



Competences of Physical Education Teachers in Education Supported by Digital Technology

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Abstract: The application of digital technology in teaching physical education provides a basis for its improvement in the direction of promoting physical activity and student development. As one of the most important subjects of the teaching process, teachers have a fundamental role in achieving the goals and tasks of physical education. Physical education teachers are required to develop competences based on which they would implement digital technology in physical education classes in compliance with the imperatives of modern digital education. Therefore, this research is focused on the competences of physical education teachers in education supported by digital technology. The aim of this research is to determine the competences of physical education teachers necessary to fulfil their role in education supported by digital technology. The method used in this theoretical research is the method of theoretical analysis. The technique of content analysis was used. The research instrument consists of the relevant literature on this topic. The theoretical analysis points to a need to expand and improve the digital competences of physical education teachers, which can be achieved by joint action of formal and informal education systems in developing programs that would provide a basis for the professional development and empowerment of physical education teachers to use digital technology with more certainty and purpose in teaching physical education.

Keywords: physical education, digital technology, teacher, competences.

Introduction

The development of digital technology and its impact on all spheres of life has significantly changed the way people function on a daily basis. Advances in digital technology have influenced the way we comprehend knowledge and skills. They are inextricably linked to technological knowledge and skills, without which functioning in different areas would be difficult. Therefore, educational process is experiencing progress caused by the integration of digital technology into its flows, which affects the changes in the organization of teaching and learning when it comes to all subjects. Physical activity is the basis of a healthy lifestyle and its regular implementation contributes to the creation of healthy life habits, which is why it is important to promote greater physical activity of students. For that reason, it is necessary to use digital technology resources that can contribute to the implementation of changes in physical education as a compulsory subject, with the aim of its development and modernization. Changes are being implemented in educational practice and physical education teachers are in charge of their efficiency. The application of digital technology in education has influenced the change in the way physical education teachers act, which has made them encounter numerous challenges in the form of the necessary knowledge, skills and abilities. Teachers are the ones who shape and direct the teaching process, and it largely depends on them what outcomes will be achieved. As digital technology has become an indispensable part of the teaching process, physical education teachers are expected to possess competences that would enable them to use digital technology in teaching physical education successfully. Based on the developed competences, physical education teachers would effectively perform their role and thus achieve the set goals of teaching physical education in accordance with the concept of digital education. By modernizing teachers' competences, it is possible to make positive changes when it comes to teaching physical education. By implementing digital technology, education gains the opportunity to develop.

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Analysis

Under the influence of digital technology, the modern educational process has received support in the form of various technological platforms and resources that provide a chance for its progress. Like other subjects, physical education classes have the opportunity to be improved, and the physical education teacher has a significant role in that. The achievement of fundamental goals and tasks of physical education depends on the physical education teacher, which is why his role is complex and implies a planned and organized approach to the physical growth and development of students aimed at influencing other spheres of development of their personalities. Effective and adequate performance of the role of physical education teacher requires developed competences. The basic competences of physical education teachers represent the foundation of their work, which can be improved precisely by applying digital technology, i.e. by expanding and developing digital competences. Positive changes in the role and competences of physical education teachers are becoming more and more emphasized and in the near future they will be further shaped by the changing process of learning and teaching which is conditioned by the presence of digital technology.

