Future Teachers' Attitudes about Certain Aspects of Information and Communication Technologies

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Abstract

The use of information and communication technologies (ICT) has an important place within the process of education. Personal computers are present in numerous households, kindergartens, and almost all primary schools. Permanent education of parents, educators and teachers about the application of ICT has an important role in the process of children's education. Familiarising children with positive and negative consequences of the application of new technologies and timely involvement of all persons involved in the process of education contributes to adequate and quality use of new technologies. In the introductory part, the paper deals with the importance of parents' role regarding the use of ICT in children's education, inadequate and excessive use of computers, playing computer games and particular modes of behaviour, and describes the American national educational technology standards for teachers and courses in the field of information and communication technology.

The paper brings the research conducted at the University of Juraj Dobrila in Pula on the attitudes of future teachers and parents about their competence in applying ICT and negative consequences of excessive use of computers, that is, playing computer games. The dominant attitudes are that parents should be more familiar with the content of computer games and those teachers are not sufficiently familiar with the content of computer games, types (genres) of games and negative consequences of frequent use of computers.

It is surprising that even ¼ of students have "conservative" attitude about the need of continuing education on ICT in future work.

Key words: *computer games; ICT (information and communication technology); teachers.*

Introduction

In the time of information and communication technologies (ITC further in the text) the computer takes up a special educational and teaching role. The influence of the computer can be both positive and negative, depending on the aim and methods of computer use. In both cases these effects are rarely simple and direct, and almost always mediated by a number of social and other factors (Gunter, McAller, 1997). When it comes to the potential influence of the computer use, children are the most vulnerable population. Their vulnerability comes out of the fact that they go through the process of socialization and at this age they are mostly subject to different influences in the widest sense which are usually difficult to keep in small doses and control.

It is a common notion today that the family as an institution is undergoing a process of crisis since many changes have and still are occurring. This causes concern because every student needs the family support, factors of protection and everything that can help in preventing and fighting the occurrence and development of behaviour disorders which can be the consequence of inadequate contents presented by means of the computer. When it comes to the use of computers, irrespective of the parents' attitudes towards it, the child will sooner or later come into contact with computer technology. It must not, then, be forgotten that computer use has many positive sides relating to memory development, learning methods, problem solving skills, diminishing sexual differences and the development of self-capability and self-confidence with children (for example Dye, Green, & Bavelier, 2009; Spence & Pratt, 2007; Ferguson, Cruz, & Rueda, 2007; Okagaki & Frensch, 1994).

According to the data presented by the Polyclinic for the Protection of Children in Zagreb (2008) computer use depends on sex, age, place of residence, education and employment of the parents. Thus, the computer is most often used by children living in large cities and by those whose both parents are employed and have a university degree. The research by Roberts et al. (1999) deals with the connection between different demographic and social characteristics and the use of the computer by children and the young. Among other things, the authors assume that the media is in general a potentially important factor for the socialization of the young, while their influence depends on the choice of media, the time of use, selection of content, terms of use and other characteristics, such as different groups of children and young persons including the ones with behaviour disorders.

How a child will make a difference between positive and negative characteristics of the computer, fiction and reality, choose proper contents and grasp the meaning of the presented content depends on many factors, but primarily on the parent with whom the young person lives and educators/teachers with whom the child spends his/her time. The parents', but also educators/teachers' influence on the young person will in this sense depend on many factors, before all education, their competence to intervene at the right time and properly, their personalities, social skills, etc. In the education system, 87% of information is acquired by the young through the sense of

sight, 9% through the sense of hearing, and the remaining 4% through other senses. Visual contents attract young people's attention. Kamal and Banu (2010) think that this statement has found its good allies, the Internet and multimedia, which will surely change the traditional learning and teaching methods and increase the sphere of knowledge and information dissemination.

Playing computer games can be a stimulus for hanging out with peers of similar interests. Games encourage communication, train coordination, understanding of spatial relations, visualization, imaging, etc. The Internet enables a quick access to different information, connection and communication with people, correspondence with people and peers from different parts of the world, teaches how to solve problems and encourages the development of strategies for the selection of information and exchange of experiences, thoughts and information with people with similar interests or problems.

On the other hand, the over and inadequate use of the computer is often linked to certain inappropriate forms of students' behaviour (violent, aggressive, isolated, etc.). At the same time there is always the unresolved dilemma of whether playing violent games and watching violence in general encourages young viewers to such behaviour or whether the existing aggressive traits in young people who watch such content are manifested through their greater propensity for watching violence (for example, Anderson & Bushman, 2002; Bandura, Ross, & Ross, 1961; Comstock & Paik, 1994; Goldstein, 1995, 1998).

One of the most common computer activities is playing computer games. There are many definitions of computer games. Jul (2003) says that a computer game is such a game played through the use of the computer, while the computer can, in this case, be a personal computer, playstation and more and more frequently a mobile phone. Parents and children often spend their free time playing computer games on the computer or a playstation. According to the ESA agency's research (Entertainment Software Association), (ESA, 2009) for the year 2009, parents named four most common reasons for playing games with their children:

1. 82% consider it fun for the whole family,
2. 81% play them because their children ask them to,
3. 78% consider it good socialization,
4. 63% supervise the games' content.

According to the same agency's research for the year 2009, in 68 per cent of American households computer or video games are played, 60 per cent of the players being men and 40 per cent women. The average age of the players is 35, while 25 per cent of them are up to 25 years old. It is interesting that in 2009 there were 25 per cent of players older than 50. Even 63 per cent of the parents think that games have a positive influence on their children's development. Around 83 per cent of children consult their parents about the purchase of games, while 77 per cent of parents are in control over the use of the computer and the Internet. Of those 77 per cent, there are

79 per cent of parents who set the limit for playing, 72 per cent of them set the limit for the use of the Internet, 71 per cent of parents set the limit for watching TV, 63 per cent for watching films, etc.

Since there is a large number of genres like action games, adventure games, simulation games, FPS (First Person Shooter), RPG (Role Playing Game), MMORPG (Massive Multiplayer Online Role Playing Game), RTS (Real Time Strategy), TBS (Turn Based Strategy), the most sold ones were, according to the study conducted by the American agency ESA (2008), strategy games (62%) and sports games (15%). The Croatian top ten games (www.gamebox.hr, 2009) for personal computers were: Star Craft II Terrans Wings of Liberty, Call of Duty, Dragon Age: Origins, Call of Duty: Modern Warfare 2, World of War Craft, Star Wars: The Old Republic, Assassins Creed II, The Sims, Baldur's Gate II: Shadows of AMN, Star Craft. The domination of military games can be clearly noticed.

The term "e-safety" relates to the use of ICT in such a way as to strike an acceptable balance between personal rights to access and release information and the right to be protected from the harmful effects of using ICT (CERT, 2008a). All the contemporary European and world's studies, and recommendations agree with the fact that prohibition methods and prevention from access to information are inefficient and wrong, and that the only right prevention method is to educate children for self-protection and self-defence (CERT, 2008b).

Most children meet the computer at an early age. Since computers are present in almost all social spheres, children usually start using toy portable computers imitating their parents, educators and friends. Children safe computers (ergonomic adaptation of the work station and required components) are used in a small number of households and educational institutions. Children usually use computers intended for adults, both desktops and portable computers. The use of such work stations often results in injuries. American and European medical doctors (Benat, 2009) report on a daily basis cases of children with RSI symptoms (repetitive strain injuries). It can be defined as the computer disease of modern times characterized by frequent repetition of certain moves and an unnatural position during computer work. This is why it is necessary to ensure quality ergonomic equipment in ICT labs.

