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Professional Culture of the Specialist of the Future

COMPARATIVE ANALYSIS OF CREATIVE THINKING OF TEACHERS AND STUDENTS OF PEDAGOGICS

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Abstract

Creative thinking plays the crucial role providing for the success of an individual specialist. This issue is of special importance while training future teachers. Firstly, creative thinking enables teachers to find unconventional solutions of various pedagogical problems. Secondly, democratisation of society called for altering the model of pedagogical intercommunication between teachers and their colleagues, students and their parents, whereas developed creative thinking helps teachers cope with such tasks. Thirdly, rapidly changing environment, information updates and developing pedagogical technologies require flexibility, originality and unconventional approach to pedagogical work. The authors held comparative analysis of psychological peculiarities among students of pedagogics and practising teachers. Notably, the sample group included teachers from secondary and music schools, for the authors put forward a hypothesis of differences between teachers from various fields. The research in question enabled the description of creative competence among practising and future teachers. Similarities and differences in the structure and manifestation of creativity among teachers and pedagogical students were revealed, as well as dynamics of creative competence formation among educational workers. The conclusions reached enabled the authors to formulate the direction of forming creativity in students. Implementation of the above mentioned should radically increase the creative thinking level of future teachers

Keywords: Creativity, specifics of students' creative thinking, specifics of teachers' creative thinking, comparative analysis, components of creativity in pedagogical activity.

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1. Introduction

Active research work has been going on in psychology in order to learn the nature of creativity and creative abilities shaping. Bono (2005) was a classic in the development of effective thinking ways enabled to solve practical problems. The importance of this issue is due to the possible effect (economic, social, ecological etc.), that can be manifested through realization of creative unconventional approach in any professional sphere. The rapidly changing environment in which professional activity is implemented today calls for innovative solutions. Creativity is particularly important in socio-economic professions, especially in pedagogical activity, for education sphere cannot stand any stereotypes or clichés, requiring individual approach to every student. Here we face a certain contradiction in view of future teachers training: the contents, process and planned results in teachers training are rigidly standardized and do not imply shaping of creative competence.

2. Problem Statement

According to Shadrikov (2010), the main change to be made in pedagogical training is to set and try to achieve a final goal of the learning process. The essence of teachers training is not giving the students certain information, but helping them form the competency vital for working at school. Shadrikov (2010) worked out the requirements to the abilities and personal qualities of teachers (their competence) providing for the success of pedagogical activity.

Druzhinin (1999) worked out a four-dimensional model of intellect, the top of it being formal-and-indicative intellect providing for productive creative activity. With the development of intellect, the sphere in which creative personality may be realized also expands. He showed that in creativity tests one should take into account average results, for higher ones are often defined with factors other than productive process.

In view of eco-psychological approach suggested by Panov (2014), psychological competence of teacher is seen as his or her ability to develop students' creativeness and is manifested in designing educational process aimed at creative work as well as creating conditions for students revealing and developing their creative abilities. Larionova (2011) defines creativity as a quality of gifted personality, allowing, on the one hand, to develop one's talent and, on the other hand, to share one's personal experience with the public, thus contributing to culture development.

Savenkov (2010) points out that a teacher trained to solve research education tasks should acquire a number of skills: ability to stimulate work improvement proposals as well as to put forward new original research trends; to encourage and cultivate critical approach to research procedures.

Voronin and Trifonova (2003) made psychological analysis of similarities and differences of personal peculiarities and creativity of teachers and their students. They discovered that similarities in communication abilities, introversion-extraversion and self-control between teachers and students have favourable influence on originality; students' social braveness and self-assurance, if higher than that of teachers, contributes to higher flexibility; similarities in communicative skills of teachers and students contribute to higher degree of elaboration. The concept of mental experience worked out by Kholodnaya (2012) stresses out the importance of early creative experience. The model of dissynchrony of gifted

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children cognitive development worked out by Ushakov (2011) presupposes the existence of two groups of abilities depending on the age and personal peculiarities. He shows that age characteristics of creative abilities depend on variable environment stimulating their development.

According to many years research held by Sheblanova (2008), school environment influences gifted children development. The character and degree of this influence rather depend on learning conditions corresponding with gifted children psychological peculiarities in every age group. The majority of gifted children evaluating their own abilities in a positive way show better academic success. The author states that this positive evaluation depends very much on the teacher's ability to stimulate his cognitive activity and creative manifestations.

Social context of the use of creativity is rather broad. Thus, Shubina (2017) showed that developing children's creativity in clinical psychology provides for use of patients' abilities to put forward new fresh ideas or suggest innovative solutions to problems, which makes the course of treatment more efficient.

Poleshchuk, Vorobyova and Gnedash (2015) studied the role of creative work in technical specialists making. We completely agree with their conclusion that creative person can always cultivate his own well-being and qualities of life, therefore the authors see creativity as a special ecological condition for a modern person.

