Interaction and Game Engagement based on Players' Background and Preferences

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***Abstract*— Currently, multi-platform development has become increasingly popular in the video games industry; there are now games that have been simultaneously released in multi-platform consoles, computers and mobile devices. We intended to investigate the factors that influence gamers' preferences in the interaction modalities. This article presents an initial study in the exploration of the relationship between games' background, preferred game genres, computer literacy, and so on to identify which kinds of interaction modalities are preferred by the gamers in Malaysia. It is important to know gamers' general preferences across a range of gaming genres and platforms in order to further study deeper engagement issues in gameplay. Participants completed an online survey in which they described their preferences for various game genres and platforms. The results of the survey have yielded some useful data that can help us understand better gamers' preferences, what they like, dislike or are indifferent to.**

***Index Terms*— background, experience, game engagement, game genres, multiplatform, video games.**

I. INTRODUCTION

Over the past years, the focus is shifting toward improving gameplay experiences through the addition of motion capture input devices. Current generation of games are starting to offer controller devices that allow for a more natural, gesture based type of interaction [1]. Nintendo, with their Wii console, has started this movement, and it is now followed by Xbox with their Kinect motion tracking device and PlayStation has introduced the Move; all of these devices allows users to use body and hand gestures as the interaction modality. The Wii device uses handheld or motion sensing controllers that the player has to wave and swing as a way of controlling the elements in games. Meanwhile, Microsoft has come up with the Xbox Kinect to capture the user's body / arm movements with a 3D sensing camera, and this has taken us into the realm of motion sensing without the need to carry any physical controller. Nowadays we can also use our mobile phones and tablets to play games using multi-touch interfaces and, because of this, most people will likely have a gaming device readily available while they are on the go. With these developments in gaming and mobile technologies, games can now offer more natural and richer interaction experiences than previously possible with traditional input devices such as the mouse and keyboard. It is very likely that more and more games will increasingly adopt new modalities of interaction such hand gestures, body movements, and other similar interactions. These and other new types of game devices not only have the ability to capture the interest of a larger audience but they could also influence the player engagement [1].

The purpose of this research is to understand gamers' engagement based on their preferences, playing patterns, demographics, background, and across a range of gaming genres and platforms. For example, game genre might turn out to be the single most influential factor, but what other factors could influence? Age: younger gamers will prefer more fine-level control (e.g. keyboard and mouse) to more intuitive but rough-control (e.g. body gesture and finger touch); Gender: guys will prefer more physical gestures (arm movement, hitting with hand, etc.) and girls prefer more subtle movement (mouse, multi-touch finger gestures, etc.).

We focus on players in Malaysia because of three reasons. First, to the best of our knowledge there has not been any such studies in Malaysia. Second, Malaysia is a unique place where there are three distinctive cultures co-existing together. And, third, its population is relatively young, with the average mean of around 28 years old and more than 45% under the age of 25. Very few countries can claim to have these features, and so results from past studies are transferable. Similar to other studies, a survey method have also been used to gather information from players who are frequent gamers. With this survey it is hoped that we can collect information that can allow us to understanding better engagement of games with a population that has some unique features.

II. LITERATURE RIVIEW

There have been several studies in the literature liking players' demographic background and personality to video game preferences [2], [3], [4], [5], [6], [7], and [8]. The recent study [2] has identified five motivating factors of certain games that have been able to sustain the continuous interest of male students while playing digital games: (1) type of game, (2) content, (3) challenge, (4) control update, and (5) fun. Of

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particular importance, their study have found that students are attracted to games based on the type and content of games that have relevance to them. However, their study has involved a small number of students, and this can pose limitations to the generalizability of their results.

Previous study, [3] have reported on the relationships between gamers' personality and genre in video game experiences. In their study, they have asked participants to report on their current videogame behaviour and genre preferences, and found out that the favourite game genres are shooting, sport racing, fighting, action-adventure, strategy, and role-playing. Using the data they have then assessed their personalities based on the five subscales of the model of personality [9]. Their findings provide evidence of relationship between gamers' personality and gameplay experience, providing further insight into how particular people experience videogames. Similarly, as in [5], has investigated the background and experiences of the students in gaming in order to study whether and how computer games might benefit their learning. The results shows that the gender differences affect their preferences and needs for playing computer games among the students.