Physical education as an indispensable part of institutional education occupies an important place in it. The basic tasks of physical education are to encourage growth, development and proper posture, develop motor skills and habits related to physical exercise with the inevitable development of the awareness of a healthy lifestyle (Kretschmann, 2010; Ristić, 2018b). The characteristics of physical education classes are reflected in the fact that they are carried out in a special environment with a lot of props and equipment, where the basic teaching tool is exercise. This reflects the increased responsibility of teachers in terms of protecting students from injury. Physical education differs from other school subjects because its teaching content and method of learning is physical activity, which is what also distinguishes the role of a physical education teacher from the role of the teacher of another subject. "Professional activity of physical education teachers differs from other pedagogical specialties and requires much more attention, concentration, responsibility. Thus, the physical education teacher must simultaneously control the state, movement and safety of all the students over large areas, be able to adjust and assist the students in adapting to situations that are changing dramatically (gaming, educational, weather, physical ones); protect the students from injuries, overload; constantly promote universal, cultural, pedagogical values, skillfully stimulate various aspects of student development due to physical exercises, games and exercises" (Maksymchuk et al., 2018: 814). The organization of physical education classes conditions increased interaction among students and between the teacher and his students, which provides an opportunity and a task for the teacher to get acquainted with the physical and psychological characteristics of the students in order to adapt the teaching to the characteristics and traits of each student effectively. His role in the adequate inclusion of students in physical education classes is also important. The results of the research conducted by Jeremić et al. (2018) show that students emphasize the role of partners in affective interaction as the most important role of physical education teachers, i.e. they emphasize the importance of respecting students, respecting their work and protecting their privacy. In addition, the objectivity of teachers in assessing the performance and progress of each student individually is highly valued. In the educational systems of developed countries, greater importance is given to the development of a positive attitude towards physical education and sports, which is why it is necessary for teachers to train students to apply knowledge, skills and habits acquired through teaching and recognize the connection between physical exercise and health (Momčilović and Momčilović, 2016). Therefore, one of the most important roles of a physical education teacher is to emphasize the importance and value of physical exercise constantly and to work on his students' creation of a habit to take care of their body and improve their abilities. In that sense, his task is to show to the students how to apply a certain program of physical exercises in their free time, beyond school hours, so that physical exercise becomes their need and desire over time. Good performance of the role of a physical education teacher requires, above all, good preparation, dedication and motivation of teachers together with the application of various contents and activities that would enable greater participation and an active role of students in the teaching process. This is also supported by the respect of their proposals and ideas, and the distribution of responsibilities in the execution of certain activities and tasks. In addition, it is important to provide support and cooperate with students before, during and after exercise. Students' subjective sense of the teacher's competence should not be left out in order to develop a sense of trust and security, which together contribute to a mutual sense of satisfaction during physical education classes, the ultimate goal being successful psychomotor development of students (Zrnzević and Zrnzević, 2018).

The implementation of digital technology in education is one of the leading imperatives of modern education and in this field, there are numerous studies and practical examples that have proven the

positive effects of the application of technology in the teaching process (Kretschmann, 2015a). Physical education is an area in which the application of digital technology is still not common due to limitations such as the lack of training, the availability of equipment, space, time, and hardware problems (Gibbone, Rukavina and Silveanu, 2010; Yaman, 2008). However, digital technology in physical education, as well as in other subjects, has great potential (Selvi, 2010). Based on the technological standards for teachers and students, the National Association for Sports and Physical Education (NASPE) has proposed four guidelines for the appropriate use of teaching technology in physical education (Baert, 2011: 17):

- The use of instructional technology in physical education is designed as a tool for increasing instructional effectiveness;
- The use of instructional technology in physical education is designed to supplement, not substitute for, effective instruction;
- The use of instructional technology in physical education should provide opportunities for all students, versus opportunities for few;
- The use of instructional technology in physical education can prove to be an effective tool for maintaining student data related to curriculum objectives based on standards.

Based on these guidelines, we realize that educational technology is not important in itself, it cannot replace the teacher, but as a supplement to his work, it becomes an effective tool for modernizing and improving physical education classes. Examples and possibilities of the efficient inclusion of digital technology in teaching physical education can be found in the literature. In that sense, the roles of physical education teachers have been expanded. They are related to the daily use of technology in the process of preparing and conducting classes, ways of communicating with students and colleagues, providing resources for learning, administration and reporting on student results. Their role is to follow the scientific achievements in their field and educational technology, to educate young people in a different technological and value milieu, to evaluate the work of students continuously and to encourage them constantly to achieve better results. In this new role, physical education teachers become organizers, programmers and teaching assistants, while students become more independent, creative and responsible (Selvi, 2010). It is necessary for a physical education teacher to create pedagogical situations that will encourage the students' desire for knowledge, skills development and success. This would increase the students' motivation to learn and progress and enable student participation as a basis for greater achievements (Barbieri, 2020). It is also important for the teacher to create a friendly relationship with the students, to be their advisor, a person of trust, to acquaint them with social and cultural values, to help them acquire these values and to promote the development of their personalities (Kretschmann, 2010; Zobenica and Stipančević, 2017). In addition, he is a guide and role model for students, which is why he needs to use educational technologies purposefully. The physical education teacher has a crucial role in encouraging the development of the students in the field of physical health, and is, therefore, responsible for providing effective education (Filiz, 2020). Action research is of great importance for teachers-practitioners in the integration of digital technologies into physical education in order to improve teaching and gain a better teaching experience. The history of action research in physical education is not long, but it offers great opportunities, because it implies that physical education teachers review their actions in order to improve their work. Teacher reflection deals with re-examining the values and procedures that they represent and use in physical activity and sports, with the purpose of solving problems and improving their practice (Bodsworth and Goodyear, 2017; Maksimović and Osmanović, 2018).

