

THE SCHOOL SYSTEM AND NEW MEDIA – REASONS IN FAVOUR OF INTEGRATION

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Abstract. In the education system reform which is currently underway in Serbia and in most countries of the region, considerable attention has been paid to modern media technologies. Although a whole decade has passed since the initiation of the reform there have been no significant developments regarding the school system computerisation, which resulted in raising the issue of integration and seeking valid arguments which indicate the key role of new media in the restructuring of the school system. In that context, the basic goal of this paper is an analysis of primary research studies which suggest the reasons for the integration of new media into the school system in order to set out the reform guidelines regarding the application of information and communication technologies in formal education. The results of the analysis attest to a large number of compelling reasons for implementing modern media technologies into the system of educational institutions. Among them one should distinguish the general reasons which deal with improving the quality of and bridging the gap between formal and informal education. The selected research studies state

objective reasons such as rationality and cost-effectiveness, as well as pedagogical reasons relating to the learning context innovation, presence of new knowledge sources provided by Internet resources, changes in the process of learning instigated by the development of e-learning and a higher motivation of the participants in the process of education. In the conclusion of this research the authors emphasise the necessity of integrating media technologies into the school system for the purposes of creating a modern coherent system founded on networking, communication and exchange.

Keywords: school system, education, integration, new media, changes

Introduction

The 2002 educational reform established the paths of changes for the purposes of achieving decentralisation and democratisation of the process of education in Serbia. In order to accomplish the aims of the reform significant efforts have been directed to the computerisation of the school system, bearing in mind that there had been certain deficiencies in this field, primarily in terms of the insufficient implementation of new media. In that respect, the basic strategic course of the Ministry of Education, Science and Technological Development has been the establishment of a new informational and communicational environment in which all participants in the process of education, as well as the representatives of the society and economy, could obtain and share various sorts of educational sources and services. Such development course of the system of education has been planned through programme documents such as the Strategy for Education Development in Serbia 2020. Namely, this document argues that schools should be better equipped with the tools of new information technologies in order to improve the quality of education.¹⁾

It is common knowledge that the influence of new media on education is very complex, as well as that their implementation in the school system raises

many issues and dilemmas, which is especially important during the reform processes. Bearing in mind that the school system in Serbia is still in the course of implementing the reform goals relating to computerisation, the issue of integration of new media technologies is becoming increasingly topical. Consequently, it is essential to become acquainted with the experiences of other, more developed countries regarding the implementation of new media into the school system. For the purposes of better understanding the integration of new media this paper presents an analysis of research studies in order to ascertain significant reasons which speak in favour of the process of integration.

Theoretical approach: computerisation of the school system

In every society the school system represents a component part of a wider social system and it entails the system of educational institutions, from the pre-school level to the level of universities (Stanisavljević Petrović & Vidanović, 2012). A modern school system is in a constant process of transformation. It is an open system which is in constant interaction with other social subsystems. Graphically speaking, the school system can be observed as a part of a continuum constantly circulated by children, pupils and students. In the school system, as well as in any other system for that matter, it is necessary to gather, organise and analyse information, as well as to ponder how to improve the overall quality and reach informed decisions. The efficiency of the education system requires a permanent update of the current database in order to share the information with all interested users.

It is well-known that the school system develops and changes simultaneously with the development of the society as a whole. Accordingly, the education reform needs to be consonant with social changes, including those changes which occur in the field of information and communication technologies. Hence, it is readily discernible that changes in the school system are ori-

