogush (2017); I.V. Sopivnyk, T.M. Duka and I.Y. Pidlipnyak (Sopivnyk et al., 2017), O.V. Gulai (2016); the question of the level of their creative potential was considered in the following areas: creative self-realization of students, disclosure of their creative potential O.E. Antonova (2006); professional self-improvement of students of higher pedagogical educational institutions V. Plyushch, K. Stepanyuk and V. Bilan (Plyushch et al., 2017): readiness of students for professional self-development V. Fritsyuk (2016).

In the context of the development of the creative potential of the individual, the approach of O.E. Antonova (2006) attracts attention, according to which the creative potential of the individual reflects a person's ability to transform in any of the social forms of life. It is defined as an integrative quality of the individual, which characterizes the extent of its ability to set and solve new problems in the field of its activities, which has social significance. At the same time, the results of such activities, assessed depending on the significance of the achieved novelty, can serve as an indicator of the level of use of the creative potential of the individual. Creative potential is characterized by a person's ability to self-development, creating something new not only in the world around him, but also in himself. The formation and degree of realization of this ability are determined by a number of external and internal factors, the optimal combination of them and consistency in the life of the individual (Kuznetsova, 2012; Dyachenko, 2014; Sokolova, 2014).

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The authors agree with O.V. Sokolova (2014) that "pedagogical creativity of the future teacher is due to the creative potential of his personality, which is formed on the basis of accumulated social experience, psychological, pedagogical and subject knowledge, new ideas, skills and abilities to find and apply original solutions, innovative forms and methods of work, and, consequently, to improve the performance of their professional functions". M.A. Kuznetsova (2012) opinion is correct, emphasizing that a creative person, first of all, creates himself as a person who, before making any innovative transformation in the object world, must change his subject world accordingly. Spirituality is an indicator of the norm, says the researcher, the integrity and completeness of personal development, evidence of the realization and disclosure of important human qualities, his creative potential. The level of spiritual ability of the individual is a universal criterion of creativity. Valuable for this study are the scientific views of M.V. Dyachenko (2014), who emphasized that the creative potential includes the idea of self-creation of the individual and his ability to develop their creative abilities in the process of their own efforts, triggering a positive feedback mechanism, during which something man's own creative possibilities are created and developed, embodied in his new creations. According to the scientist, "creative potential – a complex integrated personality and activity characteristics of man, which includes intellectual, motivational and self-development components that reflect the set of personal qualities and abilities of the individual, his psychological state, knowledge, skills and abilities necessary for development and self-development of the personality by actualization of own creative forces and possibilities" (Shostrom, 1963; Derkach & Zazykin, 2003; Kocherga, 2013).

The authors agree with the opinion of A. Derkach and V.G. Zazykin (2003) that "the creative orientation of professional interests is a priority characteristic of creative potential. These are the need for innovative activity, the ability to innovate, a high level of general and some special types of intelligence, the ability to form associative ties, developed imagination, strong volitional regulation of behavior and activity, independence, ability to manage their condition, including stimulating creative activity. And the high creative potential, which is manifested in professional activity, creative search, the ability to make effective and non-standard decisions, is directly related to the level of professionalism of the individual". It should be noted that the creative potential of a teacher is not a purely natural gift that a person receives or does not receive from birth, which indicates the need to create conditions for its development. Thus, the creative potential can and should be formed, and further developed. As the sphere of actualization of creative potentials is creative activity, it should be organized, methodically provided and directed on increase and constant functioning of creative potential of the student. The system of professional training of teachers should be focused on finding optimal ways to form their creative potential, to increase the level of its focus on creative activity, improving the components of readiness to creatively solve problems of the educational process of younger generations (Voronin, 1995; Karelin, 2005; Bondarchuk, 2011; Osmanaj & Kamberi, 2017).