The use of the computer in educational institutions is constantly growing. In 2003 the project "Net in Schools" ensured access to the Internet to all schools. In 2008 the use of the computer was present in 45% of households (GFK, 2006) which shows a significant increase compared to earlier years. The advantage of the use of the computer in lower grades of primary school is that it makes the teaching process more quality-based, creative and interesting for students. The ICT syllabus in primary schools (MZOŠ, 2006) has to enable students to use the computer and applicative software (skills), to understand the basic principles and ideas on which computers, i.e. information and communication technologies are built upon (basic knowledge)

and to develop skills for the use of information and communication technologies in different application areas (problem solving).

In the past, education was accessible only to the "elite". For that very reason, the information and communication technologies and the flexibility arising from the use of these technologies have enabled many students to take part in the educational process. In 2002 Young explained that students more commonly accept the possibility of learning based on the concept – any time and anywhere. He thinks that this learning model "at the right time" enables the participation of students who are not able to attend lessons regularly (distance learning, e-learning).

It has been anticipated that by 2015 (Belošević-Ivančić, 2012) 90% of working positions in the European Union will require their staff to possess computer knowledge, i.e. mastering the necessary knowledge and skills for working with technology. There is already a lack of 400,000 to 700,000 ICT experts.

University students - future primary school teachers at all institutions of higher education and faculties in the Republic of Croatia attend the Informatics course as a compulsory course. During the course they acquire the necessary skills and basic knowledge including: the history of informatics, Boole's algebra, the computer structure, input-output units, software basics, computer networks basics, operation systems MS Windows – Vista basics and MS Office pack including: MS Word, MS Excel, MS Power Point, MS Publisher, the Internet and electronic mail.

According to the results of the TIMSS 2007 research (Eurydice, 2011), an average of 60% of European students had natural sciences teachers who had never demanded the use of the computer in studying natural phenomena through simulations, while 51% of them had teachers who had never demanded the use of the computer for performing scientific procedures or experiments. In the eighth grade an average of 50% of students had teachers who had never demanded the use of the computer in any of these activities. TIMSS 2007 international research has shown a limited rate of teachers participating in activities focusing on the integration of ICT in mathematics and natural sciences on the secondary school level (51% for mathematics and 41% for natural sciences), and significantly lower rates on the primary school level (25% for mathematics and 16% for natural sciences). The research conducted by Hutinski and Aurer (2009) on a sample of 261 examinees attending the first semester course Informatics at the Faculty of Organization and Informatics in Varaždin has shown that the success of conducting the teaching process by a combination of lectures organized in larger groups and individualization of the work by applying the LMS (Learning System Management) can be considered as positive. In the year when the research was conducted, the examinees achieved 10% better results on their final exams than by the classical teaching process and evaluation.

The use of educational technological standards in educational institutions is extremely important for raising the quality of the teaching process. The American

National Educational Technological Standards for teachers (NETS, 2008) should be applied in all educational institutions. These standards consist of five main points:

1. Enabling and encouraging learning and creativity

By their knowledge of the subject, technologies, learning techniques and teaching methods, teachers' goal is to foster the students' experience, creativity and innovation. Teachers:

    a) Advocate, support and shape a creative and innovative way of thinking.
    b) Include students in research and prepare them to solve life and authentic problems using digital tools and sources of information.
    c) Use cooperative work methods.
    d) Shape cooperative knowledge in their common work with students and colleagues.

2. Designing and developing learning and assessment models for the "Digital Age"

Teachers design, develop and evaluate authentic, empirical learning and assessing, they incorporate modern tools and sources of information into the teaching process with the aim of developing knowledge, skills and habits. Teachers:

    a) Design or adjust the empirical learning which includes digital tools and sources with the aim of encouraging learning and creativity.
    b) Develop and enrich the technological environment which enables students to actively participate in the creation of the teaching process (educational aims, learning management, and evaluation of the individual learning progress).
    c) Adjust and individualize the learning process using digital tools and sources which gives the students the opportunity to choose their learning style and working strategy.
    d) Give the students multiple and varied formative and collective assessments in line with the content and technological standards.

3. The model "Digital Age" meant for work and learning

Teachers show knowledge, skills and the working process in the global and digital environment. Teachers:

    a) Demonstrate fluency in the technological system and "transfer" knowledge to new technologies and situations.
    b) Cooperate with students, their peers, parents and members of the community using digital tools and sources with the aim of supporting the students' success and innovation.
    c) Using relevant information and varieties of the "Model for the Digital Age", propose ideas they consider effective for students, peer groups and parents.
    d) Model and facilitate the effective use of existing and new digital tools for locating, analysing, evaluating and using sources of information for research and learning support.

4. The model "Communities for the Digital Age"

Teachers understand local and global social problems and are responsible for the development and advancement of the digital culture. In their practice they apply ethical quality. Teachers:

a) Advocate a safe and ethical use of digital information and technology including copyrights, intellectual ownership and the right documentation and presentation of different sources of information.

b) Point out all students' different needs using working strategies aimed at the student, and offering an adequate access using digital tools and sources of information.

c) Promote and shape digital etiquettes and are responsible for the social interaction linked to the use of information and communication technologies.

d) Develop and shape cultural understanding and global consciousness including colleagues and students of other cultures using the "Model for the Digital Age."

5. Inclusion in the professional growth, development and leadership through lifelong learning

Teachers prove their professionalism at school and in the social community by promoting and demonstrating the effective use of digital tools and sources. Teachers:

a) Participate in the work of the local and global community – "the learning community" – to study the creative and technological applications necessary for the improvement of the learning process.

b) Demonstrate the technological vision participating in decision making and development of the social community, developing leadership and technological skills.

c) Using the existing technology and developing new digital skills they help students in learning and evaluation of their own research.

d) Advocate effectiveness, vitality and permanence of the teaching profession, school and community.

The results of the study (Coklar & Odabasi, 2010) conducted at seven Turkish faculties for teachers on a sample of 2,566 students – future teachers and based on the NETS standards for teachers, have shown that future teachers (both male and female) have a high level of knowledge of educational technological standards, that they are qualified for the use of technologies in the educational process, that they are well familiarized with the ways of using educational technologies and that they show a higher level of self-efficiency in using the educational software which necessitates a higher level of knowledge and skills. However, future teachers do not use technology for performing basic assessments in the process of evaluating the teaching process. Regarding sex, future male teachers consider themselves more skilled in the use of technologies including technological operations and concepts and in the social, legal, ethical and human questions, while future female teachers consider themselves more skilled in activities

which require higher productivity in performing the teacher's practice. Kralj (2008) thinks that information and communication technologies would be adequate for the individualization of learning, but contemporary teaching paradigms show that it is not recommendable for it to be the only form of learning and that individual teaching should not exclude group teaching because students would then be deprived of their communication, common problem solving and cooperative learning.

MZOS's declared attitude (2009) is that the information infrastructure of the educational system is not only the precondition for gaining the basic computer literacy of each and every citizen during his/her schooling, but the precondition for his/her entire education to be of quality, up-to-date and in line with the real needs and conditions of life in the information society. During and after finishing their studies, teachers should continue with their permanent education because teachers' permanent education is one of the preconditions for a quality transfer of knowledge and skills to students.

Research Aim and Methods

Since ICT is an important part of an effective educational process, the question has been posed about the extent of the future primary school and preschool teachers' competence for its use, as well as their evaluation of the possible negative impact of the use of computers. It has been hypothesized that in this research, because of the specificities of their study, students from the Department of Preschool and Primary School Teaching can acquire certain knowledge about the educational competences of both parents and primary/preschool teachers in the use of ICT, as well as in the inadequate effects of the computer use, especially computer games. The research has attempted to answer the question whether the difference in the length of study (students from the first two and students of the third and fourth year) will affect their attitudes toward educational competences:

1. Parents with respect to types and effects of certain computer games
2. Preschool/primary school teachers with respect to computer games application, knowledge about the inadequate effects of computer use on children, media education and the need for permanent education in ICT.