ented towards computerisation and greater integration of new media technologies (Kovač Cerović & Levkov, 2002). Although the reform goals sought to form an integrated information system in education and to largely implement the media into the school system these goals have not been fully realised. The research results show that the idea of computerisation has not yet been adequately put into action. Therefore, even in the upcoming period the development and application of the computer system in education remain challenges for the school system in Serbia (Hebib & Spasenović, 2011). The experiences of developed countries show that insufficient integration of new media technologies into the system of education leaves serious consequences for the education of younger generations. The gap created between traditional models of education and new forms supported by information technologies grows wider every day, and consequences become more conspicuous. Accordingly, in a complex constellation of social needs one faces the questions whether school systems are capable of adequately responding to the needs of the society and whether there is something to be done to meet the challenges of a modern society (Tolley & Shulruf, 2009). The answers to these questions point to the necessity of changes in school systems. Some of the more significant changes are instigated by new technologies which bring the spirit of innovation and modernisation into the existing structure and organisation of traditional education systems. The development of new technologies offers numerous possibilities and poses challenges to the school system, and the first step in that process is their integration.

Methods and objectives of the study

The reference literature covering a wider field of new media, as well as the field of education, indicates the increasing role that information and communication technologies play in the development and improvement of the quality of school systems (Mulkeen, 2003; Özdemir & Kılıç, 2007; Vanderlinde & Van Braak, 2010). The first step towards a greater application of new media in

the system of education is the process of integration which immensely influences the effects of the application of new media technologies. There are undoubtedly numerous reasons which speak in favour of integration of new media technologies into the school system. Accordingly, the main objective of this paper is to offer a brief overview of the selected primary research studies which suggest the reasons for integrating information and communication technologies into formal education. In accordance with the established objective the following research tasks have been defined: (1) a brief overview of the papers indicating the reasons for the integration of new media into the school system; (2) recognition and categorisation of the reasons which speak in favour of the integration of new media into the school system.

Although nowadays there are numerous papers which deal with the issues of integration of new media into school systems, it is necessary to emphasise that they mostly deal with particular questions, most frequently with the research into integration at the local level, or at a specific level of the school system (Momcilovic & Petrovic, 2016; Pavlović & Prokopović, 2015; Pralica & Barović, 2013), while fewer of them are focused on general issues relating to the school system as a whole (Fullan, 2011). For the purposes of this secondary research the authors have selected the studies of general nature which deal with the school system as a whole. Such approach has significantly influenced the size of the sample comprising selected research studies in terms of a smaller number of selected papers. Special emphasis is placed on those research studies which, inter alia, deal with the advantages of integration, which has also influenced the number and quality of selected studies.

A brief overview and analysis of the research studies including discussion

In some developed countries one of the first steps towards a reform of the school system is the integration of information technologies into the formal

education system. The papers in this field show that the largest portion of the scientific and professional public have developed awareness of the need for effective integration of new technologies into the school system. Although there is a general agreement on integration, along with significant reasons for the realisation of this process, at a practical level teachers face a series of obstacles. The research studies state that some of the barriers are closely connected with the financial resources, while some other limitations occur due to attitudes towards the current system of education (Jenkins et al., 2009; Tondeur et al., 2008). In order to achieve efficient integration of new technologies into the system of education it is necessary to make systemic changes at all levels, from kindergartens to universities. Although the issue of integration has become very topical, new technologies are still far from a widespread use in schools, as expected. In that respect, integration represents a precondition for the development of every system of education oriented towards quality improvement. Integration implies that parts should be conjoined into a whole and it encompasses several aspects: integration with reference to new technologies (hardware and software), integration with reference to teaching courses, and integration in teaching and learning processes (Su, 2009). A significant precondition for the process of integration is the development of teachers' competences, since teachers are expected to create a stimulating environment which would support the process of integration. In the light of the aforementioned, the issue of integration of new technologies into the system of education is of an essential importance so that we can later discuss their adequate use and the effects they produce in the processes of learning and teaching.

