WORKING EXPERIENCE OF TEACHERS AS A PREDICTOR FOR EFFECTIVE USE OF ICT IN PHYSICAL EDUCATION TEACHING PROCESS

POPESKA BILJANA[1], SIVEVSKA DESPINA[2] & JOVANOVA -MITKOVSKA SNEZANA[3]
[1,2,3,]*Goce Delcev Universoty – Stip, Macedonia*
Faculty of educational sciences

ПОПЕСКАБИЉАНА, СИВЕВСКА ДЕСПИНА, ЈОВАНОВА -МИТКОВСКА СНЕЖАНА
Универзитет „Гоце Делчев“ –Штип, Факултет за образовани науки

РАБОТНОТО ИСКУСТВО НА НАСТАВНИЦИТЕ КАКО ПРЕДИКТОР ЗА УПОТРЕБА НА ИКТ ВО НАСТАВАТА ПО ФИЗИЧКО ОБРАЗОВАНИЕ

Abstract

The time that we live in, is a time of technology. Technology can be also used as an effective strategy in the process of teaching and learning and also in the process of physical activity. In regard the aim of this study is to explore teacher's experiences and approaches in implementation of technology in physical education teaching process as well as to determine the possible differences in their approach in use of technology related with their working experience (years spend in teaching work). The sample of participants was represented by totally 174 teachers from 15 primary schools in five different cities in the central east part of the Republic of Macedonia, divided in two sub samples, working experience up to 15 years and working experience more than 16 years. Results were analyzed using frequencies (f) and percent's (%). Differences between teachers regarded their working experience were determined using t – test. Differences are noted in only three variables: ICT, PE and physical activity cannot be combined together, preparation of teachers for implementation of technology and use of internet planforms for purposes of PE. The general conclusion is that the age of the teacher and their working experience is not a determining factor for use of technology at PE classes.

Key words: technology, physical education, teachers, differences.

INTRODUCTION. There is no doubt, that the 21 century is a time of technology, communication and mass media. Technology occupies every aspect of our life. It facilitate everyday living in many ways but also have a negative effect, mainly toward humans level of physical activity, social live and contacts. Sedentary behavior as a result of use of all technology and mobile devices is one of the greatest risks of human health in during the whole life span, including the children as well. Sedentary behavior usually assessed as screen time and predominantly TV viewing is associated with unhealthy diary behavior in children and adolescents (Pearson & Biddle, 2011), resulting with fail to meet the physical activity recommendations (Sanchez, et al, 2007) and developing a technological sedentary behaviors related with TV/DVD video viewing, using a computer for non-homework purposes, playing video games etc (Soos et al, 2014). But, living in a world empowered by technology, ICT can be also use in the opposite direction. Technology can be also used as an effective strategy in the process of teaching and learning and also in the process of physical activity. Combining technology and physical activity could be beneficial for students, teachers and effects from overall process of physical education. Findings from many studies suggest that classroom based physical activities realized by use of technology, increase the level of physical activity in school children (Podnar, 2015; Rasberry et al., 2011; Mahar et al, 2006) and emphasize the positive effect that PA and active break has on cognitive functions and brain health (Yaffe, Barnes, Nevitt,

Lui & Covinsky, 2001; Voss, Nagamatsu, Liu – Ambrose & Kramer, 2011; Weslake & Christian, 2015). Recommendations from Global Forum GoFPEP 2016 indicate that "technology is greatly influencing pedagogical strategies. It can serve to complement the efforts of the physical education teacher as a tool to improve engagement and also in the assessment process by assisting in the learning, performance and motivational processes. Certainly technology can assist in recording performance and results. There should be a balance between the use of technology for teaching purposes and assessment in physical education classes in school settings" (Edginton, Chin, Demirhan, Asci, Bulca, & Erturan, 2016, p.38).

