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## ***Teaching Challenges: TIMSS 2015 as a Source of Information about Primary School Teachers' Attitudes towards Their Work<sup>2</sup>***

### **Extended summary**

Changes in modern society place new demands and expectations before teachers, resulting in changes in the perception of this profession. Teachers have to make many choices and decisions, restructure their own attitudes toward the profession and be proactive in order to change their practices. There is a growing need for autonomy in the work of teachers and for their proactive role in professional development. The results of the previous research indicate that by influencing teacher motivation and, consequently, the quality of teaching, one can also exert a positive impact on pupils' educational achievements.

The paper presents the results of the TIMSS 2015 research with the aim of offering a more in-depth insight into teachers' attitudes, which can, in turn, contribute to a better understanding and improvement of teaching practice. We hypothesized that the ways in which teachers perceive different aspects of teaching and their own competences, as well as their affective attitude towards their profession, influence the teaching process itself.

We conducted a secondary analysis of the data obtained from Serbian teachers' responses to the questionnaire which was a part of the TIMSS 2015 research. Our goal was to explore how primary school teachers perceive different aspects of teaching process, their satisfaction with their job, and their evaluation of their own level of self-confidence.

The TIMSS 2015 research was carried out on a sample of 192 primary school teachers (91% female) teaching mathematics and science to a representative sample of the tested fourth-

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grade pupils from 60 primary schools in Serbia. The questionnaire consisted of questions related to teachers' job satisfaction, their perception of the problems in the teaching process, forms of cooperation among teachers, their self-confidence, and the application of different methods and forms of classroom work in teaching mathematics and science. We analysed the level of teachers' agreement with specific statements offered in the selected questions in the questionnaire, and then we tried to determine the correlation among different aspects of teachers' attitudes towards their work. The obtained data were analysed by using quantitative procedures. The following qualitative indicators were also calculated: frequency analysis (percentage), the measures of central tendency (arithmetic mean), and standard deviation. Correlation analysis (Pearson's Correlation Coefficient) was applied as well.

The obtained data indicate a high level of job satisfaction among primary school teachers. On the other hand, administrative duties and a lack of time to help some students were perceived by the majority of teachers as problems in the teaching process. The teachers who are more satisfied with their job than others are generally more burdened with administrative duties. As far as cooperation is concerned, conversation about the ways of covering various topics, exchanging classroom experiences, preparation of teaching materials, and team work on implementing the curricula were cited as the most common forms of cooperation among primary school teachers.

Primary school teachers expressed a high level of self-confidence with regard to the implementation of different procedures in teaching mathematics and science: adapting teaching to raise student motivation; helping pupils to understand the value of learning these school subjects; assessing the level of pupils' knowledge of the subject matter; developing advanced thinking skills in pupils; giving more demanding tasks to advanced pupils; increasing the level of understanding of the subject matter among pupils with learning difficulties.

The analysis of some methods and interaction patterns in teaching mathematics and science confirmed that primary school teachers commonly resort to frontal teaching and traditional methods, while group work is less implemented in the classroom. Similarly, experimental/research methods are relatively rarely used in science classes. The obtained data indicate that using different methods and interaction patterns in the classroom is linked to teachers' level of self-confidence regarding specific aspects of mathematics and science teaching.

The cooperation among primary school teachers is linked to their self-confidence in the following aspects of mathematics and science teaching: motivating pupils to learn the subject matter; assessing the level of pupils' knowledge; improving the understanding of the subject matter of pupils with learning difficulties.

The obtained results can contribute to learning more about the challenges that primary school teachers are faced with, and to improving their competences for solving the problems they may encounter in their work. The high level of teacher satisfaction with their profession is a good starting point for overcoming the difficulties that they have to cope with.

The research results indicate that teachers have a dominant role in the classroom, whereas pupils' engagement in active methods of learning is not so prominent. The implementation of the research methods in teaching is a great challenge to primary school teachers. Training primary school teachers to use experimental/research methods in initial education and profes-

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sional development, as well as the cooperation among teachers, can contribute to improving their professional competences and self-confidence for using different methods and interaction patterns in teaching. Developing teacher competences can have a positive impact on their motivation to improve their teaching.

**Keywords:** primary school teachers, teaching mathematics, teaching science, attitudes towards work.

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