The integration of new media can be observed in the light of quality improvement of the school system and adjustment to the changes brought by the society and the development of information technologies. New media technologies offer a significant contribution to the restructuring of the school system which has acquired some new functions in the modern global society. Examples

of good practice in New Zealand and in the USA in this field show that there are numerous reasons for integration, because there is a global trend which suggests that the role of school systems grows weaker in comparison with networked organisations such as virtual schools and web services (Davis et al., 2013). The future of school systems, which are complex ecosystems by nature, lies in their connection with local and regional environmental specificities, as well as in self-organising networks which enable one to learn. The media can play a significant role in connecting these factors and they can contribute to their networking and correlation, which offers a whole new dimension to the school system and a whole new quality standard. That, however, does not imply that school systems should lose their role and significance, but merely that the aforementioned represents the possibility of a coherent and sustainable approach to the restructuring of the system of educational institutions.

As an important reason for a greater degree of integration of new media the authors state the changes in the lives of young people, stressing their *strong disposition towards the modern media*. The amount of time that young people spend using the media, as well as various Internet resources, are very important reasons indeed for the integration of new media into the process of formal education (Collins & Halverson, 2010). The current school systems are based on traditional patterns and as such they encounter difficulties when they need to deal with students who are technology-oriented. Although it may appear that school systems have always sought to adapt to changes, their transformation is essentially slow and does not keep up with the development of new technologies. The current model of the school system is based on the requirements of the Industrial Revolution. Thus, it is necessary to review and restructure the current educational practices. The key issue relates to the problems of adjusting the education system to the lives of young people in a modern society which is painted in colours of new information and communication technologies.

It is considered that new technologies in the school system lay the ground-work for *a lifelong education and prepare the young for the learning society*, which is certainly another valuable reason for their integration into the system of formal education (Bazić & Minić, 2007). School systems are imposed with challenges relating to the ideas of a lifelong education and learning society by intensive and rapid technological changes in the society. New technologies indubitably offer efficient, diverse and autonomous approach to the knowledge in different life stages. Seen from a wider perspective, they influence the structure of an educational system by introducing changes which increasingly distance themselves from traditional paths of education and develop a more efficient and rational manner of implementing the process of education. Modern technologies offer new modes of knowledge acquisition, which changes the process and quality of education, as well as the *learning context*. Accordingly, changes are necessarily reflected on the content of education which is adjusted to the needs of a modern man.

Some riveting conclusions are offered in a study from 2011 which considers the challenges of new technologies in the context of the education system in Serbia. In this study, the issues of integration of new media are observed from the perspective of achieving greater *rationality and cost-effectiveness* of the school system (Saracevic et al., 2011). The authors emphasise that the system of education seeks the possibilities of a greater rationalisation in managing its resources. The economic crisis of the global financial system strongly influences the possible investments in the system of education. Thus, the solutions for improving the situation and reducing the costs are most ardently sought. In that context, new technologies as an enormous and insufficiently exploited potential assume a growing importance in the sector of education. The development of the Internet creates new opportunities which influence the changes in the profile of the school system as a whole, because the Internet as one of the most popular media offers unimagined possibilities for changes and modernisation.

The integrations of new media help to *bridge the gap between formal and informal* education, which is another good reason for their wider application in the school system (Cox, 2012). Namely, new technologies strive to create a balance between formal and informal learning because the availability of new technologies and resources enables learning at home and in other informal environments which should be in consonance with the school education. Authors with futuristic inclinations believe that education of the future shall erase the boundaries between formal and informal education, in schools and communities, at home or in the workplace, as well as that new technologies shall play the crucial part in that process (Facer & Sandford, 2010).

A large number of authors agree upon the attitude that the most significant reason for the integration of new media into the school system is *the potential of e-learning* (Garrison, 2011; Jonassen et al., 1999). In the analysis of technological and educational changes which have taken place in the last forty years e-learning is emphasised as the most important achievement. Accordingly, technologically advanced methods of learning applied in the integrated learning and distance learning become increasingly important in recent years. Learning through information technologies is nowadays a component part of informal learning of the young and a significant supplement to the learning process which takes place in educational institutions.

