The Personality of Digital Games Players among Children based on the Brain Hex Model

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Abstract: ***The aim of this study is to develop a framework of children's personality based on the BrainHex model that can help identify the personality of digital games players. A quantitative approach using a survey was used in this study involving a sample of 214 Malaysian children aged 8 – 10. The descriptive analysis used was based on mean scores and frequency. From the analysis, the research findings showed that among the BrainHex model's characteristics, achiever, daredevil, and conqueror emerged as the most dominant characteristics. Surely, such findings have a major implication on the current practice in that the design of children digital games need to take into account such dominant personalities to ensure such games can help players, notably young players or children, to develop sound thinking skills.***

I. INTRODUCTION

Previous research has shown that online or offline digital games (which have been pre-installed in mobile phones) are becoming one of the important necessities in today's information-driven era. In fact, such studies have also shown that such games can help reduce users' sedentary lifestyle and serve as an important teaching and learning (TL) tool, such as serious games and persuasive games. More revealingly, it was observed that digital games based on simulation has a profound impact on users' understanding of a subject matter and on the experience that they have gone through (Busch et al., 2016).

Quite recently, a study by Entertainment Software Association in 2018 showed that 64 percent of the population played digital and video games every day.
Surprisingly, the study showed that women at 33% outnumbered men at 17% in playing such games.

Revised Manuscript Received on May 28, 2019.

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In addition, the same study showed that 70% of parents believed that digital games had a positive influence on their children's lives. For online games, however, more men at 61% far outnumbered women at 39%. Such findings underscore the main challenge that developers have to deal with in developing games that can fulfill the needs of users, especially among young children.

Clearly, digital games players are active players who can interact actively (Papale, 2014) either with a digital game or with another player or other players who are playing the same game. Arguably, such interactions can develop a bond or relationship among players, which ultimately can influence their minds and behaviors as well as personalities. Seemingly, this contention is not unfounded given that the frequency of playing multi-player games among users was high, with 56% of the users indicated that they played games at least once a week and spent almost 7 hours and 6 hours playing online and offline games (Entertainment Software Association, 2018). These findings suggest that digital games do not significantly influence users' personalities.

Essentially, interactions can be viewed as persuasive technology (Torning & Oinas-Kukkonen, 2009) due to its ability to persuade players to change their thinking while playing a game (Bowman & Bank, 2016). In fact, digital games can help create or develop certain characters called pre-character among children (Radovick et al., 2018). Such technology can also manipulate such a character of children, a character that they turn into an avatar or icon, such as Lady Popular and Sansar, among others.

According to Bush et al. (2016), games that are related to personality should provide a better experience to users compared to that of ordinary games. In this regard, a study has shown that the relationship between mastermind and *seeker* has an impact on users' personality; however, the scores of such constructs were not able to predict their games experience. In principle, the characters of players based on the BrainHex model are *seeker*, *survivor*, *mastermind*, *conqueror*, *socializer*, *daredevil*, and *achiever* (BrainHex, 2012). Table 1 summarizes the characters of such digital games players.

Table. 1 Description of BrainHex Model (Batemann et al,. 2011; Nacke et al., 2014; Tondello et al., 2018)

BrainsHex's Model	Description
Achiever	Goal-oriented and motivated by completion. They like to collect and complete everything they can find. They prefer to carry out a series of tasks within their reach, distinct from Conquerors, who prefer to overcome difficult obstacles.
Conqueror	Enjoy struggling against strong opponents until they achieve victory. They channel their anger to achieve victory.
Daredevil	Motivated by excitement and risk-taking by playing on the edge. They enjoy rushing around at high speed while still being in control of the experience.
Mastermind	Solving puzzles, devising strategies, and making the most efficient decisions. They feel rewarded by making well-thought decisions.
Seeker	Exploring the game world and enjoying moments of wonder. This motivation comes from the parts of the brain that process sensory information and memory association.
Socialiser	Interacting with other people, talking to them, helping them, or just hanging around. They are trusting and their behavior connects to their social center in the brain.
Survivor	Frightening experiences in the context of fictional activities. They can be motivated by the intensity of the terror itself or by the relief felt afterwards.

II. OBJECTIVES

1. To identify the dimensions of the BrainHex model.
2. To identify the relationship between the types of players of the BrainHex model based on gender.

III. RESEARCH QUESTIONS

1. What are the dimensions of the Brainhex model
2. Is there a significant relationship between the type of players of BrainHex model based on gender.

IV. RESEARCH METHODOLOGY

This study was carried out with the main aim to identify the type of games preferred by children, their personality, and the relationship between the type of digital games and children' personality and to propose a framework of such a model. This study was conducted in several schools in Perak, Selangor, Negeri Sembilan, Wilayah Persekutuan, and Melaka. The sample of the study comprised 250 respondents aged 8 – 10, who were given a questionnaire form each. However, only 214 forms were collected after the survey.

