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## Screening Video Game Screen Addiction using User Interface Preference among Students

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### Abstract

This research investigated the relationship between user interface with screen addiction in understanding its contribution among tertiary student from various programmed / courses in Universiti Teknologi MARA Kedah Branch, Malaysia (N=579). User interface and screen addiction have been used as the primary components of video game analysis. The result analysis indicates that playing video game were suggested to be underlie the recent increasement of time spent on screen-based technologies and has been assume similar with mental health problem. The finding highlighted the significance of usage devices with the screen addiction-based user interface preference.

Keywords: video game; screen addiction; user interface

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### 1.0 Introduction

The use of digital technology was widely implemented and adapted toward millennia generation, which benefit and support into various field or user. The spread of technology was use in many platform-like smartphones, computers, virtual worlds, websites, handheld devices, video games, and others. However, the focus for this research is actually responded toward the issue of addiction was inspired and react the potential further inquiry and preference the use of video game. Previous research on addiction toward technology has been reported that young generation with mobile phone was featured prominently in automobile accidents. Therefore, this research focusses the preference on which interface of video game that choose among students that contribute to addiction matters. The relevant of review related literature as to define and paradigm related issue was strengthening this research and develop potential guideline within appropriate methods with specific model.

### 2.0 Literature Review

The previous and recent related literature was review accordingly and mapping with the associated topic that regard with screening the screen addition on video game by using user interface among students. In connection with the industrial revolution, which is advancing to digital processes, it is necessary to adapt to digital technology. The use of digital technologies changed everyone's lives because they

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were not just used for computers but also in daily life, work, and education (Vargo et al., 2021). Video games, which have historically been considered entertainment-related products, are one of the digital technology sectors with the quickest growth. People worldwide played video games extensively in the early years because they were connected to the digital and connected world. With the advent of the internet, it is now simpler for people to play video games more frequently and on a worldwide scale. In research by Barringer et al., (2018); Gee, (2003), As more educational researchers and instructional designers have established the video game as an alternative teaching approach in classrooms, kids who play video games can gain more experience and powerful learning information compared to learning in the classroom. It has been incorporated into the syllabus at several universities by the instructor. It has been developed by educators as a means of energizing students toward the lesson plan and modernizing the grading scheme. Researchers asserted that playing video games can have a good effect on the player. In one study, it was briefly mentioned that playing video games like action games can improve a player's cognitive abilities, visual attention, perceptual skills, and brain plasticity (Fries et al., 2013; and Wong & Chang, 2018). If the players were students, they would be able to recall the majority of the information from the syllabus more quickly than if they were reading from a textbook or an instructor's PowerPoint presentation. As the video game has been designed with strategy to achieve the greatest ranking and prize, they can practice thinking critically and solving problems. Despite the many advantages that video games have on people's life, they also have certain disadvantages, such as the fact that people can spend up to 40 hours per week online doing things that are unrelated to their professions. On the other hand, those who play video games for two to seven hours a day become disoriented, even when they are not playing (Sathyanarayana Rao et al., 2012). Through computer and video games, people take part in remote action similar to controlling a robot, but in a much more precise way.

By defining online gaming as a potentially anti-social addiction, South Korea's government has emphasized the importance of considering implementing a law to reduce obsessive game use. On the other hand, the United States pays little attention to or concern about the younger generation's commitment to technology (Cavaliere, 2008). In this high-tech era, screen addiction has affected health in light of only supposition, where the term "screen time" refers to the amount of time spent using electronic screens, such as those found in devices like televisions, smartphones, laptops, video games, and other gadgets (PremKumar et al., 2019). The majority of students were found to be addicted on using technological devices, according to research conducted in December 2011 at the University of Maryland.