The process of formation and realization of the creative potential of the individual is influenced primarily by such personal substructures as natural preconditions (general talent, inclinations); experience (knowledge, skills, abilities); characterological features (independence, initiative, volitional qualities, etc.); motivation (goal setting, self-programming, self-regulation). The character performs in the process of interaction of the mentioned substructures the function of a means in relation to natural gifts, helping to transform the latter into an experience of creative activity. From such interaction grow creative abilities, i.e. qualities of the person defining its creative possibilities (Antonova, 2006). The main concept of the study is "creative potential". Essential in the analysis of this phenomenon is to determine its structure, which consists of the following components such as: motivational component, which expresses the uniqueness of the interests of the individual, his focus on creative activity; at the same time the cognitive motivation of the teacher plays a dominant role; the emotional component characterizes the emotional support of creativity, the emotional attitude to the creative process, which highlights the emotional and figurative characteristics of the psyche; volitional component characterizes the ability of the individual to self-regulation and self-control; quality of attention; independence; ability to volitional tension; the orientation of the individual to achieve the ultimate goal of creative activity, demanding the results of their own creativity; intellectual component is expressed in originality, flexibility, adaptability, speed and efficiency of thinking (Kasyanov, 2006) (Figure 1).

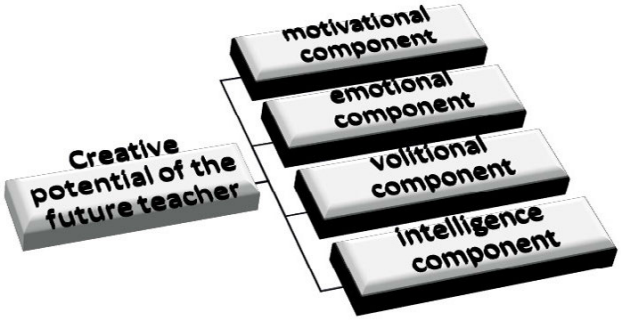

Figure 1. Schematic representation of the creative potential of future teachers

The authors believe that the formation of creative potential of future teachers will create favourable conditions for the upbringing of children in educational institutions, which will be focused on creative self-expression, creative, active and responsible attitude to life, ready to effectively solve various problems. Thus, the raised problem requires a comprehensive solution to a wide range of issues related to the formation of the student's creative personality, the development of his intellectual, professional, professional abilities, as well as creative potential for his future professional activity.

Based on the above, currently relevant and timely is the problem of psychological and pedagogical diagnosis of the level of formation of creative potential of students of pedagogical specialties. The results of such work will open up prospects for the development of appropriate effective innovative methods and techniques for the formation of students' creativity, creative style of activity, characterized by a willingness to creative perception and thinking, readiness for self-improvement (Druzhinin, 2000; Kholodna, 2002).

The authors of this study aimed to conduct an experimental study of the impact of emotional and creative intelligence on the professional development and competence of future teachers.

MATERIALS AND METHODS

The basis of the theoretical study of the problem was used analysis and synthesis – in order to identify the essence of the phenomenon under study; method of terminological analysis related to determining the categorical status of emotional intelligence in the system of psychological and pedagogical definitions; abstraction, idealization, formalization and generalization – for systematization and formulation of conclusions, determination of directions of further research of a problem. Regarding the empirical private research, the authors used the method of E.L. Shostrom (1963) "Personal Orientation Inventory", a questionnaire to determine the perceived motives for professional development and personal development of university teachers (modified version of the method O.I. Bondarchuk), modified non-variants of the method motives for professional development and personal development of university teachers developed by O.I. Bondarchuk (2011). To identify significant differences in the compared indicators used parametric methods for Pedagogy (Osmanaj & Kamberi, 2017). At the diagnostic stage of the experiment, 96 students of M.P. Dragomanov National Pedagogical University, who study in pedagogical specialties, were involved. Subsequently, all respondents were divided into 2 groups: experimental (EG – 38 students) and control (KG – 38 students).

