IMPACT OF COMPUTERS ON THE CREATIVITY OF CHILDREN

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Abstract. This study tried to determine whether the computer had affects on the creativity of children. A random sample of 120 parents were tested to give their opinion. This study used a descriptive-analytical method. The technique which used is the interview, and the main instrument is specially designed for this research. The results shows that the use of computers have affects on the creativity of children. The obtained data were analysed by issues within established research tasks.

Keywords: Creativity, Computer, Children, Video games.

1. INTRODUCTION

The very notion of creativity should be a simple concept that is defined as a mental process that involves new ideas or concepts. However, this concept does not be too easy and is difficult to define and measure (Runcha and Albert, 2010). Many authors (Hocevar and Bachelor, 1989; Park and Byrnes, 1984; Parkhurst, 1999) explains that there are numerous definitions of the notion of creativity. Regarding the measurement of creativity in children using computers, the Internet and mobile phones had shown that there is not any connection between these technologies with the creativity of children. When it comes to gender, it is known that boys play more video games than girls. Regardless of this fact, there is no connection between gender and video games, with the development of creativity in children (Gentile, 2009; Jackson, 2008). On the other hand research results (Jacskon at all 2012) show that there are a link between playing video games and creativity of children age 12. With the development and application of ICT, there was a lot of controversy about how these technologies, especially the use of computers, have an influence on the cognitive development of children (Wartelle and Jennings, 2000).

Feldhusen (2002) said that creativity is a process that takes place in four stages: fluency, flexibility, originality and elaboration. Fluent stage of creativity is based on the extraction of information from memory, ie, appealing to the conscience of previously acquired information. Flexible phase of creativity is largely, non-cognitive function of personality and partly cognitive function, because highly correlated with intelligence. Elaboration phase of creativity is based primarily on adding details drawn from memory, or to extract information for the elements that should be added. Originality is the final phase of creativity. This is the final court that the true evaluators of the creative product.

Creativity is usually associated with cognitive ability and cognitive tests. Most often creativity related with intelligence (Simonton 2004).

Sternberg (2003) identifies five components of creativity:

• Expertise: well-developed knowledge base,

• Imagination: the ability to see things in their own way, to recognize patterns,

• An enterprising person: seeking new experiences, tolerates ambiguity and risk, perseveres in overcoming obstacles,

• Internal motivation: Driven more interest, satisfaction, and challenge more than external factors,

• Creative Environment: initiator, supports and refines ideas.

Various authors (Lachlan et all, 2005; Lachlan et all, 2005) usually emphasize the negative and violent video games and properties of the public and the society accepts that playing video games causes violent and negative traits in children. However, numerous

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studies show a connection between playing violent games and violent behavior. Carnagey and Anderson (2005) reported that in the case of the use of video games, driving a car, the players showed more aggressiveness than those who have not played. Konjin at all (2007) suggest in their paper that adolescents who identified with the negative characters from the game are far more display aggressive behavior in the real world.

Kamenov (2006) argues that due to electronic toys develop the sensibility of today's children while the older generation on stunted. It also believes that modern technology gives children more opportunity to develop independent action of initiative and imagination and externalization, which become amplifiers children creativity. Computers and computer software for children enrich the environment. It is extremely stimulating and allows children to discover different aspects of experience, accelerating their intellectual maturation and encourages them to develop creative potential.

Information technology, depending on the manner in which it is used, can be positively or negatively affect the child's development. Andjelkovic (2008:158) points out that the potential positive impacts related to the process of cognitive development, the development of symbolic representation, development of attention, opportunities and understanding of the essence, clearly and faster classification, decision making, analysis, understanding of cause-effect relationships, the development of memory, encouraging creativity, encouraging curiosity, develop imagination, problem solving process, increase motivation. Negative impacts are related to the reduction of creativity and creative thinking, reducing the ability for daydreaming, poor concentration, problems with attention and reducing the patience to work and learn.