Several other studies focusing on player demographics have been carried out [6], [7] and [8]. How players differ from one another and how motivations for playing games are related to players' age, gender, usage patterns and behaviours has discovered [6]. The study shows that the same video game may have different meanings or interpretations according to different players' demographic background. Another study, [7] has examined basic demographic factors of gamers who play popular online computer games (i.e. Everquest). The results indicate that majority of online game players are male, and that the mean age of players is 27.9 years of age. In addition, the social aspects of games represent the most important factors of these online games.

III. METHODOLOGY

A. Participants and Procedure

A total of 42 participants completed the survey. The survey was advertised via social media networks like Facebook, online gaming forums, and personal contacts of the researchers. We were able to track the group of current gamers in the gaming forum and Facebook. An invitation to participate in this survey was sent out to gamers who registered in the forum and Facebook group. The invitation included a link to our survey created with the online survey tool Google Docs (www.docs.google.com).

Participants were asked to report on their basic demographic information (i.e., gender, age, marital status, nationality, education level, occupation), technology skills and experiences (i.e. level of computer literacy, average time spent using computers, experiences with multi-touch devices), playing frequency (i.e., amount of time spent playing games), game platform, genres preferences, their favourite aspects of playing the game, and what their motivations are (if any) for them to play the game.

B. Results

The results from this study show that majority of the participants were male (35 out of 42). Most were students (29), described themselves as ethnic Malays (38), and below the age of 30 (41). Table I shows a summary of participants' demographic data.

TABLE I. PARTICIPANTS' DEMOGRAPHICS INFORMATION.

Demographic	Participants	Total
Gender	Male	**35**
	Female	7
Age	19 and below	20
	20 to 30	**21**
	31 and above	1
Ethnic	Malay	**38**
	Chinese	3
	Others	1
Occupation	Professional	2
	Administrator	2
	Secretary	1
	Technical Expert	2
	Designer	1
	Academic	3
	Student	**29**
	Other	2

In terms of experience with technology and computer literacy, all of participants said that they were computer literate and experienced in using multi-touch devices (i.e., smartphone, tablets), and felt comfortable using them on a daily basis. We also asked what types of applications in multi-touch devices they used frequently. Participants responded that the most commonly used applications are games, followed by communication and social networking apps.

In order to identify how much time they would normally spend on playing games across a long span of time and per session, we asked the participants a few questions about their patterns of gameplay. The average time participants normally spent using a computer varied from a few times a week (4 participants) to 1-3 hours a day (10 participants), to more than 4 hours a day (28 participants). Within a gaming session, eight participants said they would play normally more than 5 hours, seven participants between 3-5 hours, seventeen participants 1-3 hours, while ten participants said they played one hour or less (see Fig. 1). Twenty-nine participants usually played computer games daily, six participants weekly, and the rest seldom like once a month (see Fig. 2). Furthermore, thirty-two participants claimed that they always or often played longer than originally planned. Finally eight participant acknowledged that they were gaming too much, with three of them said that often neglected other activities to play games instead.

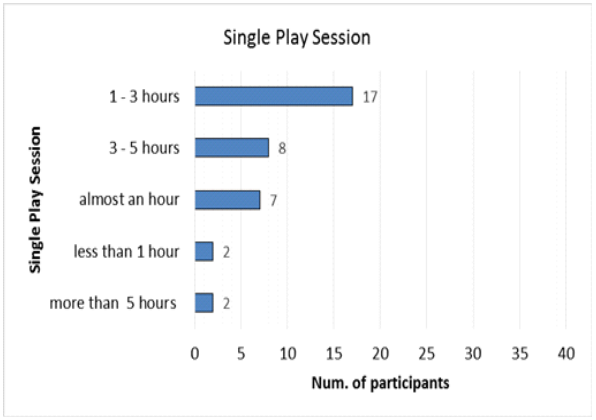

Fig. 1. Length of single play gaming sessions.