The diversity of roles of physical education teachers speaks of their importance in modern physical education. Based on the knowledge of the psycho-physical characteristics of students, their basic task is to promote the physical development of students and the development of physical exercise habits. In that sense, their role is reflected in the preparation and organization of physical education classes, where, through various forms of physical activities, they will try to achieve a positive influence on the growth and development of students, and encourage their motivation for progress, which is why it is important for teachers to follow modern achievements in physical education. Ensuring the safety and protection of students is an integral part of the role of physical education teachers, and so is objective reporting on the results achieved by students. Through counseling and supporting students, teachers promote pedagogical values and connect physical education with the development of a healthy lifestyle. The application of digital technology can contribute to the improvement of the role of physical education teachers in all aspects. As one of the key bearers of educational work in school, physical education teachers must possess competences that include specific knowledge, skills and attitudes acquired through education, as well as experience in educational work, which enable them to perform tasks and roles in complex situations of contemporary school (Karić et al., 2015). The very concept of competences refers to the abilities, knowledge, attitudes and skills of a person that he possesses or can develop. In the field

of education, competences are seen as potential actions based on personal abilities and willingness to take initiative. Competences are widely discussed in modern education and there are numerous analyzes that indicate that competences are certain abilities to perform a task, i.e. abilities to solve given problems based on competent knowledge (Hercigonja, 2018; Krumsvik, 2011).

The National Education Council of the Republic of Serbia has defined the Standards of Competences for the profession of teachers and their professional development by dividing them into four categories (Šafranjić and Zivlak, 2018: 2):

- Competences for the teaching area, subject and teaching methodology;
- Competences for teaching and learning;
- Competences for supporting student personality development;
- Competences for communication and cooperation.

Considering the stated competences in the context of physical education teachers, competences for the teaching area, subject and teaching methodology refer to the subject knowledge, planning, implementation and evaluation of the teaching process, as well as training in the field of physical education. The first group of competences implies that the physical education teacher has knowledge in the field of physical education and related disciplines, in which digital technology, i.e. the Internet, provides him with opportunities, offering a wide range of professional knowledge. Based on this knowledge, by using digital technologies in the didactic-methodical organization of teaching, he strives to achieve the goals and tasks of physical education. These competences also refer to the skills of more creative planning, implementation and evaluation of physical education classes using digital teaching aids in order to improve them, whereby it is necessary to know at least one foreign language which can contribute to that (Pišot, 2017; Šafranjić and Zivlak, 2018). Teaching and learning competences include the knowledge of student development and the nature of learning in physical education classes, planning skills, implementation and evaluation of the process of student progress and the ability to improve the pedagogical practice. Competences for supporting student personality development refer to the knowledge about the differences between students and adequate ways of motivating them. These competences include planning and implementation of various activities for the development of students' personalities, with the inevitable evaluation and improvement in these aspects of competences. Digital technology can be the basis for the improvement of these categories of competences through numerous programs and applications that facilitate the process of monitoring and measuring progress in the physical development of students, based on which the teaching of physical education would be implemented more fully and efficiently. In other words, digital technology provides a chance for the development of better communication and cooperation with students, because this type of communication is close to students who have grown up with technology. In this way, a positive relationship between teachers and students can be formed, and on that basis, students can be more motivated to engage in physical activity and realize its benefits. Communication and cooperation competences include the necessary knowledge, planning skills and implementation of cooperation activities with parents, guardians and other partners in physical education, in the improvement of which digital communication media have a significant share. Examples are applications and social networks that enable real-time communication outside the classroom, providing the exchange of the necessary information about students in order to monitor their physical activity outside of class. Therefore, the modernization of physical education in accordance with technological innovations is possible if the physical education teacher primarily understands the importance of digital technology in teaching, and in that sense seeks to develop these basic competences following the trends in digital technology (Šafranjić and Zivlak, 2018).