Considering these suggestions as well as the role of the teachers in this process, we realized a study related with the use of informatics and computer technology in the process of physical education in both stages of primary education, classroom teaching (I to V grade) realized by generalist teachers that deliver all subjects including physical education and subject teaching (VI – IX grade) realized by subject teachers, or PE specialist responsible for delivering PE classes. When we speak about technology or ICT in the process of education and particularly in the process of physical education, we mainly think of use of computer technology as a tool for preparing the theoretical lectures or realizing administrative issues and preparations for the class, then use of video demonstrations as a method of demonstration during PE classes, mobile applications or other devices for following and evaluation of the process of movement, you tube videos and materials for the need of the teaching process, internet platforms for application and practicing different models of physical activity, active breaks etc.

METHOD OF WORK

The subject of this study are teachers that deliver physical and health education in primary education in Republic of Macedonia, particularly their attitudes and opinions related to the use of informatics and computer technology (ICT) in teaching process of physical education.

Based on the defined subject, the **purpose of this study** was to explore teacher's experiences and approaches in implementation of technology in physical education teaching process as well as to determine the possible differences in their approach in use of technology related with their working experience (years spend in teaching work).

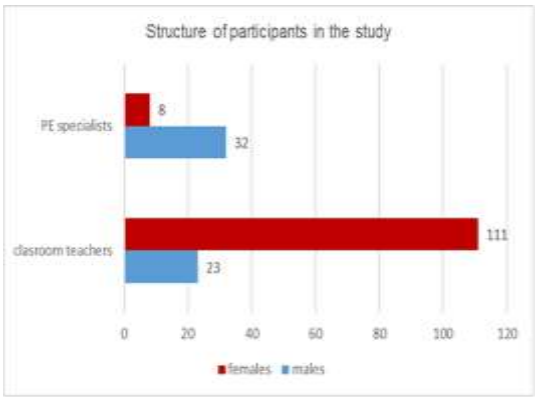
The **sample of participants** was represented by totally 174 teachers (134 general classroom teachers and 40 PE specialist) from 15 primary schools in five different cities in the central east part of the Republic of Macedonia. The study was realized in May, the study year 2016/2017. Considering the purpose of the study, the total sample was divided in two groups using the working experience as a criteria. The first group included teachers with working experience from 1 to 15 years work and the second group from 15 to 25 years of working experience and more than 25 years of working experiences.

Descriptive analytical and descriptive explicative method were applied.. The survey was realized using specially designed questioner used to determine attitudes of the teachers and their approaches in the implementation of technology at PE classes. It was designed as two different Likert type scales & survey: four points Likert scale (totally disagree, disagree, agree, completely agree) investigating opinions regarded use of technology; five points Likert scale (never, rare, often, very often, always) investigating manners and frequency of use of technology in PE teaching process and additional six questions with several choices investigating former and possibilities for future participation in ICT projects, workshops etc. The items in the skales and the applied questions were pointed toward teachers' attitudes for using technology at PE classes, their knowledge and competences to do so, forms of implementation, types of applied technology and interest of children for such working strategies. Obtained data were processed using statistic package SPSS 19. Results were analyzed using frequencies (f) and percents (%) and presented using graphics. Differences between teachers regarded their working experience were determined using t – test.

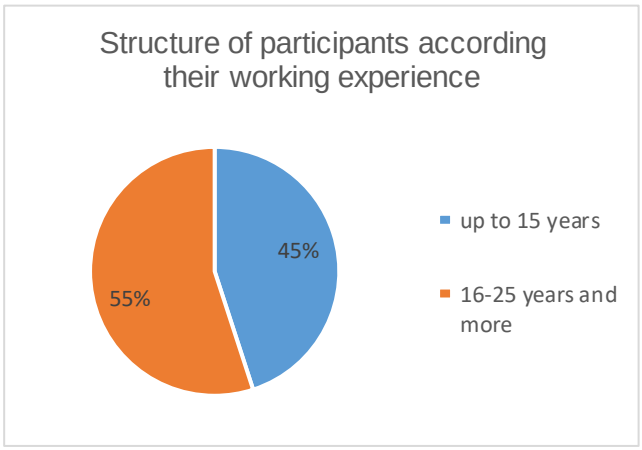
RESULTS AND DISCUSSION

From the total sample of 174 participants in the study, 77% or 134 participants were general classroom teacher, from whom 83% are females and only 17 % are males. The opposite structure is noted with PE specialists where from the total sample of 40 participants, 80% are males and 20% are females (Graphics 1). Using the age of working experience as a criteria for dividing he sample, from the total sample of 174 participants, 45% or 78 teachers have working experience from 1 to 15 years, while 55% or 96 teachers have working experience more than 16 years (Graphic 2).