To assess the state of the levels of creative potential of future teachers identified a number of criteria and indicators: cognitive-personal (the presence of ideas about the features and characteristics of the creative personality, a positive self-image, the presence of personal qualities); emotional and motivational (interest in future pedagogical activities; the presence of positive motivation; the desire for self-improvement); creative-reflexive (ability to be creative in their activities; ability to self-assess professional activities; the presence of creative potential) (Serdali et al., 2017; Zhanassilova et al., 2018; Atabekova et al., 2019a; Bayanov et al., 2019). On the basis of the outlined criteria and their indicators the levels of formation of creative potential of students of pedagogical specialties were characterized: sufficient, average and satisfactory. Diagnostic methods and special tasks were selected for each of the defined criteria and indicators of the formation of creative potential of future teachers.

Within the framework of the empirical research, a method of diagnosing the formation of the creative potential of future teachers was carried out, which was carried out in two stages. The first stage involved diagnosing the level of formation of creative potential of future teachers using the test of creative thinking P. Torrens "Finish drawing", in particular the identification of such indicators of creative potential as originality and uniqueness (Voronin, 1995). The second stage of diagnosing the formation of creative potential of future teachers involved diagnosing the level of formation of intellectual potential. At this stage, it was planned to conduct an Eisenko test to establish the IQ (detection of such mental processes as attention, imagination, memory, thinking) in the range of 90-150 IQ and a test to establish intellectual lability (ability to switch attention, quickly move from solving some problems to perform others, without making mistakes) (Atabekova et al., 2016; Khaskhanova & Vereshchagina, 2019; Magsumov et al., 2019; Byrdina et al., 2020).

RESULTS AND DISCUSSION

Students were offered a set of 6 pictures with certain elements, using which, it is necessary to complete the picture to some meaningful image and sign it (1-2 minutes for each picture). The drawings are interpreted with an atlas of typical drawings proposed by the author of the test. When finding a similar type, this picture is assigned the originality indicated in the atlas, if the atlas and in this sample do not have this type of drawing, then such a drawing is considered unique. The index of originality is calculated as the average originality of all pictures. The authors distinguish the following levels of formation of creative potential: low (index of originality 0.50), medium (0.50-0.80), high (0.80). At the second stage, students were offered a test to establish the IQ, which contained 40 tasks of different types and different complexity, which had to be completed in 30 minutes (Karelin, 2005). The IQ was calculated based on the ratio of the number of correct answers with a special graph. Suggest a test to establish intellectual lability required students to have high concentration and speed of action. They had to perform simple tasks for a limited period of time (3 to 5 seconds), which will be read by the experimenter (Varha & Martyn, 2020). The subject's answers were recorded on a special form. The results were processed according to the number of errors (the missed task is also considered an error): 0-4 errors – high lability, good ability to learn; 5-9 errors – average lability; 10-14 errors – low lability, difficulties in retraining; 15 or more mistakes – low success in any activity, in training in particular. The authors distinguish the following levels of formation of intellectual potential: low (IQ) 110, low lability), medium (IQ ratio 110-116, average lability), high (IQ ratio 116, high lability). Thus, the state of formation of the creative potential of the future teachers is determined as a result of the ratio of indicators

of the formation of intellectual and creative potential (Astashova et al., 2020; Kartushina, 2020; Perminov & Testov, 2020).

When diagnosing the formation of intellectual and creative potential of future teachers, it is necessary to take into account a certain pattern, which was studied by scientists V.N. Druzhinin (2000) and M.A. Kholodna (2002), and which the authors traced in the course of the research. This pattern is that in the process of intellectual and creative activity there is a certain "threshold" of IQ of the individual, beyond which the possibility of creative activity is limited. That is, with low human intelligence (IQ < 90) limited expression of creativity, but, along with this, too high an IQ of the individual (IQ > 116) can inhibit the creative activity of the individual (while the indicators of creative potential will be low) (Atabekova, 2009; Kapitonov et al., 2016; Baydiuk, 2019; Zinchenko, 2020; Sobchenko, 2021). Therefore, in the authors' opinion, for future teachers, who first of all should be creative individuals, it is necessary to have a high level of intellectual potential, while creative potential should be at a high level, and intellectual – not "beyond" the IQ of creative personality. During the study, it is advisable to compare the student's success, the activity of his participation in research, problem-solving, intellectual and creative activities with indicators of the formation of intellectual potential. If the indicators of this personal education will exceed the indicators of his educational activity, it indicates the unrealization of his potential. The reason for this may be low motivation of future teachers to intellectual and creative activities, insufficient authority of knowledge in the minds of students, insufficient differentiation and individualization of educational activities, insufficient creation of conditions for the development and realization of intellectual potential (Atabekova et al., 2019b; Molnar & Ryabets, 2019; Portnova, 2020).