2. METHODS

This study used a descriptive-analytical method. The technique which used is the interview, and the main instrument is specially designed for this research and a questionnaire for parents. The population consists of parents who are selected at random. The sample consisted of 120 parents of the children aged 6. The obtained data were analyzed by issues within established research tasks.

The research problem is whether the computer affects the creativity of children. Problem research shows results that cannot be ignored, and given as an answer to the question of what impact does computers have on the creativity of children. The subject of research is the impact of computers on creativity of children. First of all, we are interested in what is the attitude of parents about the impact of computers on the behavior of children in order to get the answer to our problem.

The aim of the research seeks to determine what are the attitudes of parents about the impact of computers on creativity of children. Here we thoughts on the use of computers and the impact that it has on children. The task was as follows: Determine whether computers have affects on creativity in children; to determine is there a relationship between genders and gaming with the development of creativity; determine whether video games affect the development of creativity in children.

The general hypothesis is that parents think that the computer has a large impact on the creativity of children, as well as on the behavior of children. Specific hypotheses are: It is assumed that there is a relationship between gender and gaming with the development of creativity; It is assumed that video games influence the development of creativity in children.

3. RESULTS

The data obtained through the survey were analyzed on issues within established research tasks. Taking into consideration the nature of the problem and research, as well as the used methods, techniques and instruments performed a quantitative data analysis in SPSS.

Table 1. Do computers affects creativity in children?

			Do computers affects creativity in children?		Total
			Yes	No	
Gender	Male	Count	45	8	53
		% within Gender	84,9%	15,1%	100,0%
		% within Do computers affects creativity in children?	44,1%	44,4%	44,2%
		% of Total	37,5%	6,7%	44,2%
	Female	Count	57	10	67
		% within Gender	85,1%	14,9%	100,0%
		% within Do computers affects creativity in children?	55,9%	55,6%	55,8%
		% of Total	47,5%	8,3%	55,8%
Total		Count	102	18	120
		% within Gender	85,0%	15,0%	100,0%
		% within Do computers affects creativity in children?	100,0%	100,0%	100,0%
		% of Total	85,0%	15,0%	100,0%

In Table 1, we see that 45 males sub-jects

(84.9%) responded that computers affects creativity in children, while only 8 subjects or 15.1% responded negatively. As a percentage of the claim, it makes 44.1% of subjects said "Yes" while 44.4% responded negatively. As for females, 57 (85.1%) responded affirmatively while 10 of them (14.9%) responded negatively. As a percentage of the claim, it makes 55.9% of subjects said "Yes" while 55.6% responded negatively.

Table 2. Is there a relationship between gender and gaming with the development of creativi-ty?

			Is there a relationship between gender and gaming with the development of creativity?		Total
			Yes	No	
Gender	Male	Count	12	41	53
		% within Gender	22,6%	77,4%	100,0%
		% within Is there a relationship between gender and gaming with the development of creativity?	52,2%	42,3%	44,2%
		% of Total	10,0%	34,2%	44,2%
	Female	Count	11	56	67
		% within Gender	16,4%	83,6%	100,0%
		% within Is there a relationship between gender and gaming with the development of creativity?	47,8%	57,7%	55,8%
		% of Total	9,2%	46,7%	55,8%
Total		Count	23	97	120
		% within Gender	19,2%	80,8%	100,0%
		% within Is there a relationship between gender and gaming with the development of creativity?	100,0%	100,0%	100,0%
		% of Total	19,2%	80,8%	100,0%

In Table 2, we see that 12 males sub-jects (22.6%) responded that there is a relationship between gender and gaming with the development of creativity, while only 41 subjects or 77.4% responded negatively. As a percentage of the claim, it makes 52.2% of subjects said "Yes" while 42.3% responded negatively. As for females, 11 of them (16.4%) responded affirmatively while 56 of them (83.6%) responded negatively. As a percentage to the claim it makes 47.8% of subjects said "Yes" while 57.7% responded negatively.

Table 3. Do video games affect the development of children's creativity?

