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**TECHNOLOGICAL AND CONTENT-BASED RESOURCES FOR
TEACHER TRAINING IN A NEW EDUCATIONAL SITUATION**

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Abstract

Modern teacher education is rethinking its goals and objectives in order to help teachers in a new educational situation to better reveal their potential in the process of professional development. The search for new technological and content resources that will help this happen is an urgent task for teachers' educators. The article discusses two possible resources for the development of teachers' reflection as a basis for their professional development. This is interprofessional interactions and participation in large-scale network cultural projects. Teachers choosing the options about these interprofessional interactions such as "happen regularly" and "caused by a difficult situation with a student" were more likely to point out the impact of such interactions on their ability to look at what they were doing in class critically (43.6%) compared to teachers who noted a lack of such contacts with colleagues (12.2%). The participation of a teacher in cultural and educational projects of various scales as an organiser contributes to the development of higher levels of reflexive consciousness, such as synthesising and transcending forms of reflection. However, for less experienced teachers we found the comparative form of reflection as the most specific. The positing reflection is related to all teachers as experts of cultural projects which were shown in a content analysis of teachers' expertise papers.

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1. Introduction

Responding to the challenges of new educational situation, modern education is rethinking the goals and objectives of teacher education (Duffy, 2005; Feuer, Floden, Chudowsky, & Ahn, 2013; Grossman, Hammerness, & McDonald, 2009; Scales et al., 2018; Timperley, Wilson, Barrar, & Fung, 2008, etc.), which are associated with the transformation of the role of the teacher. The professional roles of a teacher are increasingly complemented by the roles of a diagnostician, mediator, consultant, child rights advocate, researcher, organizer, and others. The roles are superimposed on one another, manifesting themselves due to the educational situation and the social situation as a whole. Some of them are well-established in modern education, and their development is well approved in teacher education. Some of them relatively recently entered into the arsenal of pedagogical activity and still need to be "inserted" into pedagogical practice (Domingo, 2010; Savotina, 2019), taking into account the historically established practice of pedagogical education (Fendler, 2003; Usoltseva, 2018), existing ideas from teachers about the profession (Levin, 2015).

The variety of social roles that a modern teacher has to fulfil increases the requirements for teachers' reflection, i.e. the ability to assess themselves, the products of their thinking and activities critically. Reflection is seen as a pivotal trend in teacher professional development that needs to be given more attention in teacher training programs (Duffy, 2005; Feucht, Brownlee, & Schraw, 2017; Grossman, Hammerness, & McDonald, 2009; Ward, & McCotter, 2004). Modern research pays great attention to the development of teacher's reflection, noting the influence of the historical context (Fendler, 2003), the interdisciplinary discourse of modern science (Bassot, 2016; Filonov, 2010), contradictory teaching practice (Karpova, 2018; Passila, Oikarinen, & Harmaakorpi, 2015; Ryabtsev, Zverev, & Ryashina, 2018), personality traits of teachers (Mayasova, & Fominova, 2017), their cognitive abilities (Feucht, Lunn Brownlee, & Schraw, 2017; Osmanović, 2019). The development of teachers' reflection is faced with numerous problems (Jaeger, 2013), which makes it relevant to study and establish special methods, technological and content-based resources for the development of teachers' reflection. The article is devoted to this actual problem.

In our work, we focused on the contribution to the development of the teachers' reflection the practice of interaction with other subjects of education, i.e., interprofessional interaction, and their participation in cultural and educational projects. They can be determined as essential resources for enriching technologies in teacher training. The practice of interprofessional interaction, based on mutual understanding and coordination in actions for a common goal taking by all educational professionals, plays an essential role in the modernization of contemporary education. To carry out a full-fledged educational process becomes beyond the power of an individual teacher, a preschool teacher, or a teacher of additional education. Implementation of significant functions of education in a dynamically changing, contradictory and risky modern society is beyond the power of a team comprising representatives of the only one profession. It turns out that the development of a child in modern education utterly requires the participation of various pedagogical staff such as psychologists, social educators, the school authorities, etc. (Usoltseva, 2018). The need to coordinate their goals and professional activities with of other professionals provides teachers with a unique opportunity for a better understanding of themselves, their goals and methods of work, it creates conditions for pedagogical reflection.