In order to form a high level of intellectual and creative potential of future teachers of technology, it is advisable to create an intellectual and creative environment for students in the following pedagogical conditions:

1) formation of positive motivation for intellectual and creative activity;
2) creating a favourable microclimate of the environment (humanity and democracy, friendly and partnership relations with others, the ability to freely express opinions, positive emotions) (Atabekova et al., 2018a; Atabekova, 2019; Lypchanko-Kovachyk & Sidun, 2019; Portnova, 2019a; Tovkanets & Vagerych; 2019);
3) limiting barriers to blocking intellectual and creative activity (fears, anxiety, criticism, internal and external conflicts) (Portnova, 2019b; Drobiec et al., 2020; Kisiołek et al., 2020). Limiting conformal thinking, giving the opportunity to independently choose goals, objectives and means of their solution (because a person who is not accustomed to act independently and take responsibility, loses confidence in their abilities, the ability to be creative) (Atabekova et al., 2018b);
4) application of active (heuristic, problem-solving, research), interactive methods ("brainstorming", "microphone", "decision tree", "aquarium", "big circle", etc.), design methods (fantasy method, sample method, the method of focal objects, the method of creating an image of an ideal object, the basics of the theory of solving inventive problems) in solving a problem situation (these methods stimulate the independent discovery of new, strengthen the student's faith in their ability to intellectual and creative activity) (Kisiolek et al., 2003; Kisiołek, 2018; Atabekova, 2020b).

The study of the structure of creative potential of future teachers as a mental basis for professional self-improvement of high school teachers allowed to conclude that among its main essential components is cognitive-personal (presence of ideas about features and signs of creative personality, positive self-perception, personal qualities); emotional and motivational (interest in future pedagogical activities; the presence of positive motivation; the desire for self-improvement); creative-reflexive (ability to be creative in their activities; ability to self-assess professional activities; the presence of creative potential) (Atabekova, 2020a; Shcherban & Schcherban, 2021). Thus, the creative potential of future teachers is a mental (intelligence, empathy sensitivity) basis of pedagogical activity, an integral component of professional self-improvement, synthesis of intellectual and mental, rational and irrational, harmonious combination of affect, intellect, will.

CONCLUSIONS

Experimental study of the impact of emotional and creative intelligence on professional development and competence of future teachers, allowed to summarize the results of the experiment, their quantitative and statistical interpretation showed that the respondents of group I proved to be more open, flexible, mobile, actively striving for a high-level professionalism due to pragmatic motives, realized the importance of developing creative potential and its resources. The vast majority of the tested groups II agreed with the need for professional self-improvement and creative development, noting that they have already achieved a high level of these processes. It was found that these teachers are characterized by conservatism, secrecy, inflated self-esteem, but also a developed moral and spiritual sphere, altruistic aspirations and needs, inhibition of the mechanisms of creative development. Thus, a significant dependence of the level of professional self-improvement of future teachers of higher education institutions on the level of development of creative potential in the synthesis of its components has been established.

Development of creative potential – the basis for the formation of future teachers of high motivation for the need for continuous self-improvement, achieving spiritual integrity, the pinnacle of professionalism, subjectivity, effective interaction with the student audience; creative, aimed at self-development of the teacher of higher

education; rethinking the essence of the educational process of higher education. The high level of creative potential allows to increase the level of awareness of the importance of values of professional self-improvement, self-development, identification, which has a positive effect on the formation of individual space, style of self-improvement, creating spiritual communication between teacher and student in the future. The solution and answers need to develop effective technologies for forming a high level of creative potential of teachers, study the effectiveness of teaching from the level of creative potential in uncertainty and rapid socio-cultural, economic and political transformations, which is a prospect for further research.

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