Children's Interaction and Expectations in a Social Game Environment

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Abstract: - The purpose of this study is to examine children's expectations from games and their interaction patterns while playing computer games. 52 children ages from 8 to 14 participated to the study. Children were allowed to play computer games according to their preferences and interact with each other in a social gaming environment. Data were collected by observing children and taking notes to capture their interaction patterns. Also semi-structured interviews were conducted to examine their expectations from computer games that they had played. Results of the study showed that students mostly interact while learning a new game, providing strategy to their peers and promoting their success. Gender has effect on preference and expectations of games.

Key-Words: - Computer Games, Interaction, Expectancy, Preferences

1 Introduction

For children playing computer games is a very enjoyable free time activity. Internet provides a huge pool for games. Because computer games are easy to reach, some of them may be used in computer laboratories in schools. While online games provide interaction among players who are far from each other, these games when played in classroom environments may also provide interaction in classroom. Children's game preferences, parts, components or issues of games that players like or dislike, cultural or gender differences in terms of expectations of players are very important to determine needs of children.

1.1 Interaction in Social Game Environment

Social interaction provides social competencies and socially constructed knowledge for children. Social negotiation by saying learning mostly takes place when social interaction or communal activity is available [1 cited in 5]. Computer games provide social interaction [16] for children. Studies on this issue report contradictory results [13]. Therefore, it is worthwhile to explore this issue in further studies. However, it should be investigated that whether this effect is positive for students playing games having no characters or avatars in a classroom with their peers. Because in a classroom environment to learn any game or making some competing with their friends students should interact with each other and this provides movements for learning.

Game-like environments also may provide constructing new information. A study of which high school students engaged in a simulation activity, showed that in the collaborative environment all students actively engaged to share their knowledge and articulate them to synthesize new information [2]. Researcher implied that these environments increase students' intrinsic motivation and collaboration, and of course better learning [2]. Collaboration is mostly accounted for motivation. It is stated that cooperation provides interest of students which was stimulated by peer comments and ideas [15 cited in 12]. Supportive models for students which were stimulated by other achiever peer, a criterion for measuring each other's achievement and individual persistence when the group goal face with an obligation [15 cited in 12].

1.2 Expectations from Computer Games

In today's world that computer games are being implemented and integrated within several fields like education, military, health, business etc. In order to get the maximum benefits of games, expectations of target audience should be defined and determined properly. There are some dynamics which are determinative to be aware of the players' expectations from computer games. Studies, in the literature, focused on game preferences of people generally concluded or revealed similar results. It is generally stated that boys prefer playing computer games including fight, sport, adventure, action etc. Nevertheless, girls prefer playing games like adventure and barby like games. For instance, a study emphasized on the relationship between computer game preferences and mental-rotation ability by taking into consideration gender [11]. Results of their study revealed that males and females have different expectations on games. They concluded that while majority of the boys participating to the study classified themselves as action and simulation game players, majority of the girls classified as non-players. It is also concluded that fighting games or action/adventure games are generally played by mainly males, and platform games are played by females [6].

Results of another study revealed that males prefer playing action/arcade games including elements which are mostly related to violence [14]. Similarly, in Turkey, results of the computer game studies focusing on expectancy of players such as their preferences are consistent with the previous findings in the literature. For instance, a study which aimed to determine game play habits and preferences among the Turkish university students [10]. They found that game genre and game preferences are different between male and females. While females generally preferred "Quiz/trivia Games", "Action-Adventure Games", boys generally preferred "Fighting Games", "Action-Adventure Games" and "Sport Games". Results of a study are consistent with these findings [8]. They found that males are dominant on playing games thus computer games are seen as boys' toys.

Like game preferences of people, defining and determining the parts, elements or components of computer games that people mostly like or dislike is very important to meet their expectations. It is concluded by the previous studies (e.g. [7]) that females, dealing with game environment which are supported by narrative components, prefer playing computer games which include narrative characteristics such as stories based on social issues. However, male players prefer to deal with complexity and challenge of game environment, unlike females. This means that there are certain differences between males and females in terms of taking into consideration parts or components of games. For instance, it was claimed that computer games appealing

to girls should have certain characteristics that are including low competition and complexity [3]. In addition, it was found significant differences between males and females in terms of designing computer games and game design preferences [9]. She concluded that males and females have different understandings, preferences and perceptions on this issue.

As stated before, computer games are diffusing in our society. In this study, children's interaction patterns while playing computer games and their expectations from games that they like playing were examined.
Research questions are:
1. What are the interaction patterns of children in an interactive social game environment?
2. What are the game preferences of children?
3. What are children's expectations from computer games that they play?
4. Does gender have an impact on children's interaction patterns?