Many researchers consider the growth of a teachers' reflexive consciousness as an urgent task for teacher training modernisation (Zverev S.M., Krasnov S.I., Mitina L.M., Ryabtsev V.K., Slobodchikov V.I., and others) (as cited in Ryabtsev, Zverev, & Ryashina, 2018). Within the framework of the anthropology of education, the following model of the professional has been proposed by V.K. Ryabtsev and V.V. Ryashina. It consists of the teacher's subject position; human development as a subject of pedagogical professional activity; humanitarian technologies as means and methods of activity (for example, disclosing a child's creative potential, mastering culture and cultural creativity, designing the child-adult community, etc.). As the important part of the model, the teacher's reflexive management of their professional development is considered in reflexive forms of consciousness and the analysis of their activities based on the categories of pedagogical anthropology. According to Ryabtsev, Zverev, and Ryashina (2018), reflexive forms of consciousness in their development go through several levels, such as positing reflection, comparing reflection, defining reflection, synthesizing, transcending reflection. They can be characterized as a scale in which "reproduction of other people's models of professional activity" and "creative creation of one's professional activity" are at the extreme poles. The ability of a teacher to reach the levels of synthesizing and transcending forms of reflection speaks of his high potential for professional development, according to these authors (Ryabtsev, Zverev, & Ryashina, 2018).

One important condition for a teacher's reflection development is cultural and educational projects of various levels implemented in pedagogical practice. The participation of a teacher in large-scale network design implies the ability to learn to coordinate the goals and actions of not only the teaching staff of the school, students of different ages, but also of their parents, social partners toward implementing a multidimensional socio-cultural project, for example, a regional competition of design works of students, a theatre festival, etc. This presupposes the development of synthesizing (the ability to find and combine non-obvious resources, ideas, etc.) and transcending (going beyond the current situation) types of reflection. Therefore, we assume that the participation of a teacher in cultural and educational projects of various scales as an organizer contributes to the development of higher levels of reflexive consciousness such as synthesizing and transcending forms of reflection.

2. Problem Statement

Teachers are affected by a new educational situation which includes developing technologies in pedagogical process. We consider that pedagogical practices with interprofessional interactions and participation in cultural projects can increase a teacher's psychological readiness to apply these technologies.

3. Research Questions

It is important to understand what resources improve the quality of teacher training in a new educational situation. This study investigated cultural projects and interprofessional interaction as professional resources.

4. Purpose of the Study

We determined challenges teachers are facing nowadays, compare them with trends in teacher education and describe technological and content-based resources for transforming teacher training, such as the development of professional reflection of teachers in cultural projects and interprofessional communication.

5. Research Methods

We created a questionnaire for teachers on the development of professional reflection in interprofessional communication to compare teachers' answers with different pedagogical experience using the Mann-Whitney U-test. To analyze statistical differences between groups of teachers with different education, length of service, and gender, the nonparametric Mann-Whitney U test was used. The analysis was carried out using the statistica 7.0v program. Also was processed the content analysis method for compression expert descriptions of students' work made by teachers to identify predominant type of their reflection.

6. Findings

In our empirical study of interprofessional interaction, 125 teachers in additional education (73 women, 52 men, with an average age of 41.9 years, and pedagogical experience of 11.9 years) took part.

Very interesting data were obtained when analyzing the answer to the question about the frequency of interaction between specialists. The majority of respondents chose "occurs on a regular basis" (52.5%), however, male teachers are significantly more likely to choose this answer option (80.0% without education factor control, 75.0% of male employees with higher education) compared with female teachers (47.1% excluding the level of education, 48.6% with higher education). The second place in terms of frequency of choice is taken by the choice "occurs from case to case" and "depends on personal contacts" (24.6% each of all respondents). And if the "irregular interaction of employees" was noted with the same probability as teachers of different sex and educational level, then "dependence on personal contacts" was more often noted by women teachers (27.5% regardless of education, 27.0% - with higher education) compared with male teachers (10.0% and 12.5%, respectively), as well as somewhat more often employees with non-high pedagogical education (30.0%). Teachers with incomplete higher education (25.0%) noted "the lack of interaction between specialists" significantly more often ($p < 0.01$) than employees with higher (2.2%) and non-higher pedagogical education (0.0%).

Reasons for prompting teachers to interact differ significantly depending on gender and educational level. The reason for interaction with another specialist for female teachers is more often "a difficult situation with a pupil" (37.3%) and "an appeal of another specialist" (23.5%), much less often is "a request from the principal" (9.8%). The opposite picture emerges for male teachers. For them, almost 2 times more often, the reason for interaction is the appeal of another specialist and the request of the principal. Any male teacher did not choose the option "difficult situation with the pupil".