The emergence of the Internet has created the possibilities for *networking, communication and the exchange of information* which has significantly changed the course and process of learning. The network of new technologies offers a precious opportunity for changing the manner of developing competences in every field, and new technologies increasingly acquire the properties of didactic tools which bring innovations into the process of learning and develop new forms of social interaction. This is especially topical in the system of higher education, where electronic learning becomes an inevitable course of changes and development (Dragomir et al., 2013).

A schematic presentation of the selected studies shows that there are significant arguments which speak in favour of the attitude that there are numerous reasons for implementing new media into the school system (Fig.1).

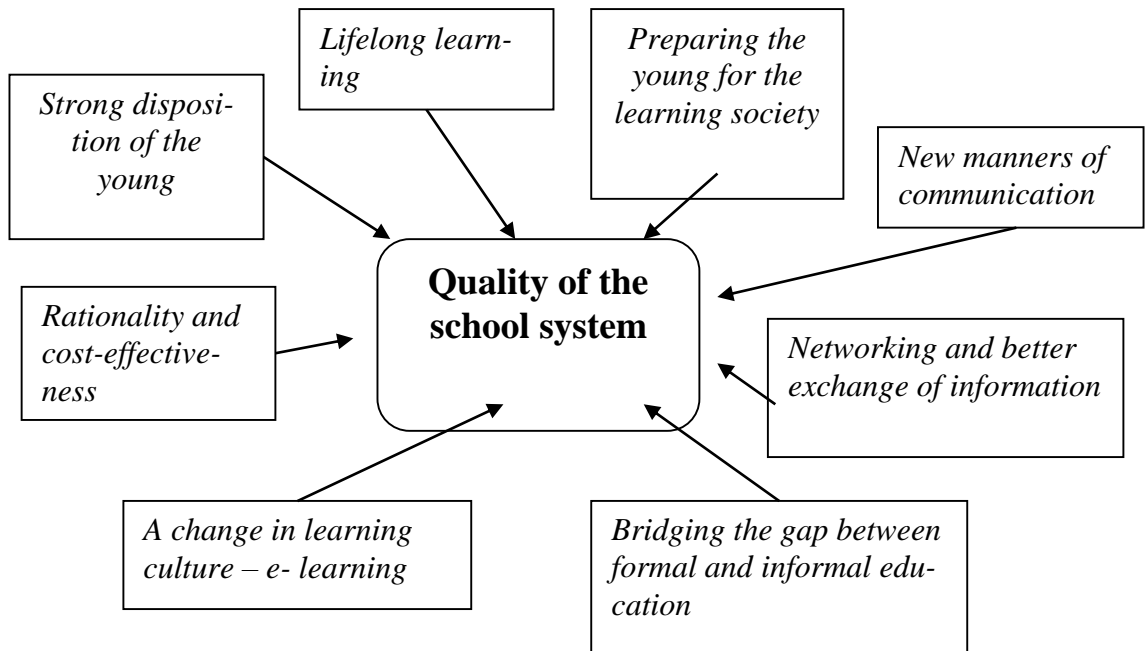


Fig. 1. Reasons for the implementation of new media into the school system

Generally speaking, those reasons which introduce changes to the quality of the school system are the dominant ones, and the largest number of authors agree upon this issue (Hanushek, 2010; Hargreaves et al., 2014). New media introduce significant changes into the quality of the school system, influence its flexibility, innovation and compliance with the needs of a modern society. A great interest of the young in the use of new media is also an important reason for their integration into the formal system of education, especially if one bears in mind that the young are principal users of the services offered by the school system. In that context, it would be appreciable if the school system were able

to produce an adequate response to the needs of the young, to offer contents and forms of engagement which are in compliance with the new technology tools.

