



Teacher competence as a predictor of acceptance and use of modern media and technology in the classroom

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Abstract: *Contemporary changes bring many novelties we encounter. Changes do not circumvent the education, i.e. school. Tasks that are placed in modern school are numerous and significant in the context of acceptance and dissemination of changes and innovations that have occurred. Exactly in this context, developing and strengthening teachers' competences present an important predictor, according to technical and vocational training, respectively. A teacher who is willing to learn and improve continuously, to approach own work critically and reflexively in accordance with modern scientific and technological change seems to be a model teacher of the 21st century. This paper presents a review of research on the self-perception of the competence of teachers for the use of modern media and technology in the classroom. The results showed a positive trend in the assessment of competence for the application of modern achievements of science and technology in the classroom, by teachers working in primary and secondary schools. Teachers highly value their competence, which is one of the predictors for the innovation of teaching methods, by using modern technology in teaching.*

Keywords: *competence; teachers; modern media*

1. INTRODUCTION

Scientific and technological changes happening every day brought new needs and requirements in the roles of staff in all areas of work. When it comes to education, it is clear that this is a sector from which much is expected, which is "the leader", initiator and support further changes in other sectors of society (Martin et al., 2011: 1893-1906). Undoubtedly, it is clear that education is a key factor of the change and development of a society, and it is therefore the field which most attention should be paid to (Bass & Eynon, 2009; Guzey & Roehrig, 2009; Turayev & Parts, 2014). Thus, people that "implement" education in practice and whose achievements in science and technology should be reflected in practice, either a well equipped, large, urban school, or less equipped, small, village school, present "pillars" of the education system. It is about the teachers. Teachers are the ones from whom a lot is expected, who can properly accept certain innovations and act in accordance with them, or on the other hand, do not accept innovations, and continue to work as usual. From teachers much is expected, but if we take into account innovations which we are daily

exposed to, and which will reflect much more in the future the requirements are not unexpected and surprising.

Application of media in teaching contributes to achieving a more efficient teaching process (Mishra & Koehler, 2006: 1017-1054). However, if we want the modern media to be applied properly, it is necessary to encourage the development of competencies of teachers for the use of modern technological advances, which would affect at the same time modernizing the teaching process, but also on strengthening the professional role of teachers in the conditions of intense and rapid social and technological change (Carlsons & Gadio, 2002 Global-ready teacher competency framework is the following: standards and indicators, 2004: 51-52). Modern educational technology has become an integral part of the teaching process, with a tendency not only to improve the teaching process, but to change it fundamentally (Martin et al., 2011: 1893-1906). Thus, it takes considerable attention which should be paid to strengthen the competencies of teachers, cope adequately and use modern technologies in the teaching process.

2. METHODOLOGY AND ORGANIZATION OF RESEARCH

The initial aim of the research was to determine how primary and secondary school teachers assess their competence in the use of modern media and technologies, and to what extent they become qualified through their proper and appropriate use.

The research sample consists of primary and secondary schools on the territory of southern and central Serbia (N = 250). The survey was conducted in the period from February to June 2015. The research has included the distribution of a scale for evaluating teachers, whose resolution lasted 30 minutes average. Part of respondents rating scale was filled in according to the established system of paper-pen, while the second part of the respondents rating scale was filled in via the Internet, in the context of electronic scales designed for the collection of answers. Dissemination of electronic scales was done by e-mail, but also using social networks.

Differences in responses were observed and analyzed on the basis of length of service of the respondents, the type of school in which respondents work (primary or secondary), linguistic competence (knowledge of and level of proficiency in a foreign language), IT competence, ie. use of modern technologies, in first line computers and Internet, and participation in seminars and training courses relating to the use of modern media.

The instrument used was revised and adapted evaluation scale, the author Özkan Akman and Cemal Güven, published in the context of scientific research, called TPACK Survey Development Study for Social Sciences Teachers and Teacher Candidates, 2015, in the journal *International Journal of Research in Education and Science* (Vol. 1, No. 1).

3. RESEARCH RESULTS TO DISCUSS

3.1. The reliability of the scale

In order to achieve greater conciseness and accuracy of the results, the reliability of the revised scales of assessment was measured in relation to the applied pattern.

Obtained Cronbach's alpha coefficient (0.621) indicates the existence of a moderate association and internal approval of the scale for this sample.