2 Methodology
This is a qualitative study based on observations and semi-structured interviews with participants.

2.1 Participants
Totally 52 children ages from 8 to 14 participated to the study for 3 weeks period. They participated in a summer school. 35 of children were male and 17 were female. Most of the children were 4th graders (n=15). Also, 3rd graders (n=11) and 8th graders (n=8) were other major groups in the study.

3 Results

3.1 Demographics of Children
Data were collected by observing and conducting interviews with 52 children (35 males and 17 females). Almost all of the children (n=49) have a computer at home. Majority of the children (n=38) have Internet connection at home, and 40 out of 52 children stated that they use Internet 1-5 hours during a week. The reasons why they use Internet were that respectively for chatting (n=18), for checking e-mail (n=18), for getting information (n=25), for making homework (n=34), and for playing games (n=42). It is seen that majority of the children preferred using Internet for playing games.

3.2 Children's Game Play Characteristics
All children reported that they play computer games and 39 of them play 1-5 hours per week. The games that they

are "Sonic" (n=9), "Barbie" (n=6). Also FIFA, Sims, GTA were other games that few of the children preferred playing. The reasons why children preferred playing such games were due to the come characteristics of games. For instance, "entertainment" (n=12), "excitement" (n=5), and "specific characteristics of games" such as action, fighting, adventure etc (n=24) were main reasons. Majority of the children (n=43) stated that they play computer games at home. Other places that they play games were school and Internet cafés.

Almost all children reported that they prefer playing computer games with their friends. They don't want to play games with other players that they don't know. It is also seen that children generally like Flash-based games and such games don't allow them to play with their friends in a multiplayer game environment. Children also stated that their families allow them to play computer games. However, 19 children stated that their families are parental control on their game play by controlling computer game genres and game play frequencies. It is interesting that 21 out of 52 children reported that computer games might be harmful for themselves. They stated that computer games might give damage to their eyes while playing. Also, playing games are time consuming and addiction problems may occur in game play.

3.3 Interaction

3.3.1 Discovering a New Game
Bora, at the beginning of the game, says Ali to "enter your last name", because each time Bora uses his last name to enter games as username. However Ali took for it as a requirement of entrance of games and he also suggested other friends by saying "you should enter your lastname to enter this game". This conversation shows that players are influenced by each other while playing, thus their playing habits are being shaped with interaction. In a heterogeneous group in terms of age, older age children tend to teach games to younger ones. Especially, if the game is on the Internet, younger children have difficulties to find it. In this situation, an older student says younger "tell me the name of game and I will find it".

If a game seems interesting for students, they ask friends how they open it, for example the researchers asked one student how she plays the game of Make Father Angry, Bora came and ask "how did you open it", and then another student said to researcher "please, open the game Deniz playing". Football games are most effective games to increase boys' interaction in classroom. When a boy finds a new football game, most of the boys come next to him and they go to their computer to start the same game.

3.3.2 Sharing Strategies
One of the most important interaction patterns among students is sharing strategies or giving advices to play. For puzzle games, children give clues to solve the game which player should act as fast as they can, peers give clues when they should act, e.g. "immediately you bring out gun, shoot it". In another group, one kid was playing a game which avatar swims, two other students were watching him and cheer "come on, be quick, you will choke".

In one case, three friends were learning by trial and error. They tried to understand rules of the game.
>A: "I think the aim is to bring mouse to cheese"
>B: "hımm, I think, they disappear when they eat cheese"
>A: "but game says, when mice eats cheese, you are done!"

3.3.3 Declaration of Achievement
Success in a game brings admiration, and most students switch to games when they see their friends achieve something in the game. For this reason, they like to announce their success. Especially if they pass some levels of a game, they shout "I passed to the next level". If the game is difficult, it is especially important for children, and they want to make their friends play this game because they want to know what they can do. In a game which player kicks penalty to goalkeeper, one student, encouraged his friends and then while they were playing, proud of himself by saying "See, how I'm challenged while playing".

One boy, while playing a soccer game, meanwhile he was talking like a narrator to illustrate the game. He knew all the players and it seemed that he impersonated style of football narrators. He influenced other children and one child quitted from soccer game switched back to his game. However, after a while, second child quitted again, and then narrator child gave up to vocalization of soccer game. This situation implied that students try to influence their friends to make them play games they like to play. If this effect disappears their motivation to play also disappears. Some time they try to gain this effect by calling their friends "hey sit next to me and see how I jump one level to another". However, in this kind of situation, if player cannot achieve something in the game, they rag by saying "hey, you said you would beat all of them (laughs).

