THE PERCEPTION OF PRESERVICE ICT TEACHERS ABOUT USING DIGITAL GAMES IN EDUCATIONAL SETTINGS

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Abstract

The current study is designed as a quantitative study, which aims to investigate preservice ICT teachers' perceptions about the use of digital games for educational purposes within educational settings. The participants of the study are preservice ICT teachers who are currently enrolled in the Middle East Technical University, which is one of the top-notch universities in Turkey as well as one of the top 100 universities in the world. In this study, survey method was used. A questionnaire that contained fifty-seven likert-type items was delivered to the senior students of Computer Education and Instructional Technology Department, who are prospective ICT teachers. In Turkey, it is expected from ICT teachers to be the innovators and early adapters of new technologies and instructional methods and to not only integrate them to their own instruction but also help other branch teachers for a seamless integration in their instruction. Thus, understanding preservice ICT teachers' perception can provide important information and insight about the diffusion of technology use within schools and should be investigated thoroughly and analyzed meticulously. More specifically, exploring preservice ICT teachers' perception about digital games and their use in educational settings might shed light on the debate of whether educational games developed by educators are serving their purposes or not.

Keywords: Computer games, preservice ICT teachers' perception, educational use of computer games.

1 INTRODUCTION

In recent years, video games are attracting people all around the world (Mcgonical, 2010). The development in computer technologies has caused development in game technologies. In recent years, computers have changed from standalone desktop machines to "super machines". Today, computers provide powerful graphic, high-speed network connection and process abilities (Axelson, 2002). With all of these improvements in computers and new technologies, the number of the gamers has been rapidly increasing in each day. Today, digital games have become a part of people's daily life (Mcgonical, 2010).

There are several reasons that motivate people to play digital games. For Prensky (2003), games are fun and give the player enjoyment and pleasure. They make the players passionately involve in game environment. Games are interactive, adaptive and they encourage people to play by providing structured environment, rules and goals. They teach players by providing outcomes and feedbacks. They provide players with ego gratification by allowing them to win. By posing problems, games help players to develop their creativity. Moreover, games propose conflict, competition, challenge, and opposition so that players excrete adrenaline (Prensky, 2003). According to Hostetter (2002), games cause a decrease in players' stress levels and raise the density of their emotions. Moreover, when people play digital games, they develop a sense of immersion and lose the sense of time and awareness of self temporarily (Harvey, 1998). Players escape from doing other things and enjoy themselves by playing games (Griffiths & Hunt, 1998).

In the literature, some theories such as Csikszentmihalyi's Flow Theory and Malone's Motivation Theory attempt to explain why people play digital games this much. When these theories are analyzed in detail, it can be comprehended that these theories and education have some attributes in common. Both Csikszentmihalyi's and Malone's theories emphasize the importance of four main notions: challenge of the activity; user control, achievable clear goals; and frequent, clear and constructive feedback, which are also essential principles of education (Csikszentmihalyi, 1990, 2004; Malone & Lepper, 1987).

Learning is a complex phenomenon affected by many factors such as interaction, challenge, feedback and guidance, and motivation (Lieberman, 2006; Gee, 2005). In addition to these factors, Lieberman

(2006) and Gee (2005) emphasize another important factor, which is "fun." They state that learning is more effective and permanent if it is enjoyable for the learner. Computer games address these factors and even more. Since the number of students that play games and the studies praising the positive effects of games on learning have been increased in recent years, it seems impossible to keep games out of the educational scope (Akıllı, 2007).

The perception of teachers towards the technology is critical due to the reason that they are the main authority, who decides whether to integrate technology into the classroom environment or not. For this reason, developing various technologies by spending millions of dollars does not guarantee their use in the classroom environment. Teachers need to be psychologically ready to use the technology and know how to use it in the classroom (Can & Çağıltay, 2006). ICT teachers hold an important role to help other teachers for psychological readiness to adapt these new technologies into their classroom settings. ICT teachers should be innovators to integrate these technologies into the school settings and to facilitate their integration to other courses given by other subject matter teachers. Thus, ICT teachers take on an important role for the integration of educational games within school settings. Their perception towards educational games may affect the integration process. For this reason, their attitudes towards the game and its use in educational settings should be analyzed in order to assess whether digital games may be integrated to classroom settings. This study investigates perceptions of preservice ICT teachers who are enrolled in the Computer Education and Instructional Technology (CEIT) program in one of the top-notch universities in Turkey with regards to use of games in educational settings.

