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**SCHOOL TEACHERS' CONTINUING PROFESSIONAL
DEVELOPMENT AND THEIR ENGAGEMENT IN RESEARCH**

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Abstract

There is a variety of works devoted to the research on teachers' professional activities. International educational community highlights the need for teachers who do not only act as consumers of scientific knowledge but also make significant contribution to the development of universal knowledge. Modern teachers are required to improve their teaching skills and be able to reflect on their teaching practices, i.e. they need to continually improve their knowledge and skills. Teachers' engagement in research develops their ability for self-reflection. Teachers engaged in research are known to be more adaptable to school environment and achieve better results.

Recent years in Russia are remarkable for distinct recognition of research skills' relevance both for students and teachers. The Republic of Tatarstan in Russia is in the focus of our research. Local authorities initiated the system of grants for secondary-level teachers in 2010, with a special emphasis on integrating science into teaching practices. Moreover, Kazan Federal University being the leading higher educational establishment in the Russian Federation holds a prominent position in ensuring teachers' engagement by initiating annual conferences, workshops, and round tables. The goal of these events is to promote teachers' collaboration as well as experience exchange. The aim of this paper is to investigate the degree of secondary teachers' involvement into scientific research in Tatarstan and to identify the gap between the research competence required for it. The authors identify factors determining teachers' eagerness towards reflective inquiry. The authors proposed the strategy to promote the development of research competence of teachers.

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Keywords: Research engagement, reflective teacher, research literate teachers, continuing professional development, critical thinking.



1. Introduction

Science and education are the key elements in Russia's Innovation Development Strategy to 2020 providing the basis for training highly qualified and competitive staff in the academic environment. From this perspective, the quality of education and training can accelerate progress in education. Achievements in science can have a positive impact on the country's competitive capacity in the global market as well as accelerate the process of knowledge acquisition.

It is an indisputable fact that early involvement of students into science may serve as a basis for 'future scientific understanding and building important skills and attitudes for learning' (Worth, 2010). This tendency should be reinforced at secondary and tertiary levels. Research engagement should be a priority in teacher education and continuing professional development (CPD) academic programs (Niemi & Jakkusihvonen, 2006). The combination of knowledge that science offers and teacher's knowledge enhances students' academic achievement and increases their motivation for future work (Darling-Hammond, 2003). Integration of science into teaching practices helps teachers deal with such issues as classroom management, provision of knowledge, and development of assessment techniques.

However, a great number of novice teachers are reluctant to become researchers. They are generally more interested in performing routine tasks assigned by the school management team. Moreover, teachers' insights into the positive and negative experience in their jobs have rarely been taken into account (Hancock, 1997). Thus, there is a growing concern about the ways of teachers' integration into reflection on the teaching practices and further transfer of their experience to the professional community.

Kazan Federal University (KFU) located in the Republic of Tatarstan serves as a platform for implementing the strategy of the 21st century related to teacher education. Academic programs within the framework of the university are implemented in accordance with economic, social, and cultural demands. The programs are available and relevant not only for undergraduate students but also for post-graduate students who have already been involved into teaching practice and enrolled in the university.

Moreover, the government of the Republic of Tatarstan has already allocated grants to secondary-level teachers, placing a special emphasis on integrating science into teaching practices. The grant 'A teacher-researcher' aims to help novice and experienced teachers to engage in research. It is expected that this type of government support will ensure that teachers become life-long learners, develop their abilities for self-evaluation, reflection, and critical analysis of their own experience.

2. Problem Statement

The analysis of the history of teaching practices has shown that teachers face many challenges in the classroom before they succeed in their profession. Initially they were perceived as competent people who transmit knowledge to students, the so-called effective teachers (Menter et al., 2010, p. 22-23). Reflection was the next step of teachers' advancement. This trend in teaching dates back to the beginning of the 1980s. A prominent British scholar Andrew Pollard illustrated reflective teaching model. It was a new approach to teaching which included planning, collection and analysis of data, evaluation and reflection (Pollard, 1997).

Although there was a sufficient amount of findings on this research, most secondary-level teachers were not oriented towards knowledge distribution. In the late 1990s, R. Hancock (1997) highlighted the fact that society never recognized the need for pedagogical theories underpinning classroom practice:

‘Traditionally, class teachers have never been expected to comment on the theory and practice of their work and very few have done so. Those who research classroom practice tend to be former classroom teachers working in higher education, educational psychologists and those in advisory or inspections posts’.

When Hull et al. (1985) tried to organize a collaborative research project between teachers and a small team of university staff, they found out that the school staff were at first very uncertain about getting involved in research and unfamiliar with stages of research. Thus, scholars stated that the professional teacher community does not embrace a research tradition.