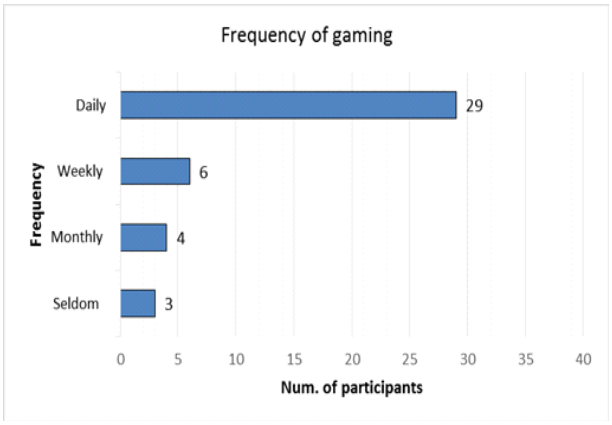

Fig. 2. Frequency of gaming

As stated, another aspect that this study wanted to investigate was gamers' experience with gesture based gaming platforms (i.e. the Kinect and Nintendo Wii). Our results seemed to indicate that Malaysian gamers were not familiar with the gesture based platforms. Twenty-four participants in this study said they preferred to use computers (laptops/desktops) to play games; nine preferred the PlayStation; five smartphones, and the rest chose either tablets and or the Xbox Kinect to play games. Nearly all seemed to have more experience using computers as the main platform to play games. The other platform that they seemed more familiar would be mobile phones, which were followed by the PlayStation and mobile tablets. The Nintendo Wii and Xbox Kinect did not seem to be popular due to them being relatively more expensive and late release in the Malaysian market. While, the Sony PlayStation is economically superior as a pure gaming system, and has an edge in price. Figure 3 shows the distribution of device and platform preferences.

In the survey we also asked about participants' preferred game types and genres. From the results we could that most participants preferred role-playing and adventures, followed closely by action and puzzle games. Strategy and simulation games were the least preferred. Figure 4 shows the distribution of game genre preferences and Table II shows the particular games within each genre participants enjoyed playing.

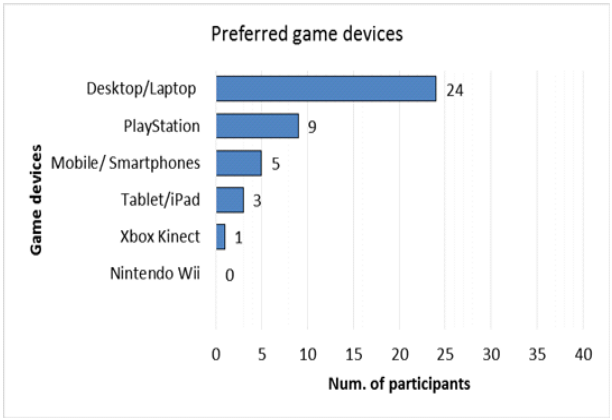

Fig. 3. Distribution of the device preferences in gaming.

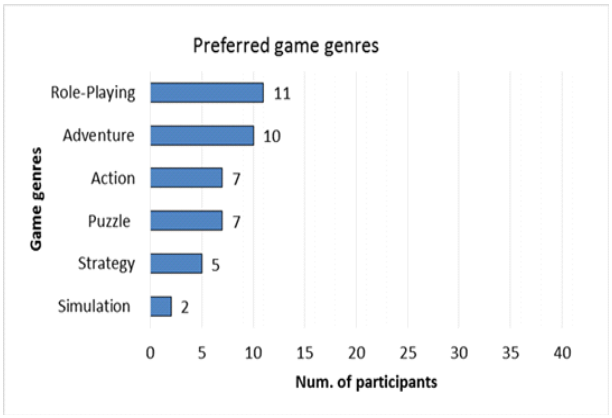

Fig. 4. Preferences for game genres among participants

TABLE II. GAMES THAT ARE POPULAR AMONG THE PARTICIPANTS.