Their underlying symptoms were observed to be similar to those of persons going through withdrawal from an addictive substance when the devices were forcibly removed from them. Another component of addiction was discovered in studies that linked tech gadget addiction to an increase in traffic collisions and found that young drivers with mobile phone addiction were disproportionately implicated in these collisions (Pei Zheng, 2010); (Bianchi & Phillips, 2005). These studies add to the anxiety and worry that are prevalent in the society around the use of mobile phones. It is because they provide "psychological highs" to users that certain technologies, like video games and smartphone applications, are so addictive (Cash, 2014). Thus, it can be concluded that technology not only has many adverse effects but also is addictive. Numerous researchers have found parallels between the symptoms of melancholy, anxiety, and stress and a sizable amount of the association between video game addiction. The research (Boyan & Sherry, 2011) on gaming disorder contains many aspects that are similar to those of addictions, particularly those to psychoactive substances and gambling problem. A video game has been linked to video game addiction's harmful effects, namely mental dysfunction, physical decline, and social decline (Seok & DaCosta, 2014). It is significant that playing video games has a connection to the signs of despair and anxiety. In a unique longitudinal study of Singaporean teenagers, it was discovered that social anxiety disorder and poor academic performance were two unfavorable outcomes that had gotten worse after the problem was first discovered while playing a video game (Gentile et al., 2011).

A form of interactive technology called human-computer interaction handles user-computer communication (Daniel Bachman et al., 2018). Human computer interaction is one of the fields that is concerned with creating, evaluating, and implementing for human usage of interactive computing systems, according to research done by (Doug A. Bowman et al., 2011). As stated by Koscianski & Zanutto, (2014) interactive design is used to create interactive technologies that are related to the necessity in enabling their use in everyday situations.

As a user interface for preferences, the interactions will be used. According to a review by Alves et al., (2020), to improve the user experience, designers will customize the user interface to each user's unique features. The study by Kim et al, (2014), which had a significant beneficial impact, revealed that the user experience is mostly influenced by the user interface and by the user's participation in video game play, depending on the user interface type. The impact of design and aesthetics on user preferences will undoubtedly have personality aspects when it comes to the creation of specific design elements for the user interface. A user-friendly interface that can adjust to user demands and preferences is becoming increasingly important since it frequently enables customized information processing that makes interaction easier (Jylhä & Hamari, 2020). Clicking a button, for example, is an interactive interaction that adds to the user interface's feedback in producing the user experience. The interaction will be accompanied by multimedia components including sound, text, animations, photos, and video that can help analyze the product information or contain information that must be simpler for the user to understand (Liu, 2021). According (Kannampallil & Abraham, 2020), the user interface's ability to express and comprehend the idea and material through interactivity is crucial. The user experience process in gamification will be connected to the physical user interface, constructive criticism, and storytelling that demonstrates how to value the user (Enggar Pamudyaningrum et al., 2020). Research by Chu & Fowler, (2020) mentions that game-based learning environments have been built to teach knowledge content and skill-based learning where it can boost student motivation and engagement while teaching learning outcomes. Users generally have a better experience when they have control over every programmed or service they use, according to the few ways in which users can influence their interactions with products. They have participated in games, which they must do in order to appreciate and comprehend the gaming interface and what happens when they are playing the player (Ermi, 2005).

### 3.0 Methodology

The research is using a quantitative method and an online questionnaire were used as instrument. The questionnaire was distributed to 577 respondents from various of undergraduate courses and programmed at Universiti Teknologi MARA Kedah Branch. Using the random sampling technique as sample of selection. It is an essential in validating and adjusted the research method and tool in collecting data. The analysis of data is computer-based questionnaire measurement dan collected using Google Form platform. The questionnaire purposely created to screening test question for the screen addiction and user interface preference which respondents need to answer accordingly. The objective of questionnaire is to generate data about respondent’s demographic and the perception toward video game and user interface as preference.