The sample consisted of 122 students from the Department of Preschool and Primary School Teaching of the Juraj Dobrila University in Pula. According to the length of their study (independent variable) they were divided into two groups: the first and second year of preschool teaching (the younger, N=67), and students from the third and fourth year of primary school teaching (the older, N=55). A questionnaire consisting of 29 variables was prepared, and the following attitudes were analysed for the purpose of this study:

1. Do you think that parents are familiar with the types of computer games?
2. Do you think that parents should be familiar with the content of the game before purchasing it for their child?

3. Do you think that most parents check the content of the game before purchasing it?
4. Do you think that preschool/primary school teachers are familiar with the types of computer games?
5. Do you think that preschool/primary school teachers are sufficiently familiar with the negative consequences of computer overuse?
6. Do you think that, as future preschool/primary school teachers, you should be permanently educated for the use of information and communication technologies (ICT) in your future career?

The research was conducted in groups and anonymously, and the students were informed that at any time they could leave without any consequences, but nobody did.

Research Results and Discussion

Table 1 shows students' evaluations of parents' knowledge regarding the types of computer games in general. The idea was to indirectly question their attitudes about the negative effects of certain computer games on their children. It can be seen that 57 per cent of students think that parents are not familiar with the types of computer games, while 18 per cent of them feel they could not give the estimate. The difference in answers to this question between the younger and the older students is statistically significant (p = 0.001) for the answer "yes" – more often than older students (7 %), the younger students (22%) think that parents are sufficiently familiar with the types of games.

Table 1. *Tabular presentation of the answer to the question: Do you think that parents are familiar with the types of computer games?*

	Yes	No	I don't know	Total
the younger	22 (18.0%)	34 (27.9%)	11 (9.0%)	67 (54.9%)
the older	8 (6.6%)	36 (29.5)	11 (9.0%)	55 (45.1%)
Total	30 (24.6%)	70 (57.4%)	22 (18%)	122 (100.0%)

$X^2 = 13.44$ (df = 2), p = 0.001

Table 2. *Tabular presentation of the answer to the question: Do you think that parents should be familiar with the content of the game before purchasing it to their child?*

	Yes	No	I don't know	Total
the younger	50 (41.0%)	11 (9.0%)	6 (4.9%)	67 (54.9%)
the older	54 (44.3%)	1 (0.8%)		55 (45.1%)
Total	104 (85.2%)	12 (9.8%)	6 (4.9%)	122 (100%)

$X^2 = 13.44$ (df = 2), p = 0.001

Students think that parents should be familiar with the content of the game before purchasing it to their child (85%). It is assumed that students think that in such a way parents could prevent their child's exposure to inadequate contents as violence, murders, etc. (Table 2). However, younger students show once again a more "liberal" attitude, because a considerably larger number of them answered "no" or demonstrated a neutral attitude (chi-square = 13.44 /df = 2/, p = 0.001). Whether these students

are in their last phase of rebellion towards parental control over children's activities, should be determined by a qualitative type of research.

Table 3. *Tabular presentation of the answers to the question: Do you think that most parents check the content of the game before purchasing it?*

	Yes	No	I don't know	Total
the younger	26 (21.3%)	31 (25.4%)	10 (8.2%)	67 (54.9%)
the older	8 (6.6%)	37(30.3%)	10 (8.2%)	55 (45.1%)
Total	34 (27.9%)	68 (55.7%)	20 (16.4%)	122 (100%)

$X^2 = 8.96$ (df = 2), p = 0.011

When it comes to checking the content of the game before buying it (Table 3), the students show a generally sceptical point of view. They think that most parents do not check the content of the game before purchasing it (56%). However, even for this question, a statistically significant difference (chi-square = 8.96 /df = 2/, p = 0.011) between the younger and the older students can be noticed because the younger ones have more faith in the parental control of the games content before purchase (the younger=21%; the older=7%).

Table 4. *Tabular presentation of the answer to the question: Do you think that preschool/primary school teachers are familiar with the types of computer games?*

	Yes	No	I don't know	Total
the younger	23 (18.9%)	27 (22.1%)	17 (13.9%)	67 (54.9%)
the older	8 (6.6%)	36 (29.5%)	11 (9.0%)	55 (45.1%)
Total	31 (25.4%)	63 (51.6%)	28 (23.0%)	122 (100%)

$X^2 = 8.73$ (df = 2), p = 0.013

Students think that preschool/primary school teachers are not familiar with types of computer games (Table 4) in a similar percentage as parents (52% for preschool/ primary school teachers; 57% for parents). The difference is again statistically significant again (chi- square = 8.73 /df = 2/, p = 0.013) in the sense that younger students' attitudes are less sceptical or more often neutral.

Table 5. *Tabular presentation of the answer to the question: Do you think that preschool/primary school teachers are sufficiently familiar with the negative consequences of computer overuse?*

	Yes	No	I don't know	Total
the younger	31 (25.4%)	27 (22.1%)	9 (7.4%)	67 (54.9%)
the older	31 (25.4%)	16 (13.1%)	8 (6.6%)	55 (45.1%)
Total	62 (50.8%)	43 (35.2%)	17 (13.9%)	122 (100%)

$X^2 = 1.71$ (df = 2), p = 0.425

Table 5 shows that slightly more than half of the students think that preschool/ primary school teachers are sufficiently familiar with the negative consequences of computer overuse (51%). One third of the students think that preschool/primary school teachers are not sufficiently informed about the negative sides of computer use, while 14% of the students show a neutral attitude. Concerning this attitude, there are no differences of opinion between students with respect to different lengths of study.

Table 6. *Tabular presentation of the answer to the question: Do you think that, as future preschool/ primary school teachers, you should be permanently educated for the use of information and communication technologies (ICT) in your future career?*

	Yes	No	I don't know	Total
the younger	37 (30.8%)	22 (18.3%)	7 (5.8%)	66 (55.0%)
the older	45 (37.5%)	7 (5.8%)	2 (1.7%)	54 (45.0%)
Total	82 (68.3%)	29 (24.2%)	9 (7.5%)	120 (100%)

$X^2 = 10.22$ (df = 2), p = 0.006

After assessing the answers to the question: Do you think that, as future preschool/ primary school teachers, you should be permanently educated for the use of information and communication technologies (ICT) in your future career? (Table 6), a very interesting result has been noticed: only 68% of the examinees think that future preschool/primary school teachers should be permanently educated for the use of information and communication technologies (ICT) in their future career! It is even more surprising that younger students show a more conservative attitude than older ones (chi-square = 10.22 /df = 2/, p=0.006) because they answered "no" or "I don't know" more frequently. Consequently, regardless of their formal education during their studies about the usefulness of ICT, even one fourth of the students think that they do not need to be permanently educated in this dynamically developing area of technology which has its place in the educational process. This clearly indicates the need for a change in the students' attitudes about this important part of educational technology.

A separate commentary should be given to "I don't know" answers which indicate an incapability of evaluating certain questions. The percentage is the smallest when it comes to the question if parents should be familiar with the content of the game before purchasing it to the child (only 5% of examinees answered "I don't know"). On the other hand, even 23% of examinees gave an "I don't know" answer to the question if preschool/primary school teachers are familiar with the content of computer games. It is somehow surprising that examinees were not able to evaluate this question since in their studies they have trainings and practice at schools and have the opportunity to communicate with preschool/primary school teachers.