Forming the attitudes of physical education teachers is an important segment of their competence. The success of a physical education teacher will depend not only on the skills he possesses, but also on the safe implementation of those skills, i.e. his self-confidence (Gibonne, Rukavina and Silverman, 2010). This is explained by the concept of self-efficacy, which represents an individual's judgment of himself and his ability to organize activities that require certain performance and quality. In this sense, self-efficacy is the belief in one's own abilities. The attitude of teachers about their competence is of great importance for their practice, which is reflected in the results of research conducted by Yaman (2008), which show a positive connection between self-efficacy and the use of computers in teaching. Namely, if the faith of physical education teachers in their self-efficacy is low, they will not be considered competent enough to use computers in teaching and will tend to use them less, and vice versa. This means that teachers must have the confidence to use digital technology in order to be able to integrate it into their work. In the context of teachers' attitudes towards technology, younger teachers have been shown to have more positive attitudes towards the use of technology in teaching than older colleagues (Woods et al., 2008). Therefore, younger teachers use digital technology more and believe that the application of technology

increases students' achievement in physical education (Osmanović, Maksimović and Dimitrijević, 2020). The reason for that can be found in the fact that technology is closer to younger teachers. In that sense, technological trainings can improve the technological competences of older teachers, which will have a positive impact on their attitude towards the use of technology (Woods et al., 2008). For this reason, it is important to work on teachers forming positive attitudes towards the use of digital technology, because this affects how much it will be applied in teaching physical education (Filiz, 2020; Semiz and Levent Ince, 2012).

Developed competences of physical education teachers are the basis of quality physical education classes. By applying numerous technological resources, from traditional to modern, such as computers, tablets, mobile phones, the competences of modern physical education teachers can be improved. In this way, teachers have significantly more opportunities in the field of planning, organization and evaluation of physical education, making the process more creative and interesting, which will certainly increase the motivation of students to engage in physical activity, which is one of the goals of physical education, and improve the knowledge, skills and abilities of teachers in these areas. Also, through the use of various applications, programs, platforms and the Internet, they improve their skills of monitoring the development and progress of each student, as well as communication skills and types of cooperation with students and parents. The availability of content, seminars and courses on the Internet allows teachers to improve, or continuously expand their professional knowledge and skills in the field of physical education. The physical education teacher is the main carrier of the application of innovations in teaching physical education, and, therefore, it is necessary for him to have self-confidence built on the competences necessary for innovative teaching. Based on this, we can conclude that the application of digital technology in physical education is a way to expand and modernize the basic competences of physical education teachers. Therefore, it is necessary for physical education teachers to strive to improve their basic competences by using digital technology in teaching physical education. In the context of the inclusion of digital technology in the process of teaching physical education, digital competences have stood out as a special type of competences of physical education teachers.

The presence of information and communication technology in schools and everyday life has conditioned the need for the development of digital competences of physical education teachers (Momčilović and Petrović, 2019). In order for the integration of information and communication technology in teaching to be effective, we need professional teachers who develop their competences through continuous professional development. The digital age requires digitally skilled teachers. Digital competences are one of the basic competences for lifelong learning which are determined by the documents of the European Union education policy (Balbieri, 2020; Momčilović and Petrović, 2019). Presented in this way, digital competences can be included among the basic needs of a person for life, work and learning in the digital society in which we live (Dragutinović and Mitrović, 2020). It is possible to find various terms in the literature that refer to the ability to use digital technology, such as digital literacy, computer literacy, information literacy, media literacy or e-competences. Digital literacy is a broader term that encompasses all of the above (Cantabrana, Rodriguez and Cervera, 2019). Digital competences are closest to digital literacy because they refer not only to skills but also to the social and emotional aspects of using digital technology. Digital competences can be defined as the critical and creative use of digital technology in order to achieve different goals (Hercigonja, 2018). The definition of digital competences was given by Ferrari (2012: 87): "Digital Competence is the set of knowledge, skills, attitudes, abilities and strategies that are required when using ICT and digital media, with the aim of a thoughtful, flexible and safe process of teaching and learning." It follows that digital competences refer to the ability to use information and communication technologies safely and critically for work in personal, social and professional life. The key elements are the basic information and communication skills and abilities: the use of computers to find, evaluate, create, display and exchange information, and develop collaborative networks via the Internet. A digitally competent teacher is one who has mastered the ability to use the media, search for information and select them critically, as well as the ability to communicate with other people and groups through digital tools and applications, i.e. who is willing to make decisions about what digital tools he can use in a particular teaching situation, how they should be used and what the reason for their use is (Duh, Bratina and Krašna, 2012; Ottestad, Kelentrić and Guðmundsdóttir, 2014). Digital competences of physical education teachers are defined on the basis of general digital competences which are directed towards the use of digital resources in teaching physical education with the awareness of the pedagogical possibilities of using technology (Divjak, 2017; Lakkala, Lomaki and Kantosalu, 2011). Thus, in addition to everything mentioned above, digital competences of physical education teachers include a critical understanding of the social use of technology in the context of the formation of young people. Consequently, competences for quality and effective use of digital media include not only skills for their application in teaching, but