**4.0 Findings and Discussion**

The research titles “Screening Video Game Screen Addiction Using User Interface Preference Among Students” were conducted using online questionnaire involving 579 respondents from various of undergraduate courses and programmed. Overall perceptions of the respondents in this research reveal that they perceive video games as their preferred user interface for the diversity of experiences. In this results of the research, user experience and preference played a role, but video games provided researchers a way to go beyond those factors.

**4.1 Population of Students**

A total of 579 respondents completed the answer the questionnaire voluntarily and anonymously. Among the respondents, 30.1% are male, and 69.9% are female. The respondents under age 19 – 24 years old is undergraduate students from Universiti Teknologi MARA Kedah Branch. The respondents include six faculties representing a range of programs and courses. The students from the faculties of accounting, business management, computer and mathematical sciences, administrative science and policy studies, and information management including college of creative arts. With (N:412) 71.2% of respondents holding diplomas, and (N:167) 28.8% holding bachelor's degrees. The lecturers communicated with the respondents via the WhatsApp app. The responders have been notified that the information they supplied is confidential and will only be used for research purposes. The result was shown in the Table 1 below.

Table 1. Demographic Background

Variable	N	%
<b>Gender</b>		
Female	405	69.9
Male	174	30.1
<b>Age</b>		
19 years old	142	24.5
20 years old	226	39
21 years old	56	9.7
22 years old	76	13.1
23 years old	56	9.7
24 years old	23	4
<b>Faculty</b>		
Faculty of Art and Design	68	7
Faculty of Accountancy	82	14.2
Faculty of Administrative Science and Policy Studies	114	19.7
Faculty of Business Management	268	46.3
Faculty Computer and Mathematical	34	5.9
Faculty Information Management	13	2.2
<b>Semester</b>		
Diploma	412	71.2
Bachelor	167	28.8

**4.2 Video Game Play**

When asked how much time they spent playing video games, the majority of respondents—61.3%—said less than 3 hours per day. 3 to 6 hours were then spent on playing games. One question has been added to the questionnaire in order to determine what gaming equipment has been used by the respondents. The device that the respondents used is displayed in the results in Table 2 below.

Table 2. Gadget use most often.

Gadget	N	%
Smart Phone	557	96.2
Computer / Laptop	392	67.7
Tablet(iPad/Tab)	46	7.9
Video Game Console	35	6

According to the response, 77.3% of students (N = 446) appeared to love playing video games, compared to 22.7% of students (N = 131) who did not. 61.2 percent of them regularly play for three or more hours every day, while 8.2 percent spend close to 12 hours, or one-fourth of the entire 24-hour period. The majority of respondents prefer to download rather than borrow video games, as seen in Table 3.

Table 3. Prefer a acquire in playing the video game

Acquire	N	%
Download games	526	90.8
Buy game from shop	34	5.9
Buy from online store	14	2.4
Borrow the games	4	0.7

### 4.3 Type of Video Game Play by Students

The video game is distinct from other gaming genres, such as action, adventure, fighting, platform, racing, role-playing, shooter, simulation, sports, and strategy (Yi, 2017). As demonstrated by the Likert scale replies, the majority of respondents (58.1%) love playing action games. Educational games, which use game-based learning to train students in the classroom, account for 33.4% of all games played, as seen in Figure 1.