2 METHOD

Survey research design was used in this quantitative study. The questionnaire was delivered to the preservice ICT teachers in order to understand their perception towards the usage of educational games. The questionnaire had been adapted with permission from a previous research conducted by Can in 2003. Five experts who had a PhD degree either in CEIT program or from a similar Instructional Technology program checked the items of the questionnaire used in this study. Based on their feedbacks, the questionnaire was revised and delivered to the participants.

The questionnaire used in this study includes two main parts. The first part consists of three sections. In the first section, there are twelve questions in order to collect the demographic data of the participants such as age, gender, computer ownership, etc. The second section includes eight questions to specify the ratio of weekly activities such as reading books, watching TV, playing computer games etc. Lastly, the third section consists of seventeen questions that aim to reveal preservice teachers' general idea about games. In second part of the questionnaire, there are nineteen likert type questions about using games in education. Instead of five-point-scale, four-point scale (strongly agree, agree, disagree and strongly disagree) was preferred to avoid the possibility of high number of neutral responses (Can & Çağıltay, 2006). The gathered data were analyzed through descriptive statistics. PASW 18 program were used to conduct the necessary analyses.

In this study, the sample was consisted of 33 preservice IT teachers, 10 of which were female and the rest of 23 were male. The age of the participants were ranging from 21 to 26 years. The mean of participants' CPGA scores was 2.99 out of 4 ranging from 1.93 to 3.87. All participants have computers and 23 participants were actively playing digital games, whereas five participants had played digital games in the past but they are not playing anymore. Finally, five participants have not played any digital games in their life.

3 FINDINGS

The findings of this study were divided into two main categories: preservice IT teachers' general perceptions towards game playing and their perception towards using games in education.

3.1 General Perceptions of IT Teachers towards Playing Game

There were 16 items in the questionnaire aimed at revealing preservice ICT teachers' general perceptions about playing games. The results showed that preservice ICT teachers generally agreed with the statements. For them, playing computer games requires too much engagement time (59.4%) and only suitable for adults (75.7%). Moreover, majority of the preservice ICT teachers agreed that games could only teach something when an existing game is modified for educational purposes

(96.9%) or is designed with an educational purpose from the very beginning (90.9%). Finally, most of the preservice ICT teachers thought that playing games leads to addiction (75.8%) and affect people negatively if it contains violent elements (84.8%).

Table 1. General Perceptions of IT teachers towards playing game.

Statement	Disagree	Agree
1. Playing computer games is an important leisure time activity	54.5% (*n*=18)	45.5% (*n*=15)
2. Playing computer games is a waste of time	54.5% (*n*=18)	45.5% (*n*=15)
3. Playing computer games requires too much engagement time	40.6% (*n*=13)	59.4% (*n*=19)
4. Playing computer games increase curiosity of people	28.1% (*n*=9)	69.7% (*n*=23)
5. Playing computer games helps developing some useful knowledge and skill	15.2% (*n*=5)	81.9% (*n*=27)
6. Playing computer games is only suitable for adults	24.3% (*n*=8)	75.7% (*n*=25)
7. Playing computer games is only suitable for children	87.9% (*n*=29)	12.1% (*n*=4)
8. Playing computer games is suitable for all age groups	39.4% (*n*=13)	60.6% (*n*=20)
9. Boys and girls have different game preferences	6.1% (*n*=2)	93.9% (*n*=31)
10. Playing computer games leads to addiction	24.2% (*n*=8)	75.8% (*n*=25)
11. Playing computer games affects people's social life negatively	48.5% (*n*=16)	48.5% (*n*=16)
12. If computer games are played with a group (family, friends, etc.), it helps to develop social skills.	48.5% (*n*=16)	51.5% (*n*=17)
13. Playing computer games with violent content affects people negatively	15.2% (*n*=5)	84.8% (*n*=28)
14. Playing computer games always teach something to players	45.5% (*n*=15)	54.5% (*n*=17)
15. Playing computer games teaches something only If an existing game is modified with educational purpose	3.1% (*n*=1)	96.9% (*n*=32)
16. Playing computer games teaches something only If the game is designed with educational purpose from the very beginning	9.1% (*n*=3)	90.9% (*n*=30)

3.2 Perceptions of ICT Teachers About Using Games in Education

There were 19 items in the questionnaire for revealing the general perceptions of preservice ICT teachers towards using games in education. The results showed that they pretty much agreed on all of the statements except one. For majority of preservice ICT teachers (94%), games can be useful if they have a clear and realistic goal. Moreover, most of the participants (93.9%) state that computers can be used without any problem along with an accompanying educational program. According to them, computer games could help students to achieve cognitive goals (93.9%), affective goals (90.9%) and psychomotor goals (93.9%) defined in the curriculum. Finally, preservice ICT teachers believed that ccomputer games could be useful if they are used as a supportive learning tool (93.9%) in a collaborative (93.9%) and/or competitive learning environments (69.7%).