Finally, the connections between the examinees' answers have been overviewed. It has been observed that there is a significant connection between the six pairs of variables, and a short comment on these cases is offered here (tables with crosswise answers are in the appendix). Appendix 1 shows that students believe that parents who know more about computer games are probably more familiar with the games they buy for their children. Appendix 2 shows that students believe that parents who know more about computer games check more what they buy, while those less familiar with computer games check the content of the games less. Appendix 3 indicates that students who think that parents are familiar with types of computer games think the same about preschool/primary school teachers. If the students are sceptical about the parents' knowledge of games types, they project this scepticism on preschool/

primary school teachers as well. Students believe that most parents do not check the content of the game before purchasing it although they should, while only a smaller number of parents do that (Appendix 4). Appendix 5 shows that students who think that parents check the content of the game also think that preschool/primary school teachers are familiar with types of computer games. On the other hand, when the attitude is about parents not checking the content of the game, the same is applied to preschool/primary school teachers being poorly informed about types of computer games. Appendix 6 indicates that such a connection exists for questions about parental control over the content of the game and the preschool teachers' knowledge about the negative consequences of over gaming.

Conclusion

Based on the obtained results, it may be concluded that students, who were themselves children not long ago, and who are now future preschool/primary school teachers, and most of them soon parents, critically evaluate certain parents' and preschool/primary school teachers' educational competences and express the need for education in the area of ICT and negative consequences of children's use of computers, especially computer games.

The length of study has been shown as an important factor in most of the students' attitudes questioned – the younger show significantly liberal attitudes and less scepticism about the parents and preschool teachers' competences for a quality control of the children's computer use. However, younger students were surprisingly more often of the opinion that there is no need for a permanent education of future preschool/primary school teachers for the use of information and communication technologies.

What conclusions may be drawn? Has the warmth and quality of the primary communication of a healthy and good family vanished in the world of much accessible information, rapidly developing new technologies, general lack of time and growing virtual space? Technology takes up an important role in our children's education. However, in spite of large potential benefits offered by the technology, the warmth which has an important place in every family should retain the first place. Nothing can replace the "spoken" word, the nurturing look and touch, the acceptance and appreciation of each family member. On the other hand, kindergartens and schools as second homes to children should remain or become again places of education. That is why we must not allow the computer and virtual world to become uncontrolled, virtual nannies of the 21st century. While doing so, however, the many good sides offered by ICT must not be overlooked and abandoned.

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Appendices

The presentation of significant connections between answers (C = contingency coefficient; p = probability of errors in abandoning the null-hypothesis)

Appendix 1.

		Parents are familiar with the types of computer games			Total
		Yes	No	I don't know	
Parents are familiar with the types of computer games	Yes	15	10	5	30
	%	50.0	33.3	16.7	100.0
	No	68	2		70
	%	97.1	2.9		100.0
	I don't know	21		1	22
	%	95.5		4.5	100.0
	Total	104	12	6	122
	%	85.2	9.8	4.9	100.0

C = 0.50   p = 0.000

Appendix 2.

		Parents should be familiar with the content of the game before purchasing it to their child			Total
		Yes	No	I don't know	
Parents should be familiar with the content of the game before purchasing it to their child	Yes	17	9	4	30
	%	56.7	30.0	13.3	100.0
	No	11	46	13	70
	%	15.7	65.7	18.6	100.0
	I don't know	3	8	11	22
	%	13.6	36.4	50.0	100.0
	Total	31	63	28	122
	%	25.4	51.6	23.0	100.0

C = 0.42   p = 0.000

Appendix 3.

		Parents check the content of the game before purchasing it			Total
		Yes	No	I don't know	
Parents check the content of the game before purchasing it	Yes	13	12	5	30
	%	43.3	40.0	16.7	100.0
	No	38	23	9	70
	%	54.3	32.9	12.9	100.0
	I don't know	11	8	3	22
	%	50.0	36.4	13.6	100.0
	Total	62	43	17	122
	%	50.8	35.2	13.9	100.0

C = 0.45   p = 0.000

Appendix 4.

		Preschool/primary school teachers are familiar with the types of computer games			Total
		Yes	No	I don't know	
Preschool/primary school teachers are familiar with the types of computer games	Yes	18	67	19	104
	%	17.3	64.4	18.3	100.0
	No	11		1	12
	%	91.7		8.3	100.0
	I don't know	5	1		6
	%	83.3	16.7		100.0
	Total	34	68	20	122
	%	27.9	55.7	16.4	100.0

C = 0.50   p = 0.000

Appendix 5.

		Preschool/primary school teachers are sufficiently familiar with the negative consequences of computer overuse			Total
		Yes	No	I don't know	
Preschool/primary school teachers are sufficiently familiar with the negative consequences of computer overuse	Yes	17	8	9	34
	%	50.0	23.5	26.5	100.0
	No	11	46	11	68
	%	16.2	67.6	16.2	100.0
	I don't know	3	9	8	20
	%	15.0	45.0	40.0	100.0
	Total	31	63	28	122
	%	25.4	51.6	23.0	100.0

C = 0.41   p = 0.000

Appendix 6.

		Future preschool/primary school teachers should be permanently educated for the use of information and communication technologies (ICT) in their future career			Total
		Yes	No	I don't know	
Future preschool/primary school teachers, should be permanently educated for the use of information and communication technologies (ICT) in their future career	Yes	11	14	9	34
	%	32.4	41.2	26.5	100.0
	No	43	23	2	68
	%	63.2	33.8	2.9	100.0
	I don't know	8	6	6	20
	%	40.0	30.0	30.0	100.0
	Total	62	43	17	122
	%	50.8	35.2	13.9	100.0

C = 0.36   p = 0.001

Stavovi budućih učitelja o nekim aspektima informacijskih i komunikacijskih tehnologija

Sažetak

Uporaba informacijskih i komunikacijskih tehnologija (ICT-a) zauzela je važno mjesto u odgojU i obrazovanjU. Računala su prisutna u velikom broju kućanstava, dječjih vrtića i gotovo u svim osnovnim školama. Stalno obrazovanje roditelja, odgojitelja i učitelja o primjeni ICT-a ima važno mjesto u odgoju i obrazovanju djece. Važno je upoznavanje djece s pozitivnim i negativnim posljedicama uporabe novih tehnologija i pravovremeno interveniranje svih osoba uključenih u odgojno-obrazovni proces ako je riječ o štetnim utjecajima korištenja ICT-a. Uvodno se polazi od razmatranja važnosti uloge roditelja u uporabi ICT-a u odgoju i obrazovanju djece, neadekvatnoj i prekomjernoj uporabi računala, igranju računalnih igara i određenim oblicima ponašanja, prikazuju se američki tehnologijskih standardi potrebni za rad nastavnika i nastavnih sadržaja iz područja informacijskih i komunikacijskih tehnologija.

U radu se prikazuje istraživanje provedeno na Sveučilištu Jurja Dobrile u Puli o stavovima budućih učitelja o njihovim i o roditeljskim kompetencijama u primjeni ICT-a i negativnim posljedicama prekomjerne uporabe računala i igranja računalnih igara. Dominantni su stavovi da bi roditelji trebali biti bolje upoznati sa sadržajem računalnih igara i da učitelji nisu dovoljno upoznati sa sadržajima računalnih igara, vrstama (žanrovima) igara i s negativnim posljedicama prekomjerne uporabe računala. Iznenađuje „konzervativan" stav ¼ studenata o potrebi permanentnog obrazovanja o ICT-u u budućem radu.

Ključne riječi: *informacijska i komunikacijska tehnologija (ICT); računalne igre; učitelji*

Uvod

U doba informacijskih i komunikacijskih tehnologija (u daljnjem tekstu: ICT-a) računalo zauzima posebno odgojno i obrazovno mjesto. Učinci računala mogu biti i pozitivni i negativni, ovisno o tome kako i za što se računalo koristi. U oba

slučaja ti su učinci rijetko jednostavni i neposredni, a gotovo uvijek su posredovani nizom socijalnih i drugih čimbenika (Gunter, McAller, 1997). Kada govorimo o potencijalnom utjecaju uporabe računala, najranjiviji dio populacije upravo su djeca. Njihova ranjivost proizlazi iz činjenice da oni prolaze kroz proces socijalizacije i da su u toj dobi najpodložniji različitim utjecajima u najširem smislu, a te je utjecaje nerijetko teško dozirati i kontrolirati.