Modern generations of students learn by gathering digital information and that is a part of their education. The implementation of digital data in schools is a perspective in the development of the school system and a way to strengthen the dominant school administration and management practice. In that respect, the latest challenge is to objectively observe the potentials of new media and their adequate implementation in the system of education. In the societies in which limited resources are allocated for education, the rationality and cost-effectiveness that new media offer should not be neglected in the process of education, especially in the part regarding the functionality of the school system. A rational approach to the existing resources and an expansion in knowledge sources are the requirements of not merely financial, but also of pedagogical nature. New media should indubitably be included in the process of redesigning of the system of education in order to create syllabi and curricula and in order to support teachers and students to sustainably and meaningfully use new media in education.

It is well-known that new media technologies offer enormous resources with respect to education, which has become topical with the emergence of the Internet, because numerous databases which can significantly facilitate the process of education are now available to teachers and students. Furthermore, new media change the learning process because their integration creates a different learning context and the possibility for overcoming deficiencies due to which school systems are exposed to criticism. The development of new learning theories, such as constructivism, is largely based on new media and offers support to their increasing application in the process of learning (Tam, 2000). The process of learning through new media becomes an interesting activity, filled with fresh data, audio and visual materials which influence the motivation and the

achieved effects. Learning is no longer reduced to institutions specialised in education, nor does it have temporal limitations, but can take place in different time and different contexts. Under such circumstances the gap between formal and informal education is closed, the boundaries for school learning are extended and virtual networks, which offer a support for the development of a unique construction of a system of knowledge for every interested individual, are developed. In that respect, the potentials of e-learning are especially important since they increasingly substitute the traditional forms of knowledge acquisition. The future of learning within school systems is, according to numerous authors, perceived in a collaborative learning based on networking, communication and exchange.

Conclusions

In the effort of seeking compelling reasons for the integration of new media into the school system in Serbia one can conclude that the main objective of this work, which is a brief overview and analysis of the selected primary research studies, has been achieved. The analysis indicates valid arguments which speak in favour of the stance that reform paths need to be enriched by the tools of new information technologies. The analysis of the selected research studies shows that the integration of new media into the school system contributes to the improvement of its quality and functionality, which is crucial for further development and quality improvement.

New technologies with their high potentials indubitably introduce radical possibilities which nowadays represent a starting point for the changes in the current school system. The changes are largely related to the improvement of learning, as well as to the opening of formal education towards informal education contexts. Accordingly, it is our recommendation that in the further development of the school system new technologies be used to establish a coherent

system which would connect various models in the modern day formal education.

Acknowledgements: This paper is a part of the following projects: (i) *Sustainability of Identity of the Serbs and National Minorities in the Border Communities of Eastern and Southeastern Serbia* (179013) – with first author as participant, which is carried out at the University of Niš– Faculty of Mechanical Engineering; (ii) *Models of Evaluation and Strategies for Improvement of Education Quality in Serbia* (179060) – with second author as participant, which is carried out at the University of Belgrade – Faculty of Philosophy, The Institute for Pedagogy and Andragogy; (iii) *Tradition, Modernization and National Identity in Serbia and the Balkans in the Process of European Integration* (179074) – with third author as participant, which is carried out at the University of Niš – Faculty of Philosophy. The projects are financed by the Ministry of Education, Science, and Technological Development of the Republic of Serbia.

NOTES

1. Strategija razvoja obrazovanja u Srbiji do 2020. *Službeni glasnik Republike Srbije*, br. 107/2012.

REFERENCES

- Bazić, J. & Minić, V. (2007). Margins about influence of informatics on changes in education. *Informatologija*, 40(3), 211-215.
- Collins, A. & Halverson, R. (2010). The second educational revolution: re-thinking education in the age of technology. *J. Comp. Assisted Learning*, 26, 18-27.