3.2. Using computer systems

Table 1. *Determination of the use of computer systems*

Using computer systems	N	Completely disagree	Neither agree or disagree	I can not decide	Tend to agree	Completely agree
<i>I can use Office package (Word, Excel, Power Point)</i>	250	7	36	23	109	75
		2.8 %	14.4 %	9.2 %	43.6 %	30 %
<i>I can communicate through Internet (E-mail, Skype)</i>	250	19	36	12	118	65
		7.6 %	14.4 %	4.8 %	47.2 %	26 %
<i>I can use programs for graphical drawing... (Inspiration, Excel...)</i>	250	24	43	25	94	64
		9.6 %	17.2 %	10 %	37.6 %	25.6 %

When the results are analyzed, it is obvious that 73.6% of respondents assessed that they can use Office package (Word, Excel, Power Point). 73.2% of respondents communicate via the Internet (E-mail, Skype). 63.2% of respondents estimated that they can use programs for conceptual diagrams, graphic drawing (Inspiration, Excel...). The results indicate the existence of developed competences of teachers when it comes to modern technologies, which is a condition for the continued application of new technologies in teaching. Teachers greatly value their competence, ie. skills in using modern programs and technologies.

3.3. Using software packages

Table 2. *Use of software packages*

Using software packages	N	Completely disagree	Neither agree or disagree	I can not decide	Tend to agree	Completely agree
<i>I am using the media to create and develop daily and annual plan according to teaching units</i>	250	13	43	18	105	71
		5.2 %	17.2 %	7.2 %	42 %	28.4 %
<i>I am using the media to make test (multiple choice test, true - false test, open question...) and complementary (checklist, values scale, form of self-efficacy...) criterias in process of evaluation</i>	250	28	38	13	98	73
		11.2 %	15.2 %	5.2 %	39.2 %	29.2 %
<i>I am using the media in order to implement different strategies of teaching (presentations, strategies of inventions, strategy of analysis and research)</i>	250	12	37	35	98	68
		4.8 %	14.8 %	14 %	39.2 %	27.2 %

When you review the competence of teachers in the use of part of the software packages, it is evident that there is a satisfactory level of use of modern media and technology in the teaching process, by teachers. The teaching process is organized and implemented using modern media, ensuring the realization of educational work at a higher level, in accordance with the requirements of modern times and scientific and technological development. All this contributes to the adoption and strengthening of modern, technical and technological competencies of teachers, what is a condition, ie, predictor to overcome the shortcomings of contemporary school and reducing discontinuity between schools on the one hand, and technological development on the other.

Namely, since the changes occurring are intensive and based in process of computerization, it seems that the teacher has not given the option of choice when it comes to the organization of teaching through different means, strategies and media. Computerisation, which has affected the society in its entirety, brings a multitude of IT resources, exemptions, for which is necessary to acquire specific knowledge and skills to get teachers to use them adequately (Houge et al., 2008). It is only the question of time and resources how to provide sufficient technical and technological conditions in schools and education personnel, which will lead to a fundamental information (Greenfield, 2014).

For all these reasons, it is necessary to do systematic and planned approach to strengthen teachers' competences for the application of modern technologies in the processes of education, that teachers can in the right and best use all of the possibilities of modern media, and direct students to properly use information available within certain media and to select and classify them in the right way, and then to use them in the function of acquiring new knowledge, as modern society requires the individual to independently collect information that manages, analyzes and converts them into usable knowledge.

4. CONCLUSION

The research has shown that teachers positively evaluate their competence in the use of modern media and technology in the teaching process. The resulting picture of the situation in schools is optimistic. This is the way to build a new education strategy in the future through setting sustainable goals and tasks at school, in the context of contemporary social changes. The teacher, as a professional must follow the changes, which ones in many cases reflect on education, and to do trainings in order to operate the situation in accordance with these changes. Way to this is to strengthen the competence and professional development of teachers and educators and psychologists in schools, which in the coming period must be a priority to schools and society to keep up with the changes that are experiencing more intense in the right way. In the future it will be a lot harder to set up and assume directions of movement education in a few years, because of intense change and scientific and technological achievements. Thus, it is necessary to show to teachers the opportunities that change and innovation offer, but also the importance and necessity of strengthening their competences in this area, in order to decrease discontinuity between modern scientific and technological developments in society and in school mode, ie, education, while the teaching process is more efficient.

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