Danas se nerijetko govori kako je obitelj kao institucija u krizi s obzirom na to da su se u njoj dogodile i događaju mnoge promjene. To zabrinjava upravo zato jer u obitelji učenik treba podršku, čimbenike zaštite, odnosno sve ono što će nam pomoći u sprečavanju i suzbijanju pojave i razvoja poremećaja u ponašanju do kojih može doći posredstvom neprimjerenih sadržaja prezentiranih putem računala. Kad se radi o uporabi računala, bez obzira na roditeljske stavove, dijete će prije ili kasnije doći u susret s računalnom tehnologijom. Pri tome ne smijemo zaboraviti da uporaba računala ima mnogobrojne pozitivne strane koje se kod djece odnose na razvoj pamćenja, metoda učenja, vještina rješavanja problema, smanjivanja nekih spolnih razlika i razvoj osjećaja vlastite sposobnosti i samopouzdanja (npr. Dye., Green i Bavelier, 2009; Feng, Spence i Pratt, 2007; Ferguson, Cruz, i Rueda, 2007; Okagaki i Frensch, 1994).

Prema podacima Poliklinike za zaštitu djece grada Zagreba (2008) korištenje računala ovisi o spolu, dobi, mjestu stanovanja, obrazovanju i zaposlenosti roditelja. Tako računalo najviše koriste djeca iz velikih gradova i djeca čija su oba roditelja zaposlena i fakultetski obrazovana. Istraživanje autora Robertsa i sur. (1999) bavilo se povezanošću različitih demografskih i socijalnih obilježja s uporabom računala od strane djece i mladih. Između ostalog, autori polaze sa stajališta da su mediji općenito potencijalno važan čimbenik u socijalizaciji mladih i da njihov utjecaj ovisi o izboru medija, vremenu korištenja, izboru sadržaja, uvjetima korištenja i različitim drugim obilježjima kao što su, npr. različite skupine djece i mladih, među kojima i skupina djece i mladih s poremećajima u ponašanju.

Kako će dijete razlikovati pozitivna i negativna obilježja računala, fikciju i stvarnost, odabrati odgovarajuće sadržaje, razumjeti značenje prezentiranih sadržaja, ovisi o mnogim čimbenicima, ali prije svega o roditeljima s kojim mlada osoba živi i odgojiteljima/učiteljima s kojima dijete boravi tijekom dana. Utjecaji roditelja, ali i odgojitelja/učitelja na mladu osobu ovisit će prije svega o nizu obilježja kao što su odgojni postupci, kompetencije da pravovremeno i odgovarajuće interveniraju, njihova osobnost, socijalne vještine i sl.

U sustavu odgoja i obrazovanja 87% informacija mladi primaju putem osjetila vida, 9% putem osjetila sluha, a ostala 4% putem ostalih osjetila. Vizualni sadržaji privlače pažnju mladih. Upravo je takva tvrdnja, smatraju Kamal i Banu (2010), pronašla dobrog saveznika, internet i multimediju, koje će zasigurno promijeniti tradicionalne načine učenja i poučavanja te povećati sferu širenja znanja i informacija.

Igranje računalnih igara može biti poticaj na druženje s vršnjacima sličnih interesa, igre potiču komunikaciju, vježbaju koordinaciju, shvaćanje prostornih odnosa,

vizualizaciju, predočavanje i slično. Internet omogućuje brzu dostupnost različitim informacijama, povezivanje i komunikaciju s ljudima, dopisivanje s vršnjacima i ljudima u različitim dijelovima svijeta, uči ih rješavanju problema i potiče razvoj strategija za selekciju informacija, razmjenu iskustava, mišljenja i informacija s osobama sličnih interesa ili problema.

S druge strane, nerijetko se povezuje prekomjerna, neadekvatna uporaba računala s određenim neprilagođenim oblicima ponašanja učenika (nasilničko, agresivno, izolirano i sl.). Pri tome uvijek postoji neriješena dilema potiče li igranje nasilnih igara i gledanje nasilja općenito mlade gledatelje na takvo ponašanje ili se već postojeće agresivne crte kod mlade osobe koja gleda takve sadržaje manifestiraju kao njegova veća sklonost gledanju nasilja (npr. Anderson i Bushman, 2002; Bandura, Ross i Ross, 1961; Comstock i Paik, 1994;. Goldstein 1995, 1998) .

Jedna od najčešćih aktivnosti za računalom jest igranje računalnih igara. Postoji mnogo definicija računalnih igara. Juul (2003) navodi da je računalna igra ona igra kod koje se igra uz pomoć računala, a računalo u tom slučaju može predstavljati osobno računalo, igraću konzolu i sve češće mobilni telefon. Roditelji i djeca slobodno vrijeme često provode igrajući računalne igri na računalu ili računalnoj konzoli. Prema istraživanju agencije ESA-i (eng. *Entertainment sofware association*), (ESA, 2009, a) za 2009. godinu, roditelji su naveli četiri najčešća razloga za igranje igara zajedno sa svojom djecom:

1. 82% smatra da je to zabava za cijelu obitelj
2. 81% navodi da ih traže djeca
3. 78% smatra to dobrom socijalizacijom
4. 63% nadgleda sadržaj igre.

Prema istraživanjima iste agencije za 2009. godinu (ESA, 2009, b) u 68% kućanstava u Americi igraju se računalne ili video igre. Muškarci čine 60% igrača, a žene 40%. Prosječna dob igranja je 35 godina, dok 25% pripada populaciji do 25 godina. Zanimljiv je podatak da u 2009. godini 25% igrača jesu ispitanici stariji od 50 godina. Čak 63% roditelja smatra da igre pozitivno utječu na razvoj njihove djece. Oko 83% djece konzultira roditelje za kupnju igre, a 77% roditelja ima kontrolu nad korištenjem računala i interneta, od čega: 79% roditelja postavlja granicu za igranje, 72% postavlja granicu za korištenje interneta, 71% roditelja postavlja granice za gledanje televizije, 63% za gledanje filmova itd.

Budući da postoji velik broj žanrova kao što su: akcijske igre, avanturističke igre, simulacijske igre, FPS (Firs person shooter), RPG (Role playing game), MMORPG (*eng.Massive Multiplayer Online Roleplaying game*, RTS strategije (*Real time strategy*), TBS strategije (*Turn based strategy),* prema istraživanju koja je provela jedna američka tvrtka ESA (2008) žanrovski su bile najprodavanije igre startegije (62%) i sportske igre (15%). Deset najpopularnijih igara u Hrvatskoj (www. gamebox.hr , 2009) za osobna računala jesu: Star Craft II Terrans Wings of Liberty, Call of Duty, Dragon Age: Origins, Call of Duty: Modern Warfare 2, World of Warcraftm Star Wars: The

Old Republic, Assassin s Crees II, The Sims, Baldur s Gate II: Shadows of AMN, Star Craft. Jasno se uočava dominacija „ratničkih" igara.

Pojam „e-sigurnost" je „pojam koji se odnosi na korištenje ICT-a na takav način da se nađe prihvatljiva sredina između osobnog prava da se pristupi informaciji i da se objavi informaciju te prava da se bude zaštićen od štetnih posljedica korištenja ICT-a (CERT, 2008, a).