The analyses of teacher`s answers to related with their attitudes toward use of technology in the PE teaching process, their motivation to apply it and advantages of the use of such methodology of work, in general point out that teachers do not agree and are not fully prepared to use ICT in the PE teaching process.



Graphic 1: Structure of the partivpants in the study by specialization and gender



Graphic 1: Structure of the partivpants in the study by working experience

Very high percent of the teachers, aproximately 80% or particularly 47,1% totally agree and 32,8% agreethat use of technology reduce the level of physical activity in children. Also high percent of interviewed teachers, 35,4% agree and 29,3% totally agree that ICT, physical activity and PE classes are not matching together. These opinions of the teachers that ICT reduce the level of physical activity could be related with well-known fact which is also confirmed in many studies that screen time, TV viewing, using a computer for non-homework purposes, playing video games etc are associated with sedentary behavior in children and with unhealthy diary behavior (Pearson & Biddle, 2011; Soos et al, 2014). In this relation is the opinion of 39,1% of the teachers that stated that children are not very interested to use the technology in PE teaching process. This result does not correlated much with situation seen daily and can be confirmed after similar studies realized with children. Personal negative attitude regarded the use of technology in PE teaching process is also noted and could be used as one of the explanations for previously mentioned statements. Namely 32,2% of the teachers totally agree and 29% agree that they use technology only because it is obligatory request.

On the other hand, larg number of teachers or 37,9% agree and 14% totally agree that appropriate use of technology in PE teaching process could be additional motivation for children to be physicaly active and to participate in physical activity. More than a half of interviewed teachers (35,1% agree and 21% totally agree) that they are properly educated and prepared for use of ICT in the education process including PE teaching process as well. Aldo they fell competent and educated for use of technology, 32,8% agree and 20% totally agree that they feel a need for

additional education for use of technology in PE teaching process in a form of seminars, workshops and additional courses.

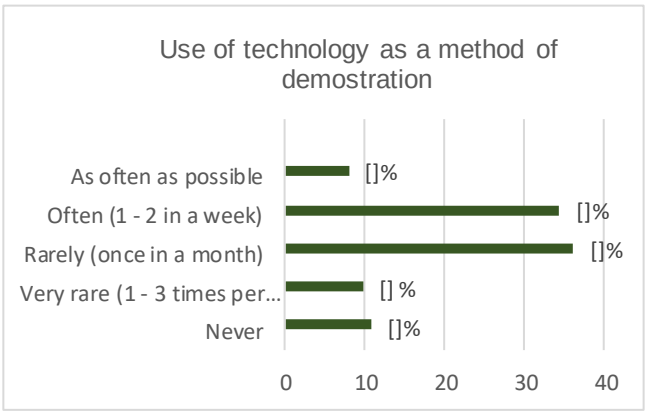
The answers of some of the previously mentioned stations are probably related with the fact that not every school included in study sample are well equipped in a sense of usable technology and internet access and a lack of proper technical and internet support is noted. There for, this situation effects negatively in a sense of self-motivation of the teachers for further use of technology in the educational process. The available technology and internet sources in schools as a motivating factor are confirmed in the answers of one of the questions according which, if there is a proper technical equipment, conditions and good internet support, the efficiency of the use of ICT in the teaching process will depend from the personal motivation and interest of the teacher. From the total sample, 35% of the teachers agree and 20,1% totally agree with this. These answers of teachers could be used as a call for the school management, Ministry of education and other governmental bodies responsible for the education to create a policy that will be pointed toward creation of greater facilities and proper material and technical support (ICT and network linking) that will facilitate schools higher quality of use of technology in the educational process, including PE as well and using all advantages of the modern time.