also a critical attitude towards these media in the teaching environment (Duh, Bratina and Krašna, 2013; Johannesen, Ogrim and Gjaever, 2014).

The question is which technologies enhance the digital competence of physical education teachers. Such traditional technologies include television and video cameras that enable recording physical exercises and movements and their display in class for a more successful analysis and application, which in modern teaching can be improved by using LCD projectors since they are larger and clearer than television (Baert, 2011; Kretschmann, 2010; Semiz and Levent Ince, 2012). Among modern technologies, the computer is certainly the most important representative, because it provides the use of numerous programs, applications and the Internet, which are the basis for improving the work of physical education teachers (Osmanović, Maksimović and Dimitrijević, 2020), i.e. their digital competences, including developing skills and abilities to integrate technologies effectively in different ways. With respect to the analysis and presentation of complex movements, the teacher can record video clips of certain physical skills, or the best players in the world and share them with students on the Internet, so that the content is preserved permanently and students can return to it, which would undoubtedly increase their motivation to play sports (Yaman, 2008). In addition, the use of a specific software and simulation in physical education classes is recommended (Kalemoglu Varol, 2014). Digital technology can also be used for preparation and administration, through the presentation of fitness results or through the assessment of students' motor abilities in a more efficient way. Monitoring the heart rate on the monitor is a great way of assessing cardiovascular speed, providing more specific information about the physical health of students. In this sense, physical education teachers can use digital technology in assessing fitness through more comprehensive databases (Gibonne, Rukavina and Silverman, 2010; Kalemoglu Varol, 2014). In addition, digital competences are reflected in the planning, programming and preparation of the training process with the aim of monitoring the competition for statistical data processing and student evaluation (Gibonne, Rukavina and Silverman, 2010; Jeremić et al., 2018). The nature of physical education classes can be further developed by using the Internet, i.e. sites dedicated to physical education or those where such content can be found such as YouTube, educational softwares and emails or social networks for exchanging ideas with other teachers, for example, in the field of lesson preparation and organization of teaching materials (Gibonne, Rukavina and Silverman, 2010; Jeremić et al., 2018; Osmanović, Maksimović and Dimitrijević, 2020). Furthermore, numerous Internet contents provide a chance for teachers to enrich and update physical education contents and connect them with subjects related to physical education and sports (Filiz, 2020; Yaman, 2008). Important educational tools for a digitally competent physical education teacher are multimedia systems and presentations, computers and web application programs, and search tools. One way to use these tools is to maintain websites dedicated to the promotion of physical activity that are mostly intended for their students in order to promote a healthy lifestyle (Gibonne, Rukavina and Silverman, 2010; Kalemoglu Varol, 2014). An indispensable type of modern technology that can serve to improve the work of physical education teachers very successfully are mobile phones, which are inseparable from the functioning of a modern man and children. Therefore, in the context of spreading awareness about the importance and benefits of physical activity, physical education teachers can use a number of mobile phone applications that contribute to their innovative work. Some of them are Physical Education, Nike Training Club, RunKeeper, Workout Trainer, Step Counter, Heart Rate Plus, Water Reminder (Osmanović, Maksimović and Dimitrijević, 2020). It is very important to emphasize the ability of teachers to critically evaluate the mentioned technologies and tools, i.e. the critical use when teaching physical education, based on the analysis of their safety, security, purposefulness and significance. Certainly, as shown by the results of numerous authors, it was found that the use of technology in physical education as a tool benefits teacher with the aim of developing digital competences, as well as students by helping them achieve the goals of physical education efficiently (Yaman, 2008).