Large emphasis has been made on training of future professionals, with the special accent on forming their creative competence. It does not seem quite right to compare technical creative work with that of humanities, still, such research has been made by Mynbayeva, Vishnevskaya and Akshalova (2016). Also, research made by Morais, Almeida, Azevedo, Alencar and Fleith (2014) is especially important, for it has revealed obstacles in the way of personal and professional creative work of university students, since these results require revision of university training.

Discussing issues of increasing creative potential one should turn to the research of Lupu (2017), who discovered the relation between creativity and empathy, as well as showed that physical exercise and sports help stabilize emotional sphere, which will have favourable influence on the development of creative potential.

Therefore, the analysis made allows for seeing creativity as an integral feature of both practising and future teachers revealing itself in pedagogical activity. The authors state that, while working with gifted students, one needs pedagogical creativity, which, in our opinion, is related to supra-situational thinking. It is revealed in the reforming nature of creative solutions as a means to show one's own alternative while solving a problem, as opposed to choosing from imposed options.

3. Research Questions

In the course of research, the following points had to be worked out:

- the structure of creative competence of practising and future teachers;
- similarities and differences in the structure and manifestations of creativity among practising and future teachers;
- the dynamics of creative competence formation among education workers;
- main trends (ways, means) of forming creativity among future teachers.

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4. Purpose of the Study

The purpose of the study was discovering the structure of creative competence and dynamics of its formation among practising and future teachers. The task of the research was revealing the correlation between verbal and non-verbal components of creative thinking among practising and future teachers, as well as working out most evident creativity readings and peculiarities of creative competence. The sample group consisted of secondary school and music school teachers, as well as students of pedagogics

5. Research Methods

The following research methods were used: "Creativity Assessment Packet" by Williams adapted by Tunik (2003); "Polysemantic Words" test by Kashapov, Kisseleva & Ogorodova (2013); "Thinking Flexibility" method by Lachins (cite by Nikiforov, Dmitrieva, & Snetkov, 2003); "Creativity" test by Vishnyakova (cite by Mironova, 2006). The data obtained was analysed with mathematical statistics methods including the analysis of differences consistency with the help of the Mann–Whitney U test; correlation analysis was made with Spearman's rank correlation coefficient.

6. Findings

Theoretical analysis of creative thinking research allowed us to single out verbal and non-verbal creativity components, which became the basis of our experiment. The verbal components were as follows:

- semantic flexibility – a number of word meanings that each subject found for each given word. This parameter indicates broad-mindedness and person's ability to go beyond personal situation and look for solutions in other spheres;
- originality (verbal) – the index of originality is defined as the ratio of a sum of indices of answers (association-words) of subjects to the total number of answers. This parameter indicates the original style, the person's ability to be unique, go his own way, and reject speech clichés;
- fluency – the number of verbal associations, proving the person's ability to give the maximum number of solutions, ideas, proposals during a limited period of time, which would allow for choosing the solution different from all others.

The non-verbal components of creative thinking included:

- - readiness (aspiration) of a person to use most of the given environment; not just propose an idea, but bring it to implementation;
- - originality (non-verbal) – parameter similar to verbal originality, but presupposing the use of various techniques, approaches and ways of realizing the plan or idea.

The results obtained show lack of valid differences in most parameters between practising and future teachers, except for readiness parameter. This proves theories of inbred abilities including creative ones, which do not change much in one's lifetime. Therefore, the idea of professional selection and search for most talented, gifted and creative young people among school students and their subsequent support in the course of professionalization and professional establishment seem to be most efficient professional orientation methods. Although, considerable increase of creativity level is possible on condition of

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purposeful forming of creative abilities (provided it becomes a mandatory component of educational and professional standards (Kashapov et al., 2013).

As for "readiness" parameter, students are definitely second to teachers (U=95.5, p=0.038). We relate this phenomenon to young age peculiarities and lack of life experience. Students see their future through rose-coloured glasses, idealising it, not specifying details, methods and ways of achieving their goals. While adequately formulating the result of their pedagogic activity, students do not possess a precise algorithm for achieving it. Subsequently, facing pedagogical problems, many of them get disappointed and quit the profession.

Surprisingly, many secondary school teachers prove to be more pedantic and prone to detailed elaboration than their colleagues from music schools (U=242, p=0.025). The yearning of music teachers to symmetry and "good shapes" in their pictures indicates their preference to precise organization of the environment. For them, creative thinking looks like a well-balanced, precise and logical process and result. As for professional task, music teachers are more than secondary school teachers inclined to form steady skills, accurateness and clearness of performance, as well as precise organization of "music knowledge". As a rule, they do not teach improvisation, departure from given standards or going beyond classical manner of performance. The result of their teaching effort is their students' performance at the exam, so most of the class is dedicated to learning the score, perfecting the technique and working on the imagery of musical pieces. Furthermore, the teachers, being musicians themselves, used to study according to the same pattern and are not prepared to deviate from it (we are talking about rank and file teachers, but, fortunately, there are exceptions). Even the repertoire of music schools has not changed through the years.

Secondary school teachers definitely surpass their colleagues from music schools as far as non-verbal originality parameter is concerned (U=245, p=0.028). They are ready to use most of the environment, going beyond the limits of stimulus figure, making use of the space both within and beyond it. Pictures of music school teachers are more "concrete" and laconic. You might say secondary school teachers are more willing to use the given opportunities, which improves the effectiveness and results of pedagogic activity.