The research instrument used was a questionnaire form consisting of four (4) main parts to collect relevant information pertaining to students' demographics, BrainHex model, and a list of digital games. Respondents' responses were measured using Likert-type scales ranging from "strongly interested" to "strongly not interested". This reliability of the instrument was tested through a pilot test involving 20 children, revealing an Alpha Cronbach coefficient of .67, signifying that it could be used with a moderate degree of reliability. In addition, some refinements were made to several questionnaire items. Pearson Correlation was used to analyze the relationship between the type of games and children's personality.

V. FINDINGS

Table 2 summarizes the gender of respondents in this study, showing that the 214 respondents were made up of 138 girls (at 64.5%) and 76 boys (at 35.5%).

Table. 2 The distribution of respondents based on gender

Gender	Frequency	Percentage
Boy	76	35.5
Girl	138	64.5
Total	214	100

Table 3 shows the frequency and percentage of the personality of the respondents based on the BrainHex model in terms of gender. Evidently, boys tended to prefer games with the characteristics of achiever, daredevil, conqueror, and socializer against girls who liked playing games with the characteristics of *achiever*, *daredevil*, *mastermind*, *seeker*, and *conqueror*. More revealingly, boys showed less interest in games with the characteristics of *seeker* and *survivor*; by contrast, girls indicated that they did not have a strong interest in playing games with characteristics of socializer and *survivor*. In fact, both genders stated they like to play games with the characteristics of *achiever*, *daredevil*, *conqueror*, and mastermind, not those with the characteristics of survivor and socialize

Table. 3 The frequency and percentage of respondents' personality based on the BrainHex model

Type of games	Boy	Girls	Total
	No. (%)	No. (%)	No. (%)
Seeker	31 (40.79)	76 (55.07)	107 (50)
Survivor	37 (48.68)	55 (39.85)	92 (42.99)
Mastermind	44 (57.89)	81 (58.70)	125 (58.41)
Conqueror	59 (77.63)	73 (52.90)	132 (61.68)
Socializer	49 (64.47)	40 (28.98)	89 (41.59)
Daredevil	61 (80.26)	83 (60.14)	144 (67.29)
Achiever	61 (80.26)	118 (85.51)	179 (83.64)

Note: n = 214 76114

Table 4 shows the type of players based on the BrainHex model. As shown, most respondents had high levels of the characteristics of achiever, daredevil, and conqueror compared to those of other characteristics, which were at moderate levels.

Table.4 Relationships among the type of players based on the Brainhex model

Type of player	Mean	SD
Seeker	2.74	.71
Survivor	2.62	.79
Mastermind	2.89	.64
Conqueror	3.02	.69
Socializer	2.50	.94
Daredevil	3.09	.79
Achiever	3.39	.60

Figure 1 shows the distribution of the components of Brainhex model. As shown, all type of player characteristics were at a moderate level and above, clearly indicating that most respondents exhibited strong characters of achiever, daredevil, and conqueror, underscoring their importance in designing digital games for children. Nevertheless, the importance of other elements should not be overlooked as they too have significant impacts, as evidenced by their moderate influence on children's personality.

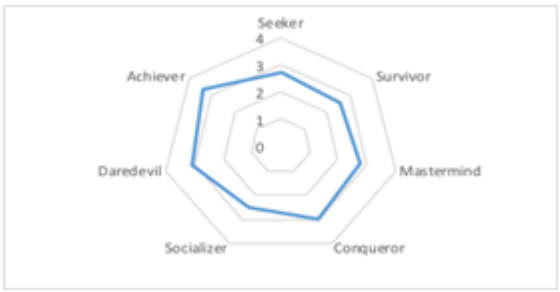

Fig.1 Framework of the BrainHex model

VI. DISCUSSION AND CONCLUSION

Of late, digital games have been gaining strong popularity among users, notably children. In this regard, studies have shown that children will take a relatively longer time than adults to play such games. In fact, the former has been found to spend 7 hours a day playing digital games (ESA, 2018), which can ultimately influence their personality.

Based on the BrainHex model, male children are keener to play games with the characteristics of *achiever*, *conqueror*, *daredevil*, and *socializer* compared to female children who tend to prefer playing games with the characteristics of *achiever*, *daredevil*, and *mastermind*. As revealed, the most dominant characteristics of digital games played by children are *achiever* (in games in which users strive to pursue the highest score), *daredevil* (in games that are highly challenging), and *conquer* (in games that demand empowerments and struggles). Such revelations are not only surprising but also promising as children with strong will and resilient can develop a strong personality to become independent and determined students (Radovick et al., 2018). As such, the developers of digital games need to use such dominant characteristics in designing and developing novel digital games to help children develop a strong personality.

Arguably, the research findings of this study have several implications that may have a profound impact on the current practice of developing and using digital games for users, notably children, by highlighting the three dominant characteristics of digital games, namely achiever, daredevil, and *conquer* based on the BrainHex model. From the practical standpoint, the research findings can be generalized to the larger population given the sample size of the study that was reasonably high. For future research, respondents can be categorized into several groups based on the latest digital games or trends and games under the violence genre can be examined to examine their impact on children's personality.

VII. ACKNOWLEDGEMENTS

This research received funding from Universiti Pendidikan Sultan Idris, Malaysia through special fundamental research grant (GPU -2017-0177-109-01).

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