Genres	Games
Action-adventure (first-person shooter, racing, battle, fighting)	Call On Duty (5); World Of Warcraft (7); Defence Of The Ancient, DOTA (9); Counter Strike (6); King Of Fighter (1); Street Fighter (1); Blades Of Time (1); Devil May Cry (3); Batman (2); Grand Thief Auto, GTA (12); Need For Speed (8); Most Wanted (1); Far Cry (2); Assassin's Creed; Crysis (3);Infinity Blade; God Of War; Tekken; WWE Smackdown;
Adventure	Super Mario; Pokemon Series; Digimon Series; Subway Surf;
Strategy	Resident Evil (2); Command And Conqueror (6); Clash Of Clans; StarCraft; Battle Realms;
Puzzle	Tetris (2); Bejewelled; Candy Crush (16); Zuma; Pet Rescue; Angry Birds;
Role-Playing	Final Fantasy (3); Persona (2); Kingdom Heart; Infinity Blade; Suikoden;
Sport	Fifa (7), Pro Evolution Soccer, PES(9)
Simulation	The Sims (3), Flight Simulator (2);

Figure 5 below illustrates the frequency that participants would play each type of game genre. It seemed that action and puzzle games were usually played daily. After that, most gamers liked to play action, role-playing, strategy, and puzzle game at least once a week. Finally, adventure and simulation games were mostly played on a monthly basis.

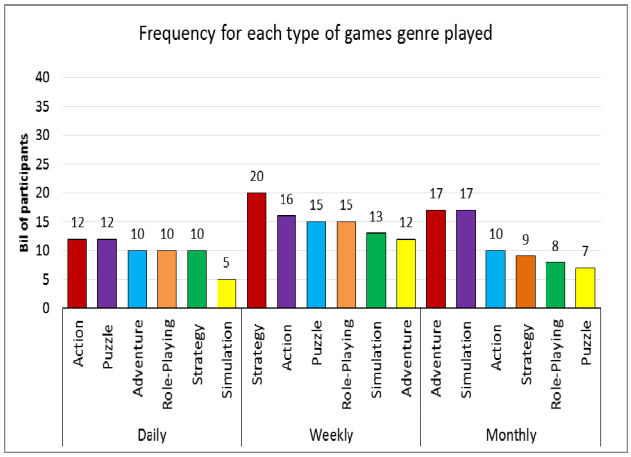

Fig. 5. Frequency for each type of games genre played by the participants

IV. DISCUSSION

As can be expected, the majority of the respondents in this study are male. Gender is the most important factor that can influence engagement in games: males are more interested in games, enjoy games more, spend more time playing games, and are much more likely to play for extended periods of time than females [10]. Similarly, studies seem to show that more than 90% of male students play digital games inside and outside of the school environments in Malaysia [5]. Preferences for new devices and interaction modalities are also influenced by gamers' gender. Almost all our respondent majority are male and they mainly use desktop-based games and the PlayStation as their preferred choices; whereas the females in our study said they would prefer mobile devices which allow simple touch gestures.

This current study appears to have a greater percentage of both adolescent and adult players. Most participants are between 19 to 30 years old. Age differences can impact gamers' preferences and gaming patterns, [7]. Furthermore, most respondents to our survey are current university students pursuing an undergraduate qualification or already had one (see Table 1). We have also found that there is a correlation between age of participants and their preferences for gaming platforms and interaction modalities. Those under 20 prefer novel interaction modalities (such as gesture and touch input) available in the Kinect and mobile tablets; those between 20 and 30 years old also indicated their preference for the novel interactions but currently they are mostly playing on desktop computers using the mouse and keyboard. Some of them did mentioned that Kinect games are more suitable for children because using the Kinect is more tiring physically and it required a large playing space.

What we are examining, then, is the reason why players claim that computer games are fun. Players' motives for playing games provide an alternative perspective on understanding player engagement, which is about factors that have impact on why people might choose to play games. Results from our survey shows that some participants claim that it is the game challenges and goal that make them enjoy playing. Challenge is the top rated motivation for playing games for both males and females [12]. Other factors are the quality of graphics and also the feeling of real life experience. Several of them have commented that some specific games have amazing graphics and give real life like feelings. They felt that they can escape from reality and be in a virtual world or more specifically be immersed in it. Besides these, novelty have been identified as a fun factor which can increase gamers' engagement with computer game. When looking at the features of the game, some participants have indicated that they find novelty of elements in the games or new interaction modalities capture their interest and they become more engaged with these games. The interaction modalities afforded by the different platforms are also part of what they perceived as increasing the 'fun' factor. For example, much of the 'novelty' as the attraction point of games in mobile devices is due to their touch enabled features to allow for playing games with ease. All participants in our survey have said they feel more excited to try and play games with new devices.