- Cox, M.J. (2012). Formal to informal learning with IT: research challenges and issues for e-learning. *J. Comp. Assisted Learning*, 29, 85-105.
- Davis, N., Eickelmann, B. & Zaka, P. (2013). Restructuring of educational systems in the digital age from a co-evolutionary perspective. *J. Comp. Assisted Learning*, 29, 438-450.
- Dragomir, C.C., Panzaru, S. & Stefanescu R. (2013). Realities and opportunities of e-learning in higher education system from Romania. *Proc. 9th Int. Sci.Conf., Vol. 1*, pp. 315-320.
- Facer, K. & Sandford, R. (2010). The next 25 years: future scenarios and future directions for education and technology. *J. Comp. Assisted Learning*, 26, 74–93.
- Fullan, M. (2011). *Choosing the wrong drivers for whole system reform*. Melbourne: Center for Strategic Education.
- Garrison, D.R. (2011). *E-learning in the 21st century: a framework for research and practice*. Abingdon: Taylor & Francis.
- Hanushek, E.A. (2010). *Making schools work: improving performance and controlling costs*. Washington: Brookings Institution Press.
- Hargreaves, A., Lieberman, A., Fullan, M. & Hopkins, D.W. (2014). *International handbook of educational change: part two*. Berlin: Springer.
- Hebib, E. & Spasenović, V. (2011). Školski sistem Srbije – stanje i pravci razvoja. *Pedagogija*, No. 3, 373-383.
- Jenkins, H., Purushotma, R., Weigel, M., Clinton, K. & Robison, A.J. (2009). *Confronting the challenges of participatory culture: media education for the 21st century*. Cambridge: MIT Press.
- Jonassen, D.H., Peck, L.K. & Brent, W. (1999). *Learning with technology: a constructivist perspective*. London: Prentice Hall.
- Kovač Cerović, T. & Levkov, L.J. (2002). *Kvalitetno obrazovanje za sve – put ka razvijenom društvu*. Beograd: Ministarstvo prosvete i sporta Republike Srbije.

- Momcilovic, N. & Petrovic, D. (2016). Student attitudes on the use of new media in learning German as a foreign language. *12th Int. Sci. Conf. E-Learning and Software for Education*, Bucharest, April 21-22, pp. 138-143.
- Mulkeen, A. (2003). What can policy makers do to encourage integration of information and communications technology: evidence from the Irish school system. *Technology, Pedagogy & Education*, 12, 277-293.
- Özdemir, S. & Kılıç, E. (2007). Integrating information and communication technologies in the Turkish primary school system. *British J. Educ. Technology*, 38, 907–916.
- Pavlović, D. & Prokopović, A.M. (2015). Attitudes of teachers to the application of computers in preschools. *E-Learning & Software Education*, No. 2, 277-283.
- Pralica, D. & Barović, V. (2013). New digital technologies in the education of journalists. *Proc. 9th Inter. Sci. Conf.*, 2, 204-209.
- Saracevic, M., Masovic, S. Medjedovic, E. (2011). Infrastructure for development and implementation of e-learning in the educational system. *YUINFO 2011–XVII*, pp.15-19.
- Stanisavljević Petrović, Z. & Vidanović, D. (2012). *Promene u školskom sistemu u Srbiji*. Niš: Filozofski fakultet.
- Su, B. (2009). Effective technology integration: old topic, new thoughts. *Int. J. Educ. & Develop. Using ICT*, 5, 161-171.
- Tam, M. (2000). Constructivism, instructional design, and technology: implications for transforming distance learning. *Educ. Tech. & Soc.*, 3(2), 50-60.
- Tolley, H. & Shulruf, B. (2009). From data to knowledge: the interaction between data management systems in educational institutions and the delivery of quality education. *Computers & Education*, 53, 1199–1206.

Tondeur, J., van Keer, H., van Braak, J. & Valcke, M. (2008). ICT integration in the classroom: challenging the potential of a school policy. *Computers & Education*, 51, 212–223.

Vanderlinde, R. & van Braak, J. (2010). The e-capacity of primary schools: development of a conceptual model and scale construction from a school improvement perspective. *Computers & Education*, 55, 541–553.

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