Sve novije studije i preporuke rađene u Europi i svijetu slažu se u tome da su metode zabrane i sprečavanja pristupa informacijama neučinkovite i pogrešne i da je jedina prava metoda zaštite osposobiti djecu za samozaštitu i samoobranu (CERT, 2008, b).

Većina se djece s računalom susreće u vrlo ranoj dobi. Budući da su računala prisutna gotovo u svim društvenim sferama, djeca se najčešće počinju koristiti prijenosnim računalima-igračkama oponašajući roditelje, odgojitelje i prijatelje. Računala namijenjena djeci (ergonomski prilagođena radna stanica i potrebne komponente) koriste se u vrlo malo kućanstava i odgojno-obrazovnih institucija. Djeca se često koriste računalima namijenjenima odraslima, bilo da se radi o stolnim ili prijenosnim računalima. Posljedice uporabe takvih radnih stanica često rezultiraju ozljedama. Američki i europski liječnici (Benat, 2009) svakim danom prijavljuju sve više slučajeva djece sa simptomima RSI-a (engl. *repetitive strain injuries*). Može se reći da je to računalna bolest današnjice koju karakterizira učestalo ponavljanje određenih pokreta i neprirodnog položaja tijekom rada za računalom. Stoga je nužno u svim odgojnim i obrazovnim institucijama osigurati kvalitetnu ergonomsku opremu u informatičkim učionicama.

Uporaba računala u odgojnim i obrazovnim institucijama u stalnom je porastu. Projektom „Net u školi" 2003. godine osiguran je pristup internetu u svim školama. Uporaba računala u kućanstvima za 2008. godinu iznosila je 45% (GFK, 2006), što pokazuje znatan porast u odnosu na prijašnje godine. Prednosti uporabe računala u nižim razredima osnovne škole nastavni proces čine kvalitetnijim, kreativnijim i učenicima zanimljivijim. Nastavni sadržaji iz područja ICT-a za osnovnu školu (MZOŠ, 2006) moraju učenicima omogućiti stjecanje umijeća uporabe današnjih računala i primjenskih programa (vještine), upoznavanje s osnovnim načelima i idejama na kojima su sazdana računala, odnosno informacijska i komunikacijska tehnologija (temeljna znanja) te razvijanje sposobnosti za primjenu informacijske i komunikacijske tehnologije u različitim primjenskim područjima (rješavanje problema).

U prošlosti je obrazovanje bilo dostupno isključivo „eliti". Upravo su informacijske i komunikacijske tehnologije, fleksibilnost koja je proizašla iz uporabe tehnologija, omogućile mnogim studentima uključivanje u obrazovni proces.

Young je 2002. godine objasnio da studenti sve više prihvaćaju mogućnost učenja utemeljenog na konceptu – bilo gdje i bilo kada. Smatra da upravo takav model učenja „u pravo vrijeme" omogućuje uključivanje studenata koji ne mogu prisustvovati redovnim predavanjima (učenje na daljinu, e-učenje).

Predviđa se da će do 2015. godine (Belošević-Ivančić, 2012) u Europskoj uniji 90% radnih mjesta od osoblja zahtijevati poznavanje rada na računalu, ovladavanje potrebnim znanjima i vještinama za rad s tehnologijom. Već danas nedostaje između 400.000 i 700.000 ICT stručnjaka.

Studenti razredne nastave na svim visokim učilištima i fakultetima u RH slušaju kolegij *Informatika* kao obvezni kolegij, na kojem stječu potrebne vještine i temeljna znanja koja uključuju: povijest informatike, Booleovu algebru, građu računala, ulazno-izlazne jedinice, osnove o softveru, osnove o računalnim mrežama, osnove operacijskog sustava MS Windows-Vista, Ms Office paket koji uključuje: MS Word, MS Excel, MS Power Point, MS Publischer, Internet i rad s elektroničkom poštom.

Prema rezultatima istraživanja (Eurydice, 2011.) TIMSS 2007. na satovima iz područja prirodoslovlja u prosjeku 60% učenika u Europi imalo je nastavnike koji nisu nikada zahtijevali korištenje računala u proučavanja prirodnih pojava kroz simulacije, a 51% učenika imao je nastavnike koji nisu nikada zahtijevali korištenje računala u izvođenju znanstvenih postupaka ili eksperimenata. U osmom razredu otprilike 50% učenika u prosjeku je imalo nastavnike koji nikada nisu zahtijevali korištenje računala ni u jednoj od tih aktivnosti.

Međunarodno istraživanje TIMSS 2007 pokazuje ograničenu stopu sudjelovanja nastavnika u aktivnostima koje se usmjeravaju na integriranje ICT-a u matematici i prirodoslovlju na srednjoškolskoj razini (51% za matematiku i 41% za prirodoslovlje), i značajno niže stope na osnovnoškolskoj razini (25% za matematiku i 16% za prirodoslovlje).

Istraživanje koje su proveli Hutinski i Aurer (2009) na uzorku od 261 ispitanika koji su slušali kolegij Informatika u prvom semestru studija na Fakultetu organizacije i informatike u Varaždinu pokazalo je da se uspješnost provođenja nastave kombinacijom predavanja u većim grupama i individualizacijom rada primjenom LMS-a (eng. *Learning System Management*) može smatrati pozitivnom. Ispitanici su u godini u kojoj je provedeno istraživanje postigli oko 10% bolju prolaznost na završnim ispitima nego kod samo klasičnog oblika nastave i provjere.

Primjena obrazovnih tehnologijskih standarda u obrazovnim institucijama od velikog je značaja za podizanje kvalitete nastavnog procesa. Američki nacionalni obrazovni tehnologijski standardi za učitelje (NETS, 2008) trebali bi se primjenjivati u svim obrazovnim institucijama. Standardi se sastoje od pet glavnih odrednica:

1. Omogućavanje i poticanje učenja i kreativnosti

Učitelji svojim znanjem o predmetu, tehnologiji, tehnikama učenja i metodama poučavanja imaju za cilj unaprijediti učenikova iskustva, kreativnost i inovacije. Učitelji:

    a) Zagovaraju, podržavaju i modeliraju kreativan i inovativan način razmišljanja.

    b) Uključuju učenike u istraživačke projekte, pripremaju ih za rješavanje životnih i autentičnih problema koristeći se digitalnim alatima i izvorima informacija.

c) Služe se suradničkim metodama rada.

d) Modeliraju suradničko znanje u zajedničkom radu s učenicima i kolegama.

2. Dizajniranje, razvijanje modela učenja i procjenjivanja za „Digitalno doba"

Učitelji dizajniraju, razvijaju i evaluiraju autentično, iskustveno učenje i procjenjivanje, inkorporiraju suvremene alate i izvore informacija u nastavi s ciljem razvijanja znanja, vještina i navika. Učitelji:

a) dizajniraju ili prilagođuju iskustveno učenje koje uključuje digitalne alate i izvore u svrhu poticanja učenja i kreativnosti

a) razvijaju i obogaćuju tehnologijsko okruženje koje učenicima omogućuje aktivno sudjelovanje u kreiranju nastavnog procesa (obrazovnih ciljeva, upravljanja učenjem, procjene individualnog napretka učenja)

b) prilagođuju i individualiziraju proces učenja služeći se digitalnim alatima i izvorima, što učenicima omogućuje odabir stila učenja i strategiju rada

c) pružaju učenicima višestruke i raznovrsne formativne i zbirne procjene koje su u skladu sa sadržajem i tehnologijskim standardima.