In order for teaching in physical education with the help of technology to be effective, it is necessary to connect three elements: technological knowledge (TK), pedagogical knowledge (PK) and content knowledge (CK), which form a theoretical framework called Technological Pedagogical Content Knowledge or TPACK (Divjak, 2017; Semiz and Levent Ince, 2012). Technological knowledge (TC) includes knowledge of digital technologies, such as computers, the Internet, and digital video. This knowledge includes the skills of using a certain technology in physical education activities. Next, content knowledge (CK) includes mastering the basic facts and concepts in a certain field, i.e. in physical education. This means that physical education teachers should have the knowledge in the field of motor learning and control, anatomy, exercise physiology, sports, exercise psychology and the like. Pedagogical knowledge (PK) includes teaching methods and strategies, which in the context of a physical education teacher refer to his ability to adapt physical movement to the development and needs of a child. Pedagogical content knowledge (PCK) is a combination of knowledge about teaching strategies and concepts, and

physical education content. For example, a basketball lesson will not be conducted in the same way with second and seventh grade students. It follows that technological pedagogical knowledge or TPK includes the ability to use different technologies in physical education based on pedagogical knowledge. In that sense, a teacher who has a high TPK can easily choose the appropriate tool to use in teaching, taking into account the level of readiness of a child. Technological content knowledge (TCC) implies the ability to use and understand the purpose of a particular technology in the subject content, i.e. the content of physical education. In physical education, choosing the right technology can be crucial for teaching a particular sport (Semiz and Levent Ince, 2012). The cross-section of these parts of the model shows the necessary knowledge and skills that a physical education teacher should possess in order to integrate technology into the teaching process of physical education. These are competences in the use of technology, professional competences, pedagogical-didactic and methodological competences (Dias-Trinidad and Moreira, 2020). By applying this model, the teacher demonstrates his skills in the application of digital technology in teaching physical education (Ristić, 2018a). Thus, the basis of effective technology teaching is an understanding that arises from the interaction between content, pedagogy, and technological knowledge. The level of TPACK of a physical education teacher is a decisive factor that reflects his digital competences (Semiz and Levent Ince, 2012). Therefore, it is important to work on the development of digital competences of teachers, because when a teacher feels competent and has a greater level of self-confidence, he will introduce innovations in the teaching process of physical education (Fraile, Penalva-Velez and Mendioros Lacambra, 2018; Kučina Softić, 2020). Different programs, applications, digital tools and media are presented and they serve the development of technological skills and knowledge of physical education teachers in different ways and in different areas, which is why it is recommended to use them in physical education, because they contribute to the development of digital competences of teachers and, therefore, improve the teaching process of physical education. In addition to technological skills and abilities, it is important that teachers acquire pedagogical and professional knowledge in the field of physical education, because their skillful combination is a demonstration and practical application of digital competences of physical education teachers.

Discussion

The efficiency of the education system significantly depends on the readiness of teachers for continuous development (Bakhmat et al., 2019). Since competences are a dynamic concept that depends on specific conditions and time, it is necessary to constantly study their effectiveness and the need for change. Changes in the social functioning conditioned by the progress of digital technology affect the change of the education system, i.e. the process of teaching and learning in all subjects and, accordingly, the necessary expansion of teaching competences in the direction of digital literacy (Yaman, 2008). With the development of digital competences, physical education teachers have the opportunity to change their role, to present a different learning environment, increase cooperation and interaction with students and to implement digital technology in accordance with the modern ideas of pedagogy, which will encourage the development of technological literacy (Kučina Softić, 2020; Rokones and Krumsvik, 2014; Vogt, Reghlonghaus and Klein, 2019).