The research revealed that, with age, the parameter of "readiness" decreases. In the age group of 24-33 years it is 1.5 times higher than in the age group of 53-66 years (U=25, p=0.012). The age dynamics of this parameter conforms to the law of normal distribution: low values of readiness among students grows gradually with professional experience accumulation, but after reaching the summit of 10-15 years of professional activity they begin to decrease gradually, reaching by the end of professional career the value of its beginning after the graduation.

It is possible that, in the case of experienced teachers, on the one hand, they fulfil the task of teaching certain skills, but, on the other hand, they tend to save their effort, having worked out a certain algorithm of solving pedagogical problems, full of clichés and stereotypes, which leads to monotony in teaching. Notably, Rapatskaya and Ivakhnenko (2015) points out that the monotony of the teaching process at some stage causes teachers to lose interest in their profession as the vocation of a lifetime.

Analysis of the creative thinking verbal component results proved the contrary. We would expect students (having to make numerous reports in the course of studies) or secondary school teachers (having to explain new material all the time or commenting on oral and written answers) to show the best results concerning verbal component. Music teachers, though, revealed a higher level of semantic flexibility and

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verbal originality. They could find more original and less trite word meanings as compared to their colleagues and students (U=260, p=0.05). There was not much difference revealed between students and secondary school teachers, except for "fluency" parameter. Students would come up with a large number of various associations related to the given word, but the originality level was quite low. Within the sample group of secondary school teachers we have discovered a higher level of rigidity and "associating" under the weight of a more widely used, more evident meaning of the word. The revealed regularity of the creativity verbal component calls for maximum expansion of professional activity limits and going beyond your subject area, if we need creative teachers able to mould creative abilities of their students. The established practice to teach subjects within the framework of one information field (for instance, mathematics and physics, history and social science, biology and chemistry etc.) leads to narrowing outlook, convergence in perceiving information and, as a result, rigidity of thinking. Flexibility, as a means to discard the existing modus operandi in favour of another one, in pedagogic activity can be manifested in different situations – choosing methods of teaching, searching for means of motivation, upbringing etc. It might be worth trying, while working out university educational programmes, to combine exact sciences and humanities, science and arts within one major field.

In order to work out ways of increasing creative competence, primarily among students of pedagogics, we had to comprehend the ties existing within the structure of creative thinking. Holding correlation analysis helped us work out the following trends. The higher the level of non-verbal originality, the higher the level of thinking flexibility (r=0.431, p=0.017). This peculiarity proves the point that a person capable of utilizing most of his environment, can put forward many more ideas and proposals, realize more plans and intentions. Therefore, widening the framework of university teaching process, combining theoretical learning with practice, enriching the process of learning with volunteer work with children, working in summer countryside and school camps, one can considerably widen world view of students, and contribute to their thinking flexibility, which would lead to the increasing number of pedagogic ideas and proposals they might put into practice.

There is a correlation between verbal and non-verbal thinking originality (r=0.583, p=0.001). The wider the framework of professional and pedagogical activity, the more unconventional ideas teachers and students can put into practice. This correlation, in our opinion, is based on the ability to go beyond the given situation, integrate knowledge and skills from various fields and involve some experience not necessarily related to pedagogics in solving professional problems. To recapitulate, in order to increase creativity level of pedagogical students one should widely involve them into various activities, primarily through volunteer work.

We have discovered one more correlation – that between readiness and verbal synthesis and semantic flexibility (r=0.551, p=0.002). This proves the point that, in order to elaborate and work out the details of some idea, a specialist has to see it clearly, talk it through, substantiate and publicly defend it, therefore, project preparation with mandatory public defence of it is one way of increasing creative competence of future teachers.

7. Conclusion

The research proved most careful specialist selection necessary, especially for work with gifted children. Therefore, creative tasks in order to show the vocational aptitude of pedagogical college applicants might have to be offered apart from school exam results.

The training of future teachers should include not only mastering the skill of setting adequate professional (as well as personal) goals, but also joint selection of means and methods for reaching them, which makes the latter more specific. Thus, the use of psychological and pedagogical creative thinking training technique (Kashapov et al., 2013) seems appropriate.

While offering the students certain projects and programmes in the course of their studies, it is essential that they should be aimed at practical application, so that each student would have a chance to test them, evaluate their virtues and efficiency and finalize their practical implementation.

We believe the training process should be 'enriched' through involving future teachers into various activities, even those that do not seem to be related to pedagogics, like environment protection, political activities, volunteer work, helping elderly people, taking care of stray animals etc. All that should contribute to enlarging their perception of the world and wider usage of experience from various aspects of life for solving their professional problems.

Finally, the last conclusion we have come to in the course of research is the necessity to verbalize every idea as well as publicly substantiate and defend it. Wording his idea, a student gives it material shape and a start for its implementation. Even if, due to some circumstances, he is not able to realize his project personally, his college mates present at the session might 'make a note of it' and later put it to practice.

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