One of the issues that we were interested at, was how do the teachers implement technology at PE classes. In this regard we use a Likert scale with five suggested level of agreement. At most of the questions, the highest percepts of the interviewed teachers declare that rarely (once in a month) use technology during the preparation of the class (selection of contents, ideas for contents, technical preparation of the class) and administrative issues, selected by 36,2% of the teachers; in preoperational part of the class – selection of movements, ideas for new movements, selected by 33,3% of the teachers, when learning new movements (27,7%) as well as in the process of following students progress, evaluation, comparing results etc, used by 25,3% of the teachers. The Graphic 3 shows the use of technology as a method for demonstration.

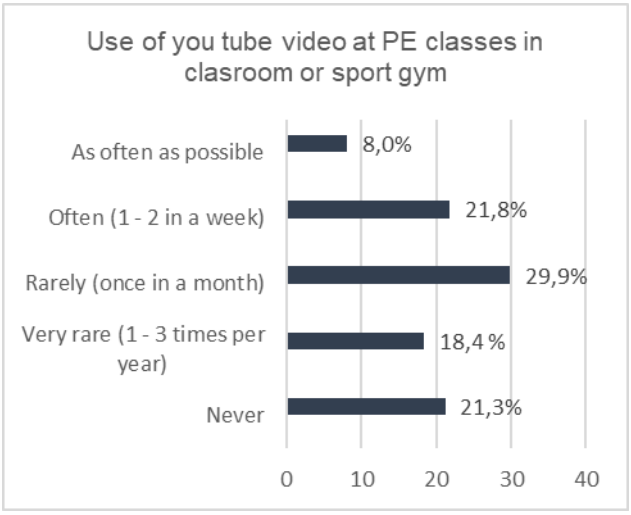
Regarded the use of internet platforms and you tube videos t PE classes as a tool that helps in practical realization of PE classes, the highest percent of the teachers (25,3%) answered that they have never use internet platforms in their work, 24% use it on a monthly level, while 21% use them 1 – 2 times per week. Regarded the use of you tube video for realization of some contents at PE classes realized in the sport gym and classroom (Graphic 4), 30% of interviewed teachers declare that use them on a monthly level, 21% use them on a weekly level, while also 21% declare that they have never use it in their PE work. Aldo most of the teachers in Macedonia are not used to apply technology at PE classes and also in the classroom activities as a form of active break, results have shown positive effects of use of technology. This is especially noted for the use of internet platforms as a form of active break. According the findings, their use influence positively on improvement of attention and motivation, self-awareness, memory, auditive and visual abilities, coordination and overall health (Podnar, 2015) as well as increased motivation for physical activity and academic achivemnets (Emeljanovas, A., Mieziene, B, Tumynaite, L., Mikalauskas, D., Mok, M., Chin, MK, 2014). Regraded the use of mobile application with movement programs, the highest percent of the interviewed teachers have never used them (30,5%), while 27% used them once or twice a month.

Few of the questions were related with teachers experiences regarded the participation of projects for implementation of technology in teaching process, including PE teaching process as well. At the question: “Have you ever been included in any project related to use of technology?” a high percent of interviewed teachers, particularly 64,9% declare that have never been included in such project and very high percent, or 87,4% have answer that have never been included in project that promotes the use of technology in PE classes as a tool for increase of level of physical activity in children. These means that implementation of ICT is not on the list of activities for increasing teachers competences regardless the fact that since the reforms in education, one of the obligatory

requirements for teaches is use of technology in 30% of the teaching process of each subject including PE as well (Conception for education, 2007).



Graphic 3: Use of technology for demonstration



Graphic 4: Use of you tube video for PE purposes

Despite this situation, a positive aspect could be note in willingness of the teachers to participate at workshops, lectures or seminars related with implementation of technology in PE classes. From the total sample of examiners, 40,2% declare that they will participate in such additional education. Also a significant number of teachers (43,7%) are also interested to participate in projects related to implementation of technology as a tool for increasing the level of physical activity in children, depending from the requirements. This means, if project does not have a large amount of administration and additional work, teachers will participate in it.

