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Graphical design issues on educational computer games for children

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Abstract

Games for educational purposes are presented in digital environments as the attention on video games grows and variety of their uses increase. Video games are one of the favorite entertaining activities for kids. Using the kids' attention to video games for educational purposes; helps the intended message to be effectively grasped by the kid. The visual language used in these video games has to be in a structure that aids kids' development. The game should increase the sensibility of the kid with respect to the message given and the visual design. Attractiveness of the visuals and being proper to the target audience in educational games; provides the desired message to be understood effectively.

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1. Game

According to Johan Huizinga (2006), who proposes the idea that game concept do exist even before the culture, we encounter game as a differentiated form of action in “daily” life.

As Aygün (1997) indicates, the reason why the game cannot be identified is; “The game is continuously reproduced and it is constantly updated in the process”. For some people, game is for spending the extra energy; for some others, it is for fulfilling the imitation instinct; for others it satisfies the need of discharge. According to a theory, games aims preparing the younglings (human or animal) for the serious jobs and responsibilities in real life. Another principle claims that game includes motivations such as improving innate abilities or desire of competition (And, 2009).

Games provide communication, sharing and relaxing fields that play an important role in human education process as studied by anthropology, psychology, pedagogy or communication sciences etc. (Binark, 2009).

As it varies from traditional children games such as Hide-and-Seek, Blind Man's Bluff, Dodge Ball; to “archaic” games such as Backgammon, Minesweeper and massively multiplayer online games; definitions for games are different (Binark, 2009).

2. Educational Computer Games

After mid-1980s, digital games have been developed into computer games, video games and electronic games. In Turkey, the computer games are preferred most widely.

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As the popularity and variety of the computer games expand, games are used for educational purposes in schools today. In recent years, it is seen by many academicians that using kids' attention to video games for educational purposes gives important results for development of kids. Whelan (2005) indicates that, the number of researchers and pedagogues increases who claims that game based learning affects schools in a serious degree. According to Gee (2003) the importance of well-designed games are determined by the people's ability to recreate their own worlds in virtual worlds and achievement of learning and entertainment at the same time (Quoted by Çağıltay, 2008).

The visuals in video games have an important role in learning. According to Seferoğlu (2006), researches about learning indicate that the most of the learning happens with visual descriptions. It is a well-known fact that some students learn easier with the help of visual aid. Besides, even students that learn better with audible descriptions need visual support for some concepts.

According to Seferoğlu (2006), visual elements;

- Attracts the learner's attention and guides them,
- Keeps their attention alive,
- Yields them to give emotional reactions,
- Formalizes the concepts,
- Simplifies complex concepts,
- Helps to organize and perceive information by the use of geometric shapes,
- Easily connecting the relations between a concept and its related elements by the use of organization flow charts,
- Gives the chance to grasp some ideas which could be missed otherwise by some of the students (Quoted by: Perkmen, 2009).

The games for educational purposes should be designed for teaching and improving the material learned. According to Petersen, the educational games, when supported with different design techniques, the fun factor will take place of the boring issues in the games so that the students will indeed give right answers to the questions and actually would be easier for them keep the materials in their minds. (Petersen, 2003) Proposing design techniques that enrich the visual world of a child, helps enhancing his imaginary world, and using these games will strengthen the material to be taught.

The video games named "Wild Web Woods", "Truva Avcıları" and "Çevreci Dalgıç" can be given examples for video games to this purpose. They are web based online video games developed with Adobe Flash software.

2.1. Wild Web Woods

The game "Wild Web Woods" (Figure 1) is part of the Council of Europe programme "Building a Europe for and with children". This entertaining and educational game helps kids to be smart internet users by increasing their awareness to internet's negative aspects. At the beginning of the game, it is shown to plug the power cables of the computer case and monitor and connecting the modem to the computer by the help of the guidelines. Main character tries to collect tokens that appear while wandering around. While collecting the tokens, some information about safe usage of the internet is given on the screen. For example; it is shown that specious links that are described as "free games" are not actually safe by the help of visuals and text. As a result; the user earns an awareness token.



Figure 1. Screenshot of “Wild Web Woods”
<http://www.wildwebwoods.org/popup.php?lang=en>

2.2. Truva Avcıları

The game “Truva Avcıları” (Trojan Hunters) (Figure 2) is developed by Telecommunication Presidency in Turkey. Graphical design is created by Seza Soyluççek and software is developed by GelişimPark Education, Informatics and Consulting Limited Company for this game. It is aimed to build awareness for kids about antivirus programs and harmful software such as Trojan horses, spam, worms, and viruses. Player moves the main character to clean out the Trojan horses which are trying to sneak into the computer. During this journey, player tries to avoid other harmful software and collects antivirus programs in order to pass the levels of the game. After ten levels, the computer is completely clean of harmful software and the player has the information about the harmful and helpful software.



Figure 2. Screenshot of “Truva Avcıları”
<http://www.guvenlicocuk.org.tr:8080/guvenliCocuk/guvenliCocukEglenceParkiAction.do?oyunId=15&madalyaId=4&islemTipi=1>

2.3. Çevreci Dalgıç

The graphical design of the game “Çevreci Dalgıç” (Environmentalist Diver) (Figure 3) is designed by Seza Soyluççek, and the software is developed by GelişimPark Education, Informatics and Consulting Limited Company. The game is developed to give the sense of sea cleanness to elementary school kids. The game’s target is to collect waste like plastic and aluminum by using the diver character moving underwater. The harmful items collected are shown at the end of the level with the information of their decomposing time. Thus, the player will understand how harmful every kind of waste is.



Figure 3. Screenshot of “Çevreci Dalgıç”

<http://www.aktifyildizlar.com.tr/aktifYildizlar/aktiflerBedavaOyunAction.do?oyunId=dalgic&documentId=1>

In the light of the given examples, using video games in educational purposes improves the motivation of students to a given subject by keeping their attention at a certain level. Proper and interesting designs for the target audience, fascinating game design, guidelines being encouraging according to the age group helps the message that is wanted to given to the kids to be effectively understood. Additionally, presenting creative visual designs helps to improve kids their own imagination.

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