			Do video games affect the development of children's creativity?		Total
			Yes	No	
Gender	Male	Count	40	13	53
		% within Gender	75,5%	24,5%	100,0%
		% within Do video games affect the development of children's creativity?	40,8%	59,1%	44,2%
		% of Total	33,3%	10,8%	44,2%
	Female	Count	58	9	67
		% within Gender	86,6%	13,4%	100,0%
		% within Do video games affect the development of children's creativity?	59,2%	40,9%	55,8%
		% of Total	48,3%	7,5%	55,8%
Total		Count	98	22	120
		% within Gender	81,7%	18,3%	100,0%
		% within Do video games affect the development of children's creativity?	100,0%	100,0%	100,0%
		% of Total	81,7%	18,3%	100,0%

In Table 3, we see that 40 males sub-jects (75.5%) responded to video games affect the development of creativity in children, while only 13 subjects or 24.5% responded nega-tively. As a percentage of the claim, it makes 40.8% of subjects said "Yes" while 59.1% responded negatively. As for females, 58 of them (86.6%) responded in the affirmative while only 9 (13.4%) responded negatively. As a percentage of the claim, it makes 59.2% of subjects said "Yes" while 40.9% responded negatively.

4. DISCUSSION

The results show that the majority of parents, 102 subjects (85%) responded that the computers have affects on the creativity of children while only 18 subjects (15%) stated that the computers do not have affects on the creativity of children. Of the total patients, 45 male and 57 female subjects responded positively while only 8 male and 10 female subjects responded that the computers do not have affects on the creativity of children. Based on these results, we can confirm the general hypothesis that parents think that the computer has a large impact on the creativity of children, as well as on the behavior of children.

As many as, 97 subjects (80.8%) stated that there is no correlation between gender and gaming with the development of creativity, while only 23 subjects (19.2%) stated that there is a relationship between gender and gaming with the development of creativity. From all respondents, 12 male and 11 female subjects answered that there is a correlation

between gender and gaming with the development of creativity. A number of subjects, 41 males and 56 females responded that there is no correlation between gender and gaming with the development of creativity. The obtained results indicate that we cannot accept the hypothesis that there is a special relationship between gender and gaming with the development of creativity.

Ninety-eight of them (81.7%) stated that video games influence the development of creativity in children, while only 22 (18.3%) stated that video games do not influence the development of creativity in children. Of these 98 subjects, 40 male and 58 female subjects answered that video games influence the development of creativity in children while 13 male and 9 female subjects answered that video games do not influence the development of creativity in children. Based on these results, we can accept the specific hypothesis that video games influence the development of creativity in children.

5. CONCLUSION

From this research, we can see that the majority of parents felt that the computer affect the creativity of children. It is obvious that there is no correlation between gender and gaming with the development of creativity, as the largest number of subjects said there is no connection between gender and playing video games, which is confirmed by the statement of the author (Gentile, 2009; Jackson, 2008). However, it is necessary to carry out far-reaching research to determine this relationship. These results can serve as a starting point for further investigation in order to identify differences in the parents. Development of creativity plays a big role video games and it depends on them whether the children develop cognitive abilities or the child will become antisocial and aggressive. As a result of playing video games that are inappropriate for children to age, child will be a reduction in creativity and creative thinking. The children will be left to the virtual world and not the world of fantasies, which play a main role in the development of creativity. These negative traits can be overcome by the use of selected programs that will develop creativity in children. If we ignore the influence of video games and what effect they leave, the children alone computer use helps children develop logical thinking, logic solving mathematical problems and how to solve many other problems. Computer use in child development develops the spirit of research where children de-velop their creativity. It is recommended that we don't need to forbid the use of the com-puter but to control the time which child spends with the computer as well as perform a selection of material selection that offers the child, in order to develop creativity in the right direction.

It can be concluded that the proper use of computers, this primarily refers to programs that are tailored to the children's age, children's environments, which enrich the children discover new experiences, intellectually mature and thus develop their creativity.

Conflict of interests
Authors declare no conflict of interest.

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