Related with the use of technology, one of the natural relations is that younger generations are more opened and more experienced in use of technology and different devices. Therefore, one of our main purposes was to determine whether the years of age, presented as working experience, is related with use of ICT in the teaching process. Based on this parameter, the participants in our study were devided in two subsamples, subsample of generalist teachers and PE soecialist with working experience up to 15 years and subsample of teachers with working experience from 16 to 25 years. The higher percent of participants (54,6%) in the study have working experience more than 15 years. From them 68,4% are females and 31,6% are males.

Differences between teachers regarded their experience were tested using t – test. The obtained results does not show statistically significant differences in analyzed answers, that point out that the years of working experience and in that relation the age of the teachers is not a determining factor for use of ICT in PE teaching process. Statistically significant differences are obtained only in few variables related with statements that ICT, physical activity and PHE classes can not be combined together; I consider that teachers are well prepared for use of technology in teaching process, including the PE teaching process and at PHE classes, I use internet platforms for realization of PHE contents. These results from the t – test are presented in Table 1.

Statisticaly significant differences at level 0,05 are obtained for the statement that ICT, physical activity and PHE classes cannot be combined together. Teachers with smaller working experience (under 15 years) agree with this statements, compared with their more experienced colleagues that disagree with this. This result point out that despite the general opinion that younger generations are more into technology, in our case, more experienced teachers and in that relation also more older are more opened toward technology, egger to use and more flexible in their work.

Table 1: Differences between teachers with different years of working experiences regarded the use of ICT in PHE teaching process.

Question	Working experience	N	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
ICT, physical activity and PHE classes can not be combined together.	Up to 15 years	78	2,99	,933	,106	2,109	171	,036*
	More than 15 years	95	2,67	1,005	,103			
Preparation of teachers to use technology in teaching process, including the PE teaching process	Up to 15 years	78	2,32	,919	,104	-3,259	171	,001**
	More than 15 years	95	2,81	1,034	,106			
Use of internet platforms at PHE classes	Up to 15 years	78	2,40	1,231	,139	-2,067	171	,040*
	More than 15 years	95	2,80	1,310	,134			

*p< 0.05 **p<0.01

Statistical significant differences at level 0,01 are also obtained in the statement related the proper educational preparation of teachers for use of technology. Based on the obtained answers, the teachers with working experience more than 15 years share the opinion that are well prepared for implementation of ICT compared with their younger colleagues. This is also a bit surprise considering that ICT as subject in university study programs was included in the last decade. From the other hand, this could be explained with greater participation of older teacher in projects, workshop or seminars.

Regraded the use of internet platforms in PHE teaching process, more experienced teachers declare that use them rare – once in a month, while their colleagues with working experience less than 15 years, declare that do that very rare (1 – 3 time per year). This suggests that more experiences and older teachers use internet platforms more often than their younger colleagues.

CONCLUSION

Considering the obtained results, despite the expectation that younger generations are more opened and egger to use technology, according our results, the overall conclusion is quite different. It suggest that teachers with working experience more than 15 years of age are more opened and willing to use technology in their working practices, including PHE as well. Even more, they have a positive attitude toward use of technology at PHE classes and its use as a tool for increasing the motivation for PA and level of PA. They are also a frequent users of internet platforms and also consider themselves as well prepared and competent to use technology on proper way. These results suggest that years of working experience, many times bring greater flexibility in teaching process and opens toward new things and technologies. In this regard, we could also emphasize that probably the greatest impact can be expected depending of teachers personality and their awareness for their role but and obligations as well. Next steps could be addressed toward universities and school principals that should cooperate regarded this issue in a sense of offering more workshops, seminars and projects that will keep teacher in a step with new technology achievements and their possible use in teaching process, as well as the possibility of ICT in achieving more interesting and dynamic process of teaching and learning.

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