3. Model „Digitalno doba" namijenjen za rad i učenje.

Učitelji prikazuju znanje, vještine i proces rada u globalnom i digitalnom okruženju. Učitelji:

a) demonstriraju fluentnost u tehnologijskom sustavu i „transferiraju" znanje u nove tehnologije i situacije

b) surađuju s učenicima, njihovim vršnjacima, roditeljima i članovima zajednice služeći se digitalnim alatima i izvorima za podršku učenikova uspjeha i inovacija

c) služeći se relevantnim informacijama i varijantama modela "Model za digitalno doba" predlažu ideje koje smatraju učinkovitima za učenike, vršnjačke skupine i roditelje.

d) Modeliraju i facilitiraju efektivnu uporabu postojećih i novih digitalnih alata za lociranje, analiziranje, evaluaciju i korištenje izvora informacija za podršku kod istraživanja i učenja.

4. Model „Zajednice za digitalno doba": učitelji razumiju lokalne i globalne socijalne probleme i odgovorni su za razvijanje i podizanje digitalne kulture. U praksi primjenjuju etičnost. Učitelji:

a) zagovaraju sigurnu i etičnu uporabu digitalnih informacija i tehnologije, uključujući poštivanje zaštite autorskih prava, intelektualnog vlasništva, pravilno dokumentiranje i prikazivanje različitih izvora informacija

b) ukazuju na različite potrebe svih učenika služeći se strategijama rada usmjerenim učeniku, pružajući adekvatan pristup korištenjem digitalnih alata i izvora informacija

c) promoviraju i modeliraju digitalne etikete i odgovorni su za socijalnu interakciju povezanu s uporabom informacijskih i komunikacijskih tehnologija

d) razvijaju i modeliraju kulturno razumijevanje i globalnu svjesnost uključujući kolege i učenike drugih kultura služeći se modelom „ Model za digitalno doba".

5. *Uključivanje u profesionalan rast, razvoj i vodstvo preko cjeloživotnog obrazovanja. Učitelji dokazuju profesionalnost u školi i društvenoj zajednici promovirajući i demonstrirajući efektivno korištenje digitalnih alata i izvora. Učitelji:*

a) sudjeluju u radu lokalne i globalne zajednice, „zajednice koja uči", kako bi istražili kreativne i tehnologijske aplikacije potrebne za poboljšanje procesa učenja

b) demonstriraju tehnologijsku viziju sudjelujući u donošenju odluka i razvoju društvene zajednice, razvijajući vodstvo i tehnologijske vještine

c) služeći se postojećom tehnologijom i razvijajući nove digitalne alate, pomažu učenicima u učenju i evaluiraju svoj istraživački rad

d) zalažu se za učinkovitost, vitalnost i permanentnost učiteljskog zanimanja, škole i zajednice.

Rezultati istraživanja (Coklar i Odabasi, 2010) provedenog na sedam učiteljskih fakulteta u Turskoj na uzorku od 2566 studenata-budućih učitelja, a utemeljeni na NETS standardima za učitelje, pokazali su da budući učitelji (m i ž) imaju visoku razinu poznavanja obrazovnih tehnologijskih standarda, da su osposobljeni za uporabu tehnologije u obrazovnom procesu, da su dobro upoznati s načinima korištenja obrazovnih tehnologija, pokazuju višu razinu samoučinkovitosti pri korištenju obrazovnog softvera koji zahtijeva višu razinu znanja i vještina. No, budući učitelji ne koriste tehnologiju za izvođenje osnovnih procjena u procesu evaluacije nastave. U odnosu na spol, budući učitelji (m) smatraju sebe vještijima u korištenju tehnologija kad one podrazumijevaju tehnologijske operacija i koncepte, kao i u socijalnim, pravnim, etičkim i ljudskim pitanjima, dok buduće učiteljice smatraju da su vještije u aktivnostima koje zahtijevaju veću produktivnost i u izvođenje učiteljske prakse.

Kralj (2008.) smatra da bi informacijske i komunikacijske tehnologije bile pogodne za individualizaciju učenja. Suvremene paradigme poučavanja pokazuju da nije dobro da to bude jedini oblik učenja i da individualizirano poučavanje ne smije isključivati grupno poučavanje jer bi inače učenici bili uskraćeni za međusobnu komunikaciju, zajedničko rješavanje problema i suradničko učenje.

Deklariran stav MZOŠ-a (2009) jest da je informacijska infrastruktura sustava obrazovanja preduvjet za stjecanje osnovne informatičke pismenosti svakoga građanina tijekom njegova školovanja, ali i preduvjet da njegovo cjelokupno školovanje bude kvalitetno, moderno i usklađeno sa stvarnim potrebama i uvjetima života u informacijskom društvu. Tijekom i nakon završetka studija učitelji bi se svakako trebali permanentno obrazovati, jer je permanentno obrazovanje učitelja jedan od preduvjeta za kvalitetno prenošenje znanja i vještina učenicima.

Cilj istraživanja i metode rada

Budući da je ICT važan dio učinkovitoga edukacijskog procesa, postavlja se pitanje u kojoj mjeri studenti za buduće učitelje i odgojitelje smatraju da su kompetentni za

njegovu uporabu, kao i za procjenu eventualnih negativnih učinaka uporabe računala. U ovom se istraživanju krenulo od pretpostavke da studenti Odjela za obrazovanje učitelja i odgojitelja na temelju specifičnosti studija, programa kolegija i stručne prakse, mogu stjecati određena znanja o tome kakve su odgojne kompetencije i roditelja i odgojitelja/učitelja u primjeni ICT-a, kao i pogledu neprimjerenih učinaka korištenja računala, posebno računalnih igara. Istraživanjem se pokušalo odgovoriti na pitanje postoji li razlika u funkciji duljine studija (studenti prve dvije, odnosno treće i četvrte godina studija) u njihovim stavovima o odgojnim kompetencijama:

1. roditelja u vrstama i učincima određenih računalnih igara
2. odgojitelja/učitelja u primjeni računalnih igara, poznavanju neprimjerenih učinaka korištenja računala na djecu, medijskoj edukaciji i potrebi permanentnog obrazovanja u ICT-ma.

Uzorak čine 122 studenta Odjela za obrazovanje učitelja i odgojitelja Sveučilišta Jurja Dobrile u Puli. Podijeljeni su s obzirom na duljinu studiranja (nezavisna varijabla) u dvije skupine: prva i druga godina studija predškolskog odgoja (mlađi, N = 67), odnosno studenti treće i četvrte godine razredne nastave (stariji, N = 55). Primijenjen je upitnik koji sadrži ukupno 29 varijabli, a za potrebe ovog istraživanja analizirani su sljedeći stavovi :

1. Smatrate li da su roditelji upoznati s vrstama računalnih igara?
2. Smatrate li da bi roditelji trebali biti upoznati sa sadržajem igre prije njezine kupnje djetetu?
3. Smatrate li da većina roditelja prije kupnje igre provjerava njezin sadržaj?
4. Smatrate li da su odgojitelji/učitelji upoznati s vrstama računalnih igara?
5. Smatrate li da su odgojitelji/učitelji dovoljno upoznati s negativnim posljedicama prekomjerne uporabe računala?
6. Smatrate li da se kao budući odgojitelji/učitelji trebate permanentno obrazovati za uporabu informacijsko-komunikacijskih tehnologija (ICT-a) u budućem radu?

Istraživanje je provedeno skupno i anonimno, a studenti su bili upoznati s činjenicom da u svakom trenutku mogu odustati od popunjavanja upitnika bez posljedica, što nitko nije učinio.

Rezultati istraživanja i rasprava

U Tablici 1. prikazane su procjene studenata o roditeljskom poznavanju vrsta računalnih igara općenito, odnosno posredno se želio ispitati stav o poznavanju negativnih učinaka pojedinih računalnih igara na njihovu djecu. Vidimo da 57% studenata smatra da roditelji nisu upoznati s vrstama igara, a 18% ih to ne može procijeniti. Razlika između mlađih i starijih studenata u odgovoru na to pitanje je statistički značajna (p = 0,001) zbog razlike u odgovoru «da» — mlađi studenti znatno češće od starijih (22% : 7%) smatraju da su roditelji dovoljno upoznati s vrstama igara.