Nevertheless, research as a model of teaching was becoming more popular. Highlighting the importance of the combination of theory and practice in teaching Stenhouse (1971) argued that ‘it is teachers who in the end will change the world of the school by understanding it’. Various scholars (Jackson, 1990; Taylor, 1970; Armstrong, 1980; Rowland, 1984; Brown, 1989) have stated that teachers as researchers are more capable of implementing diversified methods and techniques to solve complex classroom issues. Critical reflection and systematic analysis of teaching techniques and students’ outcomes are an integral part of the teacher’s profession (Pollard, 1997; Vrieling, Van den Beemt, Ketelaar, Diepstraten, & de Laat, 2016).

Nowadays, research and practice function as pivotal elements of a teaching career complementing each other in issues where a new approach is needed. Ian Menter, the author of influential ‘paradigms’ of teacher education, confirms that teachers as researchers are expected to ‘undertake systematic enquiry in their own classrooms, develop their practice and share their insights with other professionals’ (Menter et al., 2010).

The outside support of teachers, provided by universities and other HEIs, can have a positive impact on ‘teachers as researchers’ movement. This model of teachers’ professional development presupposes collaboration with universities which will further contribute to the teachers’ eagerness to participate in research. For instance, collaboration between universities and teachers based on action research studies initiated in Philadelphia in the 1970s led to the emergence of Philadelphia Writing Project which had been functioning for more than 30 years (Philadelphia Writing Project).

Ginns et al. (2001) concluded that an incentive for school-teachers’ integration into research should be provided at a tertiary level of their education:

‘A place to commence the development of teachers’ understandings of action research may be in pre-service teacher education programmes. These understandings acquired in the pre-service programme may provide an ideal platform for beginning teachers to conduct their own participatory action research projects in their own classrooms, thus furthering their professional growth’.

Loucks-Horsey and Olson (2000) are convinced that school administration can and should promote teachers’ research engagement. The scholars assume that administrators are the intermediaries who can stimulate collaboration process between beginning or experienced teachers and university professors or scientists.

The transformation of education system demands teachers to be flexible and implement modern methods of teaching in the classroom. The authors’ reflection on the changing identity of teachers is

presented in the scheme below. This scheme demonstrates the interdependence of the following basic competences: subject knowledge, ability to think critically, professional development and lifelong learning (Figure 1).



Figure 01. Teacher of the XXI century

While reflecting on changing role of the teacher, many researchers consider education networks as one of the most effective means to promote lifelong learning (Van den Beemt, Ketelaar, Diepstraten, & de Laat, 2018). These networks are perceived as online and offline sites in which participants share ideas and problems and discuss the potential for collaboration (Wenger, Trayner, & de Laat, 2011). Modern achievements in technology and people's readiness to quickly absorb new and innovative ideas make these networks an effective mechanism to prepare a new generation of flexible, broad-minded, and creative teachers. Networks have the potential to create collaborative environment and prepare the site for developing agendas that would address the important issues of education (Lieberman, 2000). Such networks are of a great important for static communities (Van den Beemt, Ketelaar, Diepstraten, & de Laat, 2018). The positive attitude towards research can be promoted with the help of these networks.

3. Research Questions

All conditions for the implementation of research into teaching practices mentioned above allow for the possibility to define the role of science in the educational process from teacher's perspective. Hence the study will focus on two research questions:

1. What stimulates teachers to engage in research and reflect on their teaching practices?
2. What can be done to encourage teachers to engage in research?

4. Purpose of the Study

The aim of this paper is to investigate the degree of secondary teachers' involvement into scientific research in Tatarstan and to identify the gap between the research competence required for it. The authors identify factors determining teachers' eagerness towards reflective inquiry. The authors proposed the strategy to promote the development of research competence of teachers.

5. Research Methods

Authors applied the following methodology during the research: observation, interviews, questionnaire, surveys and Pearson correlation coefficient (PCC).

The present research is as part of a bigger project aimed to identify the flaws in the system of teachers' education and to facilitate the process of adaptation of novice teachers to school environment. The main objective of the research was to identify how professional development programs and participation in scientific conferences and different professional trainings help teachers to master their skills and knowledge needed in the 21st century.

During the first stage of the research, the authors participated in different scientific conferences and seminars organized at the local level in order to observe how active teachers were while taking part in such events. Two years' observation led us to a bitter conclusion – the total number of teachers taking part in local conferences and seminars was 15% only.

The next stage of research, which lasted 6 months, was devoted to semi-structured interviews with teachers from different schools located in the Republic of Tatarstan. The schools were randomly chosen in order to ensure the statistical accuracy and show the broader picture of research engagement of teachers. The interviews consisted of three sections: (1) background information about the teacher, (2) the attitude of teachers towards reading professional literature and the correlation between professional learning and promotion at work, and (3) personal experience on professional development. Background information included questions about the age, teaching experience, subjects taught, educational level, and professional achievements. With regard to 'attitudes towards reading professional literature', teachers were asked to name professional literature they read and express their views on how research engagement contributed to their professional development. They were also asked to comment on what investments and facilities were required for their research and how research activities related to the quality of teaching and education. The section titled 'personal experience' consisted of questions regarding motives for participation or non-participation in research activities and conferences. All interviews were audio recorded. The average interview time was approximately 60 minutes. The interviews were conducted at schools where the respondents worked.