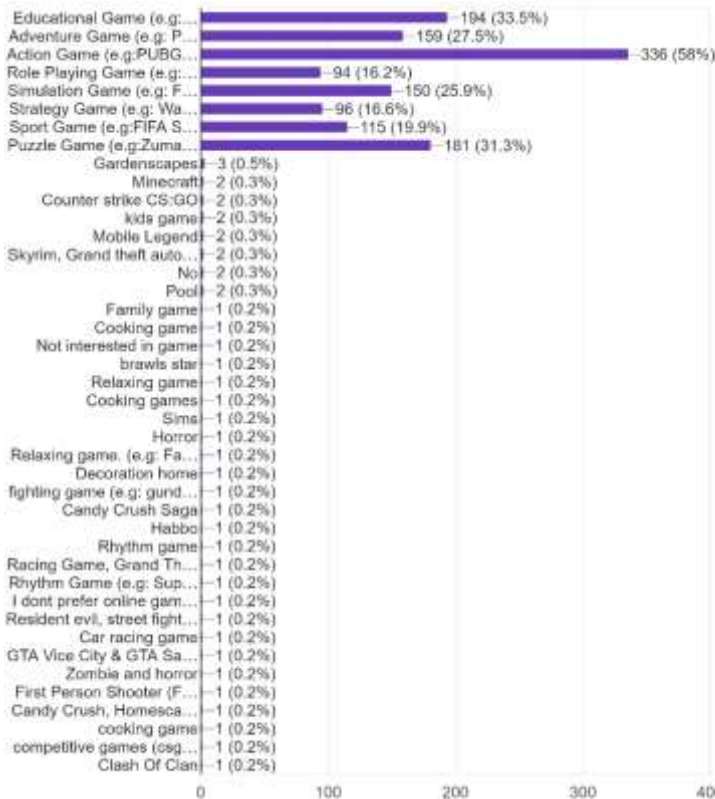


Fig. 1: Game genre that most play by respondents

PUBG is the video game that respondents choose to play the most, as seen in Fig. 2, with 154 responses, followed by Candy Crush with 153 responses. The least preferred games selected by respondents include World of Warcraft, League of Legends, and Fortnite.

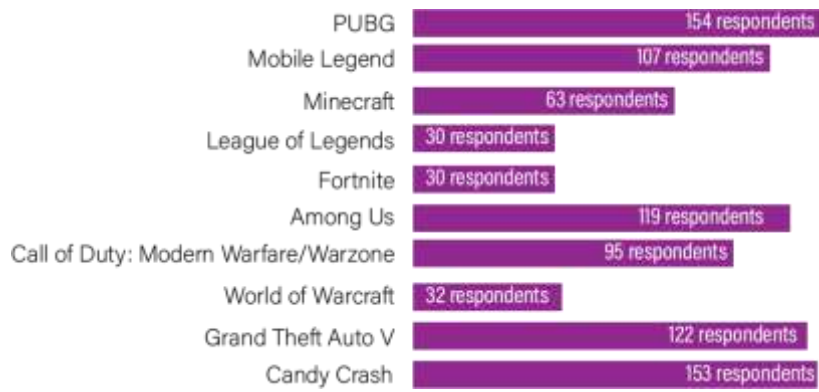


Fig. 2: Most preferable video gameplay by respondents

#### 4.4 Result of Poor Sleeping Patterns

Sleep disturbance was widespread during childhood and adolescence, with prevalence rates ranging from 20 to 40%, according to (Romeo et al., 2013) ; (Simola et al., 2010). In response to one of the questions on a bad sleeping habit, (N:357) 61.9% of respondents said they played video games, which contributed to the problem. As students enjoy playing video games at night, it may be difficult for them to sleep if they continue to play. The majority of respondents said that they spend more than three hours or more each day playing video games in the questionnaires, which are regarded as a valid tool for sleep assessment. In accordance with a study conducted on Hong Kong teenagers (ages 10 to 19), technology increases the chance of developing poor sleep habits, with 86% of the sample using electronic devices that have screens in them and 56% reporting having sleep problems.

#### 4.5 An Attribute of Behavior

It was necessary to ask questions that assessed each respondent's attributes as a result of playing the video game because the analysis' goal is to discover the user motivation. One of the variables influencing how people behave when playing video games is the continuous development of gaming behavior, which is tied to the nature of the game itself. Overall, the respondents claimed that playing video games made them happier, less stressed, and happier, calmer, and more excited with 64.8% for enjoyment when they play the video games. Even though some of them experienced negative traits like paranoia and selfishness, it had no impact on the respondents' overall (N:11) 1.9% and (N:12) 2.1% preference for the traits of conduct they chose after playing video games.