Tablica 1. i 2.

Studenti misle da bi roditelji trebali biti upoznati sa sadržajem igre prije njezine kupnje djetetu (85%). Pretpostavlja se da studenti smatraju da bi na takav način roditelji mogli preventivno djelovati na izlaganje svoje djece neprimjernim sadržajima kao što su nasilje, ubojstva i slično (tablica 2.). Mlađi studenti u vezi s tim iskazuju „liberalniji" stav, jer ih zantno više daje odgovor «ne» ili očituju neutralan stav (Hi-kvadrat = 13,44 /df = 2/, p = 0,001). Jesu li ti studenti u posljednjoj fazi adolescentske pobune protiv kontrole roditelja nad dječjim aktivnostima, trebalo bi utvrditi kvalitativnim tipom istraživanja.

Tablica 3.

Kad je riječ o provjeri sadržaja igre prije njezine kupnje (tablica 3.), studenti općenito iskazuju prilično skeptičan stav. Studenti smatraju da većina roditelja ne provjerava sadržaj igre prije kupnje (56%). Ali i tu se opaža statistički značajna razlika (Hi-kvadrat = 8,96 /df = 2/, p = 0,011) između malđih i starijih, jer mlađi imaju više povjerenja u roditeljsku kontrolu sadržaja igre prije kupnje (21% : 7%).

Tablica 4.

Studenti misle da odgojitelji/učitelji nisu upoznati s vrstama računalnih igara (tablica 4.) u sličnom postotku kao i kad je riječ o roditeljima (52% odgajatelji/učitelji : 57% roditelja). I ovdje je razlika statistički značajna (Hi-kvadrat = 8,73 /df = 2/, p = 0,013) u smislu da su stavovi mlađih studenta manje skeptični, odnosno da su češće neutralni.

Tablica 5.

Tablica 5. pokazuje da tek nešto više od polovine studenata misli da su odgojitelji/učitelji dovoljno upoznati s negativnim posljedicama prekomjerne uporabe računala (51%). Jedna trećina smatra da nisu dovoljno upoznati s negativnom stranom uporabe računala, a njih 14% ima neutralan stav. Po tom se stavu ne razlikuju studenti prema duljini studija.

Tablica 6.

Pregledom odgovora na pitanje: *Smatrate li da se kao budući odgojitelji/učitelji trebate permanentno obrazovati za uporabu informacijsko-komunikacijskih tehnologija (ICT-a) u budućem radu?* (tablica 6.) dolazimo do vrlo iznenađujućeg rezultata: svega 68% sudionika smatra da se budući odgojitelji/učitelji trebaju permanentno obrazovati za uporabu informacijsko-komunikacijskih tehnologija (ICT-a) u budućem radu! Još više iznenađuje da mlađi studenti tu očituju konzervativniji stav od starijih (Hi-kvadrat = 10,22 /df = 2/, p = 0,006) jer češće daju odgovor «ne» ili «ne znam». Dakle, bez obzira na formalno obrazovanje tijekom studija o korisnosti ICT-ea, čak ¼ studenata ne smatra da se u tom vrlo dinamično razvijajućem području tehnologije koja ima svoje mjesto u odgojno-obrazovnom procesu treba permanentno obrazovati. To jasno

upućuje na potrebu promjene stavova studenata o tom značajnom dijelu obrazovne tehnologije.

Zaseban komentar rezultata zaslužuju podaci o odgovorima *ne znam*, koji upućuju na nemogućnost procjene o pojedinom pitanju. Taj je postotak najmanji kad je riječ o tome bi li roditelji trebali biti upoznati sa sadržajem igre prije njezine kupnje djetetu (svega 5% sudionika odgovara *ne znam*). S druge strane, čak 23% sudionika odgovara s *ne znam* na pitanje jesu li odgojitelji/učitelji upoznati s vrstama računalnih igara. Pomalo iznenađuje da sudionici to ne mogu procijeniti budući da za vrijeme studija imaju vježbe i praksu u školama, kao i da imaju priliku komunicirati s odgojiteljima i nastavnicima.

Na kraju su razmotrene i povezanosti među odgovorima sudionika. Pokazalo se da između šest parova varijabli postoji značajna povezanost, pa će samo ti slučajevi biti ukratko komentirani (tablice s ukriženim odgovorima nalaze se u prilogu). Iz priloga 1. uočavamo da roditelji koji znaju više o računalnim igrama, vjerojatno i bolje poznaju igre koje kupuju djeci. Prilog 2. kazuje da raditelji koji više znaju o igrama, ujedno više provjeravaju ono što kupuju, odnosno da oni koji manje znaju, manje provjeravaju sadržaj igara. Prilog 3. upućuje na to da su među sudionicima koji smatraju da su roditelji upoznati s vrstama računalnih igara odgajatelji/učitelji, odnosno da ako se studenti skeptični o znanjima roditelja o vrstama igara, da onda tu skepsu očituju i za odgajatelje/učitelje. Većina roditelja ne provjerava sadržaj igre prije kupovine premda bi to trebala činiti, a to čini tek manji dio njih (prilog 4.). Prilog 5. pokazuje da studenti koji imaju stav da roditelji provjeravaju sadržaj igre, ujedno smatraju da su odgojitelji/učitelji upoznati s vrstama računalnih igara, odnosno da ako je stav da roditelji ne provjeravaju sadržaj igre, onda je i stav da su odgajatelji/učitelji slabo informirani o vrstama računalnih igara. Prilog 6. upućuje na to da je takva povezanost i za pitanja o provjeri sadržaja igre i o tome koliko su odgajatelji upoznati s negativnim posljedicama prekomjernog igranja računalnih igara.

Zaključak

Na temelju dobivenih rezultata možemo zaključiti da studenti, koji su i sami ne tako davno bili djeca, a sad su budući odgojitelji i učitelji, a većina njih ubrzo i roditelji, kritički procjenjuju pojedine odgojne kompetencije roditelja i odgojitelja/učitelja u smislu potrebe za većom educiranošću na području primjene ICT-a i negativnih učinaka dječje uporabe računala, posebno računalnih igara.

Duljina studija pokazala se značajnim čimbenikom u većini ispitanih stavova studenata – mlađi pokazuju znatno liberalnije stavove i manje skepse o kompetencijama roditelja i odgajatelja za kvalitetnu kontrolu dječjeg korištenja računala. No iznenađujuće je da mlađi studenti češće imaju stav da nema potrebe za premanentnim obrazovanjem budućih odgajatelja/učitelja za uporabu informacijsko-komunikacijskih tehnologija.

Što reći na kraju? Počinje li se u svijetu mnoštva sve dostupnijih informacija, brzorazvijajućih novih tehnologija, općeg nedostatka vremena, u kojem virtualni prostor raste, polako gubiti toplina i kvaliteta primarne komunikacije zdrave i

kvalitetne obitelji? Tehnologija zauzima značajno mjesto u odgoju naše djece. No unatoč velikim potencijalnim koristima od tih tehnologija prioritet treba ostati na onoj toplini koja je nekada zauzimala važno mjesto u svakoj obitelji. Ništa ne može zamijeniti ulogu »žive« riječi, brižnog pogleda i dodira, prihvaćanja i uvažavanja svakog člana obitelji. Vrtić i škola, s druge strane, kao drugi dječji dom, treba ostati ili ponovo postati mjesto odgoja i obrazovanja. Stoga ne smijemo dopustiti da nam računalo i virtualni svijet postanu nekontrolirane, virtualne dadilje 21. stoljeća. Pritom se, dakako, ne treba odreći svih onih mnogih dobrih strana koje nude ICT.