6. Findings

The data obtained during interviews were summarized and presented in Table 1.

Table 01. Means (M) and standard deviations (SD) of teachers' involvement in research

Components	M	SD
Attitudes towards reading professional literature	3.627	1.088
Frequency of participation in scientific conferences, seminars, and round-table discussions	3.659	1.345
Degree of effectiveness of participation in scientific conferences, seminars, and round-table discussions	3.159	1.055
The impact of research engagement on professional development and salary	3.534	1.202

Table 2 shows the correlation (r) between the frequency of teachers' involvement in research and their attitudes towards it.

Table 02. Correlation (r) between self-motivated factors on teachers' desire to conduct research

Factors	Item	r
Frequency of professional literature reading	The frequency of participation in scientific conferences and round-table discussions	0.386
Attitudes towards reading professional literature		0.064
Participation in scientific conferences is a critical component in any teacher's professional development		0.265
Effectiveness of participation in scientific conferences, round-table discussions		-0.239
Frequency of professional literature reading	Degree of effectiveness of participation in scientific conferences, seminars, and round-table discussions	0.395
Attitude towards reading professional literature		0.450
Participation in scientific conferences is a critical component of any teacher's professional development		0.584
Effectiveness of participation in scientific conferences, round table discussions		0.141

As it is seen from Table 2, a teacher's personal inner understanding of research engagement has a strong positive effect on his/her readiness to pursue the teaching career ($r=0.584$). The results of the research highlight the fact that it is self-motivation which encourages teachers to make scientific achievements. The results, obtained from interviews, showed that novice teachers aged from 24 to 28 are more willing to prepare scientific reports, write articles and participate in conferences. The main reason behind is that they have lack of experience and try to fill that gap by reading professional literature and being involved in non-formal communication during conferences. They also noted that it was easier for them to approach people who they meet while participating in these events rather than ask experienced teachers for professional advice.

Authors studied the pyramid of competences needed to be qualified and open-minded teacher of the 21st century (Figure 2).

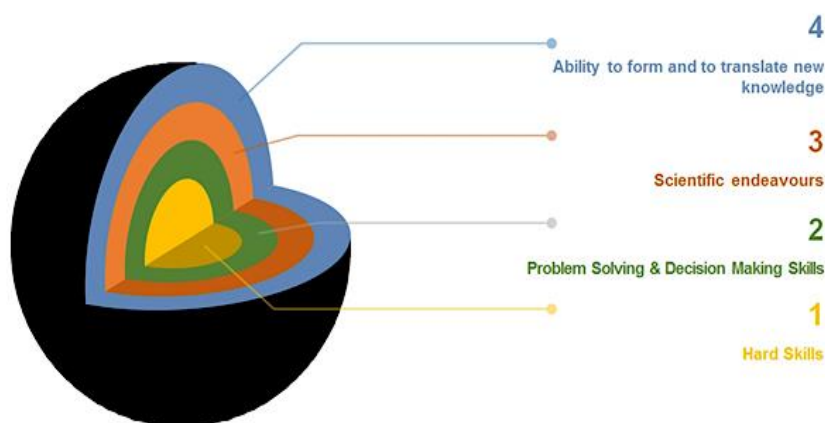


Figure 02. 21st century competences

It should be noted that the desire participate in research activities should be a priority modern teachers. Some participants of the study highlighted the link between research engagement and their wage level. More than a half of the respondents did not see any correlation between these indicators. These results show that teachers are generally reluctant to be involved in research since they do not receive any support neither from the government, nor from school authorities. Despite the fact that the majority of the respondents understand the importance of reading academic literature, only 20% of the respondents do so regularly.

7. Conclusion

The results obtained during the research allow for the possibility to conclude that although some teachers participate in research, their number is still unsatisfactory. The same can be said about the teachers' desire to present the research findings to the educational community. While the respondents' genuine interest in doing research was slightly above the average, the number of people taking part in scientific events is very low (12%).

One of the possible solutions to this problem is to organize the educational community that will consider teachers' scientific achievements as a part of their professional growth and development. Universities can implement programs that will help teachers be involved in different R&D projects specifically designed to encourage cross-professional collaboration between education professionals working in universities and in schools.

Authors suggest to establishing partnerships between schools and universities that would guarantee productive collaboration between school-based and university-based researchers. It is also crucial to create the atmosphere of mutual trust and support.

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