The findings of the research conducted by Liang et al. (2006), as well as the review of numerous studies provided by Liu et al., 2018, show that physical education teachers lack the appropriate knowledge to apply technology in physical education effectively. Other authors present similar results. Namely, most physical education teachers have basic ICT skills and a positive attitude towards the integration of ICT in education before starting university. However, teacher education programs do not provide adequate competences for teaching using technology. Teachers most often learn about traditional methods of ICT integration in education, while innovative models of ICT integration such as cooperative learning or synchronous and asynchronous online-based learning are not represented (Gibonne, Rukavina and Silverman, 2010). The way physical education teachers are prepared and educated directly affects the way in which they will organize physical education classes (Liu et al., 2018). Therefore, there is a need to pay more attention to the preparation and development of digital competences of future physical education teachers during formal higher education, which would be continued through various teacher training programs. This view is also shared by Maksymchuk (2018), who believes that it is necessary to create pedagogical conditions for training physical education teachers in the form of a series of organizational measures aimed at pedagogical innovations, modern trends in higher education, physical culture and sports. The framework for the development of digital competences of physical education teachers was presented by UNESCO, which includes three phases in the development of digital

competences of teachers. The first phase involves the acquisition of technological literacy with the aim of better learning with the application of digital technology. The second phase refers to the opportunity to acquire knowledge and the ability to apply that knowledge in solving problems. The third phase focuses on creating knowledge through which teachers as citizens contribute to society through participation. The analysis of study programs for teacher education at the Faculties of Sport and Physical Education of the Universities of Belgrade, Niš and Kosovska Mitrovica shows that the emphasis is on acquiring basic information and communication competences, while the core courses do not include competences for designing innovative digital teaching environments and learning management systems. Therefore, in order to enable physical education teachers to acquire digital competences, it is necessary to provide them with basic knowledge in the field of information and communication technologies and to innovate curricula with content for creating digital teaching environments and learning management systems (Ristić, 2018a). The need to reorient educational strategies and introduce new educational models for teaching through the integration of technology into physical education includes the development of the teacher's TPACK model, which has already been described. Since physical education is usually taught in a gym or outdoors, it is important that teachers develop their skills in a context as similar as possible to that expected in their work (Liu et al., 2018).

In the context of training future physical education teachers at universities and improving the content and overall organization of the educational process, one of the examples of innovating courses used in practice is mastering the use of SkyDrive as one of Microsoft's cloud services. SkyDrive provides users with a wide range of services such as a customized calendar with scheduling and reminders, task management, the ability to perform stand-alone or group tasks, access from different devices and the like. The training involves the lecturers publishing the tasks on SkyCloud the day before the lecture. The students then receive a reminder in their email inbox, so that they can read the tasks and think about them. The goal of this approach is to intensify the educational and cognitive activities of students as well as their interest in future self-development and learning. An organizational and methodological solution that would also be effective in the systematic development of digital competences of physical education teachers is reflected in the introduction of a special course in the curriculum that would include mastering the best tools to increase the interactivity of the educational process that can be used in physical education, and which was reviewed in the previous section. In addition, future physical education teachers are expected to master the use of applications for the analysis of sports skills, as well as the assessment of progress and physical readiness of students (Gibonne, Rukavina and Silverman, 2010). In that sense, it has been shown that the diversity of the offers of digital technologies and tools influences the motivation of future physical education teachers in a positive way and it accelerates the process of acquiring personal pedagogical techniques (Bakhmat et al., 2019). The more positive the attitudes of teachers and the greater the competence in the use of technology in education, the greater the probability that they will use appropriate technology more often and more optimistically, as well as apply more innovative methods in physical education, because when future physical education teachers are trained to use technology, they feel comfortable and productive using digital technology, due to a strong connection between the feeling of readiness and developed competences (Filiz, 2020; Gibonne, Rukavina and Silverman, 2010; Kretschmann, 2015b; Ristić, 2018b).