3.4 Preferences

3.4.1 Gender and Genre
In the classroom environment, males and females preferred to sit separately, if they form a group, boys preferred to make group with boys and girls with girls.

On the other hand, boys like to play games in separate computers while girls prefer to play as a group with one computer and giving advices to each other. Genre is important factor for group work because girls preferred to play games requiring design something (Barbie, making cookies or pasta) or puzzle games (Make Father Angry) which are not required act fast. In addition, they had time to listen advices or they decided on some aesthetic issues. However, boys preferred time-based games like, football or fight and the games needs some experience to win. While they were in flow state, it was hard to listen their friends' advices and they mostly wanted to compete with other friends. Another Gender difference in playing games was boys do not like playing with female avatars.

3.4.2 Real Life Relationship
Some games were related to children's real life preferences. Especially in football games, boys preferred to select their teams as their real football teams. One male student like football game because he said "I like sport and adventure games, because sport is a part of my life and football is very excited". On the other hand, in a game which player is a waiter in a café is favored by a girl and she said "I want to open a café when I grow, in this game I'm a waiter and always I carry meals which the chief give me, for this reason I like this game".

3.4.3 Game Character Preference
Gender has impact on avatar preference; boys did not want a female avatar. Children between 7 and 10 especially like animal-like avatars or heroes they know before. In fight games children chose avatars that have most fighting features. Game character is very important for children. If the hero of the game has funny characters students also like acts of character of game rather than goal of game or game environment. For example, a student likes a game because "in this game this man becomes head over heels in a very funny manner when I make mistake and I like this in this game, and to see this funny situation I continue to make mistakes".

3.5 Expectations

3.5.1 Game Experiences
Children's game habits, game preferences and game play frequencies have direct relationship with their expectations from computer games. Children playing SimCity were very comfortable while they were playing the game for the first time. They could easily match their previous experiences and game play habits with that new game environment. Also, they want to see similar features with the games they had been played before in game environment that they face at first. For instance, one of the boys playing SimCity stated that "I mostly play SimCity at home. I like creating an environment especially designing a home. So, when I see a new game, I want it have similar characteristics with SimCity, especially 3D environment and avatar selection".

3.5.2 Gender Effect
Gender differences among players are one of the most dominant factors that have important influences on their expectations from computer games. In the present study, boys and girls had different expectations and perceptions on games. For instance, boys preferred changing games frequently when it is compared to girls. They wanted to play a game which is complex and challenging. It was seen that boys liked dealing with complexity of game environment and challenge of games while playing. These characteristics had direct influence on their motivation. They mostly preferred playing fighting games, action games or sport games. While they were playing sport games (especially football), they expected from their football players or team to be as successful as in real life. Therefore, mostly they preferred to manage football teams which are one of the best in the world.

However, girls generally wanted to play games which have a story, and they stated that narrative structures of games attract them much more than other characteristics. Girls also gave much more importance on avatar appearance which was their 3D representative forms in game environment than boys. They prefer spending time designing their own avatars in 3D environment. Another interesting point of girls was that they didn't switch to other games frequently. They preferred playing a game for a long time and during this time, majority of girls preferred using chat options of the game. However, because they were in a classroom environment, and because they were not able to write fast with keyboard, after a while, they preferred making communication with their friends without using chat platforms.

3.6 Game Components

3.6.1 Avatar
Avatars are virtual representations of players in 3D virtual environments. By using avatars, players can easily figure out their identities and make interaction with others. Therefore, avatars are one of the most important technologies in virtual environments as a game component. In the present study, avatar use or preference was seen as an indicator of children's expectations from a game. For instance, although boys didn't give much more attention to avatars as girls, they mostly preferred matching it with real life. Avatars they met were called their friends name in real life, or famous persons' names in Turkey. In addition, children considered that avatars should meet their needs in virtual environment. If they

select a bigger avatar than the ones that their friends selected, they thought that they could easily beat their friends in virtual environment. Some children wanted to use famous avatars from movies or cartoons like Batman, Spiderman, and Superman etc. A boy stated "I want to beat others by using Batman, because I believe that I can easily beat my enemies with Batman. But, I want Batmen to have more different features such as having spider web". It is seen that children made connection between games and other parts of life such as movies, real life, cartoons etc.