For obvious reasons such as lack of experience, "a difficult situation with a student" more often forces teachers with incomplete higher education to interact with colleagues and chiefs (50.0% versus

31.1% with higher education and 20.0% with non-higher pedagogical education). Not surprisingly, the principal encourages teachers with incomplete higher education to interact with other specialists almost 2 times more often than teachers with higher education (25.0% and 13.3%, respectively). It is noteworthy that according to our data, chiefs of educational departments more often make such a request to male teachers (25.0%) than female ones (10.8%).

It is possible to generate a hierarchy of such reasons, regardless of differences in educational level. In the first place is "the desire of specialists to solve the problem", in the second is the "similarity of values, outlook on life", in the third is "one level of education, pedagogical experience", in the fourth is "there is an "arbiter", a mediator between us".

We asked teachers if interprofessional interaction with colleagues affected their ability to reflect on their teaching activities. Teachers choosing the option "happens regularly" and "a difficult situation with a pupil" were more likely to point out the impact of such interactions on their ability to look at what they were doing in class critically (43.6%) compared to teachers who noted a lack of such contacts with colleagues (12.2%). The differences reach the statistical significance level (p-level is less than 0.05). The one who chose the "request from the leaders" never pointed to the influence of interprofessional interaction on their reflexivity.

The revealed differences in the assessment of interprofessional interaction by specialists in additional education demonstrate the problems teachers face in getting reflexivity as a supra-individual community in the agreed achievement of educational goals.

In the study of the influence of the participation in cultural projects on the development of reflection, 45 teachers of elementary, secondary and high schools aged 35 to 70, 12 men and 33 women (from schools in Moscow and St. Petersburg) participated. Using the content analysis method, we studied the teachers' comments as experts of the project work of participants in the All-Russian competition of design and research work of students named "Horizons of Discovery". There were 30 expert opinions with varied experience of participation in cultural projects, in which statements related to the selected forms of reflection were highlighted (1350 texts in total). Teachers were divided into three groups with small (up to 1 year), medium (from 1 to 3 years) and large (more than 3 years) experience of participation in cultural projects. Each group comprises 15 teachers.

Our hypothesis that the posing reflection is characteristic of all experts, regardless of the experience of organizing cultural projects, was confirmed (statements of this type were present in 30 conclusions out of 30 for each of 45 experts). The comparative form of reflection is the most specific for experts with small and medium experience in organizing cultural projects. In a group with little experience in it, statements related to this form of reflection are the only ones that do not contain zero values for all 15 people (the average amounts of these kinds of utterances is 4 in the teachers' comments). In the group with average participation experience, we find statements related to this form of reflection in all 30 conclusions of 15 teachers examined. In a group with more experience, statements related to this form of reflection are less common relative to a group with an average experience (the average amounts of utterances is 16). The appearance among representatives of this group of statements related to other forms of reflection can explain this.

Statements related to the defining form of reflection, in the teachers' comments of representatives of the group with little experience in the development of cultural projects are present in an insignificant

degree (the average amounts of utterances is 0.5). In groups with medium and large experience, statements related to this form of reflection are found in all 30 conclusions of all 30 people. We can conclude that the defining form of reflection is the most specific for the work of an expert. The expertise, in fact, is a detailed definition of students' works and how it differs from a simple fixation of presence/absence (supportive reflection) or evaluation/comparison (comparing reflection).

Statements related to the synthesizing form of reflection in a group with little experience in the development of cultural projects are present to an insignificant degree (the average amounts of utterances is 0.3). In the group with average experience, the average amounts of utterances presenting this type of reflection are 2.8. In a group with extensive experience, this type of utterance is prevalent (the average amounts of utterances is 20.1).

There are no statements related to the transcending form of reflection in groups with small and medium experience in the development of cultural projects. In a group with more experience, the average amounts of utterances are 18.9.

7. Conclusion

Interprofessional interaction in education is one of the conditions for the development of teachers' reflection. Therefore, we assume that its special organization in the hands-on training of future teachers in schools will be a very important technological resource in their professional development. A large number of statements related to synthesizing and transcending forms of reflection in the teachers' expert opinions with extensive experience in organizing cultural projects give us the opportunity to suggest that the experience of developing cultural projects is also a necessary condition for the professional development of a teacher.

In conclusion, it is important to emphasize that it is promising to continue research toward considering other technological and content-based resources for teacher training enlarging professional development in a new educational situation.

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