Table 2. Perceptions of IT Teachers using Games in Education.

Statement	Disagree	Agree
1. Computer games can be used in each courses	27.2% (*n*=9)	72.8% (*n*=24)
2. Computer games can be used in all educational levels	24.2% (*n*=8)	75.8% (*n*=25)
3. Computer games can be used parallel with the educational program	9.1% (*n*=3)	90.9% (*n*=30)
4. Computer games can be used without any time problem with the educational program	6.1% (*n*=2)	93.9% (*n*=31)
5. Computer games can be used without any class management problem with the educational program	15.2% (*n*=5)	84.8% (*n*=28)
6. Computer games can help student to achieve cognitive goals defined in the curriculum	6.1% (*n*=2)	93.9% (*n*=31)
7. Computer games can help student to achieve affective goals defined in the curriculum	9.1% (*n*=3)	90.9% (*n*=30)
8. Computer games can help student to achieve psychomotor goals defined in the curriculum	6.1% (*n*=2)	93.9% (*n*=31)
9. Computer games can be useful if they are used as a conducive learning tool	6.1% (*n*=2)	93.9% (*n*=31)
10. Computer games can be useful if they are used as the main learning tool	42.4% (*n*=14)	57.6% (*n*=19)
11. Computer games can be useful if they are used as an award	18.2% (*n*=6)	81.8% (*n*=27)
12. Computer games can be useful if they are used as a useful leisure time activity for students	39.4% (*n*=13)	60.6% (*n*=20)
13. Computer games can be useful if they are used in a collaborative learning environment	6.1% (*n*=2)	93.9% (*n*=31)
14. Computer games can be useful if they are used in a competitive learning environment	30.3% (*n*=10)	69.7% (*n*=23)
15. Computer games can be useful if they have a clear goal	6.0% (*n*=2)	94.0% (*n*=31)
16. Computer games can be useful if they have not a clear goal	54.5% (*n*=18)	45.5% (*n*=15)
17. Computer games can be useful if they led students to choose their own goal	12.1% (*n*=4)	84.9% (*n*=28)
18. Computer games can be useful if they have realistic goals.	6.1% (*n*=2)	93.9% (*n*=31)
19. Computer games can be useful if they have fantastic goals.	21.2% (*n*=7)	79.8% (*n*=26)

4 DISCUSSIONS AND CONCLUSION

This study aims to investigate the perceptions of preservice ICT Teachers' about games and their use in educational settings. Results of this study showed that preservice ICT teachers have enough

knowledge about the educational aspects of the games. In addition, they possess a positive perception towards playing games in daily life. For more than half of the preservice ICT teachers, although playing computer games is not one of the most important leisure activities, it is also not a waste of time. This study also reveals that preservice ICT teachers are aware of the benefits of the digital games. They think that playing computer games helps to develop useful skills and knowledge. But, they believe that computers games should be revised or designed from beginning with educational purpose if it is to be used for learning. Finally, they have concerns related with digital games. They believe that games are only suitable for adults and, girls and boys have different game preferences. Most of them agree that computer games lead to addiction and games with violent content affects people negatively.

In this study it is also found that preservice ICT teachers have positive attitudes towards the use of games in educational settings. They believe that computer games can be used in parallel with the educational program and without any problems regarding time constraints. In addition, nearly all of them think that computer games can help students to achieve affective, psychomotor and cognitive goals defined in the curriculum. But for them, they can be useful if they have clear and realistic goals.

Although this study shows that preservice ICT teaches have positive attitudes towards digital games and their use in educational settings, the findings of this study is limited since there are only 33 participants in this study. To generalize these findings, the same study should be conducted with more preservice ICT teachers enrolled in different universities in Turkey. The same study also can be conducted with other students in all levels in the Computer Education and Instructional Technology Department to see whether their perception changes in time or not.

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