Another important point was that boys didn't want to use female avatars in virtual environment. They mostly preferred using strong and big avatars to beat their enemies. As it was mentioned before, while boys didn't spend too much time to design their own avatar, girls preferred spending long time to design, and they liked to change appearance of their avatars from time to time. Therefore, girls expected from a game to present or allow different possibilities in terms of designing a specific avatars. They also complained some games because of their characteristics which they don't offer such possibilities to players.

3.6.2 Game Environment

Children, in the study, complained many components of game environments, and stated their expectations from a game in terms of interface and computer game environment. For instance, one of the boys stated "There are several components or elements in the game and majority of them aren't used by players. They are all fixed to the game. I don't want to have components which are not necessary to win the game". Also, almost all boys stated that they prefer games offering more vehicles in terms of gun, or knife to beat enemies. Some children stated that some parts of games attract them, or make them excited while playing. A girl stated "I like playing Mario. In Mario, there are some fishes and other creatures. They make me excited while playing, but other parts of the game are boring".

It was also seen that children between 7 and 10 ages didn't want to use chat options of games. Chat platforms were not convenient for them, they mostly preferred not to use it, and communicate by talking within each other. Because all children preferred playing Macromedia Flash or Java based games, they complained such game characteristics too much. For instance, they stated that they wanted to continue the game which they reached the last level in their previous game play. However, such games didn't support this, so children mostly don't prefer starting to the game again.

3.6.3 Navigation

All children preferred playing games by only using mouse instead of the combination of mouse and keyboard. Only experienced game players played computer games requiring using keyboard or keyboard and mouse together. Girls had more difficulties on navigation than boys. They preferred playing games which require simple key combinations or only mouse. A boy stated "Duration of the game, and challenge levels of parts are very important. Also, the way how I should play the game is the most important part of the game to me. Because keyboard and mouse combination should be appropriate to win the game, their inappropriate characteristics decrease my motivation in the game".

Navigation is very important because whether children continue to play or stop it depends on the navigational characteristics of games. A boy stated "I learn hardly how to play a game when I face at first time, and if their navigation is easy to use, and if I am able to deal with it, I continue to play, otherwise, I stop it".

3.6.4 Goals

Aims of games are other important issue that should be taken into consideration. It is seen that children gave importance to the aims of games while playing. They stated that games having unclear goals and aims don't attract them to play. A boy stated "I cannot understand end of some games. They don't have goals and I cannot win anything at end the of the game. These types of games are very boring I think. Every game has to some characteristics and goal is the most important one to me".

4 Conclusion and Discussion

Computer game expectations of children are very important for both game designers and developers. In order to implement and integrate computer games in a specific field properly and beneficially, expectations of target audience should be taken into consideration clearly. It was concluded that there are certain differences in terms of game play habits, game play frequencies, or preferences between males and females [9]. Similarly, in the present study differences were found between boys and girls on not only these issues, but also expectations and interaction patterns of them in an interactive game environment.

In the present study, it was found that avatars are one of the most important components of games. Most of the children, especially girls, preferred playing games which allow them use different avatars or allow designing their own avatar in the game. In terms of game complexity, boys preferred playing games having complex environment and components, although girls preferred less complexity in a game environment. While boys like dealing with challenge during playing, girls don't. This also influences their challenge levels in games. This result is consistent with previous findings. It was found that players prefer to deal with complexity and challenge of game environment, unlike females [3].

Children 8-14 ages don't generally prefer complex games, or 3-D games. They mostly play java or flash-based causal games and majority of them prefer using mouse to control the game. Results of the study are consistent with the previous ones. For instance, females like dealing with a game environment having narrative characteristics [7]. Similarly, in the present study, girls frequently emphasized narrative components of games.

While playing games girls tend to share one computer with other girls on the other hand boys prefer to use one computer by their own. Gender is distinctive when selecting a genre, girls mostly choose game which they design something; these games do not include competition or winning and boys like competition. Avatar preference also changes. Boys avoid girl-like avatars; this situation cannot be observed for girls. It is stated because males are more sensitive to this situation most of the game characters they pick are male [4]. On the other hand, younger children commonly prefer funny game characters, this shows that younger children are interested in funny elements in the game more than competition. Both girls and boys like games which are related to their real life habits or expectations. So, children's real life preferences can be regarded when educational games designed.

While playing a game, children help each other to discover the game, while discovering a game or learning game from other friends, children may gain behaviors of preferences of his friends. This interaction could provide social learning which comes from peer experience. It was also confirm that games provide social interaction and positive interdependence in earning environments [16]. Children also like to declare their success and by doing this they also influence others to play that game. Computer games including instructive parts and components can be useful for children to learn with their peers both learning the game and giving strategy process. Also announcing students' success is a good motivation for children to continue to learning with games.

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