Online gaming, as a new trend with a growing influence gamers' engagement, represents a way for them to have social interaction with other players. Some of the participants commented that a game is fun as a form of interaction between people. Social interaction has always been an important part of gameplay experience and engagement, both in arcade settings and for home console games [12]. Modern online multiplayer games, such as World of Warcraft, give players connected to the Internet access to a central virtual world that provides opportunities for both competitive and cooperative group play. These games allow players to band together in short-term groups to accomplish missions in a single gaming session and form longer term groups. This is then followed by the entertainment factors that can help release their stress, and this is another factor for them to play and enjoy playing games. Several participants in our survey engage with games because besides having fun they also release their stress. Another thing that we have identified is that computer games can be entertaining as well as providing soothing visual sensory experiences to players who claim to be able to relax cognitively and mentally. Therefore, these motives provided by the participants in our survey for playing games offer an alternative perspective on engagement issues which involve appraisals of feelings experienced during gameplay.

V. CONCLUSION

The purpose of the current study is to determine gamers' general preferences across a range of gaming genres and platforms in order to study the deeper engagement issues in games. This study provides a glimpse into gamers' preferences, specific games and modalities they prefer, thus contributing to the understanding of the needs and preferences of the local gamers in Malaysia. Moreover, by better understanding these aspects of play we can ultimately identify situations where games might have a negative or positive impact on the player engagement. In the future we intend to extend these analyses into detailed case studies by observing gamers' playing video games at their own settings and time for deeper understanding of engagement in this digital area.

REFERENCES

[1] N. Bianchi-Berthouze, W. W. Kim, & D. Patel, "Does body movement engage you more in digital game play? And Why?" in Affective Computing and Intelligent Interaction, Springer Berlin Heidelberg, pp. 102-113, 2007.

[2] N. M. Sin, O. Talib, T. P. Norishah, A. A. Ishak, & R. Baki, "Male students and digital game: Reason, motivation and feeling" International Journal of Information and Education Technology, pp. 4, 6-11, 2014.

[3] D. Johnson, P. Wyeth, P. Sweetser, & J. Gardner, "Personality, genre and videogame play experience", ACM, pp. 117-120, September, 2012 [4th International Conf. on Fun and Games, 2012]

[4] E. Y. Leng, & R. Baki, "An exploratory study on the reasons and preferences of six Malaysian students on the video games played", International Journal of Environmental and Science Education, vol. 3(1), pp.19-25, 2008.

[5] R. A. Latif, "Understanding Malaysian students as gamers: experience", ACM, pp. 137-141, September, 2007 [2nd International Conf. on Digital interactive media in entertainment and arts, 2007]

[6] N. Yee, "The demographics, motivations, and derived experiences of users of massively multi-user online graphical environments", Presence: Teleoperators and virtual environments, vol. 15(3), 309-329, 2006.

[7] M. D. Griffiths, M. N. Davies, & D. Chappell, "Demographic factors and playing variables in online computer gaming", CyberPsychology & Behavior, vol. 7(4), pp. 479-487, 2004.

[8] R. Noble, K. Ruiz, M. Destefano, & J. Mintz, "Conditions of engagement in game simulation: Contexts of gender, culture and age", [DIGRA Conference, 2003]

[9] O. P. John, L. P. Naumann, & C. J. Soto, "Paradigm shift to the integrative big five trait taxonomy", Handbook of personality: Theory and research, 3, 114-158, 2008.

[10] C. Chou, & M. J. Tsai, "Gender differences in Taiwan high school students' computer game playing", Computers in Human Behavior, vol. 23(1), pp. 812-824, 2007.

[11] E. A. Boyle, T. M. Connolly, T. Hainey, & J. M. Boyle, "Engagement in digital entertainment games: A systematic review", Computers in Human Behavior, vol. 28(3), pp. 771-780, 2012.

[12] K. Lucas, & J. L. Sherry, "Sex differences in video game play: A communication-based explanation", Communication Research, vol. 31 (5), pp. 499–523, 2004.