The basis for the advancement of the education system supported by digital technology is represented by well-educated and digitally competent teachers. As the results of the research showed that physical education teachers have only basic skills in the application of information and communication technology, it is necessary to enable physical education teachers to acquire modern knowledge and skills in the field of information and communication technology, to be trained to use digital media in teaching and to develop their digital competences based on adequate professional and pedagogical education. Therefore, we believe that it is important to develop the awareness of teachers about the need to develop digital competences, which can be achieved by pointing out the advantages and importance that they have in the overall work of physical education teachers. Demonstrating the way some of the programs work can also contribute to this, which would increase the interest and motivation of teachers to acquire digital competences. One of the recommendations of our research is to introduce special courses at faculties where future physical education teachers would acquire these competences, including technological knowledge and training for the implementation of modern technology in physical education. In addition, it is necessary to have courses where current teachers could acquire digital competences, i.e. improve them, and which can be organized remotely so that teachers can learn from their colleagues from countries with more developed education systems. Conducting action research is another way of training teachers who need more attention, because in that way teachers can understand the level of development of their digital competences and continue to study accordingly. Therefore, the key to

promoting the development of digital competences of physical education teachers lies in the cooperation of formal and non-formal education. University professors, professional associates in schools, as well as organizers of non-formal education programs, and above all physical education teachers themselves, play a significant role in initiating the introduction of digital technology in the field of physical education. As practitioners directly affected by this topic, the suggestions and attitudes of physical education teachers should be the starting point for improving the teaching process of physical education through digital technology. It is also important to support these initiatives at higher levels of decision-making, in order to develop programs for the development of digital competences of physical education teachers. Developed digital competences will have a positive impact on the overall personality and role of physical education teachers, expanding and enriching their knowledge, skills and abilities in the use of digital technology based on which they will be able to improve basic competences. The self-confidence that results from the formed digital competences will be reflected in the overall work of physical education teachers, and that is why it is important that teachers become aware of the importance of digital competences, i.e. open to innovation and improvement. The constant increase of information and technological innovations are the cause of the need for constant improvement of physical education teachers. The constantly increasing amount of information and technological innovations are the cause of the need for constant improvement of physical education teachers. Due to this research, which highlights the basic roles and competences of physical education teachers, we conclude that it is necessary to provide support to teachers and work on increasing their digital competences in order to achieve and improve the role of teachers in modern physical education supported by digital technology. The scope of this paper did not provide an opportunity to explore in more detail the basics, information and procedures that would enable the creation of programs through which physical education teachers would develop their digital competences, so this may be a recommendation to other researchers in order to strengthen teachers' digital competences for their application in physical education classes.

Conclusion

As a social and humanistic science, pedagogy must follow and research contemporary social tendencies in order to strive to enable adequate development and growth of personality in accordance with the characteristics of the modern digital society. It is more than clear that education in the twenty-first century cannot be separated from information and communication technology. The innovations brought by the digital media have created a chance to improve the teaching process of physical education, which cannot be possible without competent physical education teachers. Based on this theoretical research, we can conclude that the application of digital technology in physical education can significantly improve the professional knowledge of teachers, skills related to planning, organizing and evaluating the teaching process, the ability to monitor the physical development of students and their progress, as well as communication skills with all the actors in the educational process. Therefore, it is necessary to expand and modernize the basic competences of physical education teachers, which would be achieved by encouraging teachers to apply digital technologies in teaching physical education. However, an adequate use of digital technology in teaching physical education primarily requires developed digital competences as a special aspect of the expertise of physical education teachers. Digital competences of physical education teachers imply safe and critical use of information and communication technology in teaching physical education. They represent a means of modernizing their work. A digitally competent physical education teacher will use digital technology to increase the efficiency of teaching, as a supplement to his work, and not a substitute for it, as a means of equal inclusion of all students and for monitoring student data better. Technological literacy and multimedia abilities enable him to achieve the tasks of teaching physical education in a more creative and efficient way through various tools, applications, programs, softwares and simulations. When it comes to digital competences, the emphasis is on the skills of combining professional, technological and pedagogical knowledge in order to apply digital technology in physical education purposefully. Achieving the goals and tasks of physical education largely depends on understanding the social use of technology in the context of forming young people and, therefore, it is very important that modern physical education teachers have competences that will influence the physical development as well as healthy physical habits and lifestyles of students.

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Conflict of interests

The authors declare no conflict of interest.

Author Contributions

Conceptualization, J.M. and N.L.; methodology, J.M. and N.L.; software, J.M. and N.L.; formal analysis, J.M. and N.L.; writing—original draft preparation, J.M. and N.L.; writing—review and editing, J.M. and N.L. All authors have read and agreed to the published version of the manuscript.

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