Fig. 3: Behavior characteristic after playing video games

The majority of those who answered "no" to the question about whether they play video games claimed that their involvement in class and performance of their assignments were unaffected. In the findings, it was also noted that pupils experience less stress when playing video games. Additionally, 72.6% of respondents think that playing video games has an influence on how individuals behave.

#### 4.6 Preferable in Game Interface

For the research on interface preferences, the respondents' responses are presented in Figure 4, where they indicate that character design and game prizes are their second and third favorite game interface elements, respectively. Achievement has been the most important component as one of the reasons why students play video games. After winning a game, students are rewarded with a sense of accomplishment. Action games and adventure games are two game genres where character design is crucial. As they must fulfil each assignment set by the game's developer to advance to a higher level, some players equate it to their motivation to show off their capacity for critical thought and problem-solving. The quest and inventory, among other game elements, were what drew in other respondents to play the video game once more, they added. In the conclusion, relevant findings will be discussed in further detail.

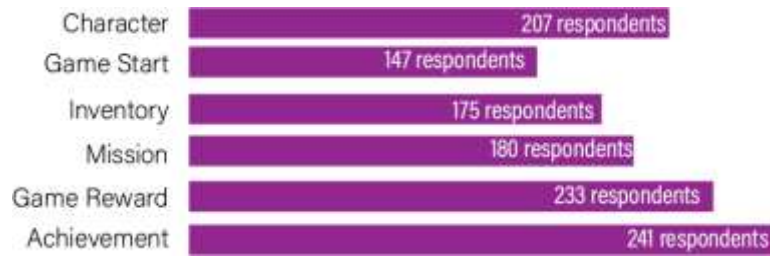


Fig. 4: The preferable item in the game interface

#### 4.7 User interface game-based learning

From the user's perspective, the user interface is a crucial component of an information system. The creation of user interfaces (UI) for software has always been challenging. Therefore, it's crucial to incorporate tools, techniques, and procedures that can make use of the most recent hardware and software developments into the user interface development methodology. By customizing a user interface to each individual, it enables designers to offer a better user experience. The ability to monitor and improve customer satisfaction requires an understanding of user experience (UX) and user interface (UI). Player motivation, learning content, and gameplay are three more elements that may aid in the learning process and help determine how much is learned and how significant the important traits are (Abubakar et al., 2017). Text, image, visual perspective, music, sound effect, voice, color, graphic, layout, shape, form, and texture are all examples of interface requirement in creating a user interface for game-based learning.

Game Aesthetics	Operational Definition
Text	Any readable or written attribute is represented by text, including dialogue, menus, and buttons.
Image	Within the narrative game, the image represents an exterior form of the environment view.
Visual Perspective	For the gameplay view, Visual Perspective stands for first- or third-person game perspective.
Music	The soundtrack for the story game serves as the backdrop music.
Sound Effect	The sound an object in the narrative game makes is represented by a sound effect (other than music and voice). For instance, the sound of a waterfall, birds, and buttons clicking.
Voice	Within the narrative game, voice is the non-playing character's voice.
Color	Color serves as a representation of all the colors used in the game's story environment.
Graphic	Any type of visual depiction of an object that is observed and described in great detail is called a graphic. Some of them are also described as icons' symbols. The button or arrow mark on each pickable object that the player can interact with, for instance.
Layout	The positioning of text and visual elements in dialog boxes and menus for narrative video games is referred to as layout.
Shape	In an unique 2D space, shape represents one of the elements of art.
Form	In a separate 3D space, form symbolizes one of the elements of art.
Texture	Every 3D object in the narrative game has a texture that describes the consistency, appearance, and feel of a substance or surface.

Perceive Learning

Figure 1.3 Revised conceptual model of user interface in creating a perceived learning by Abu Bakar, (2017) for game-based learning

### 3.0 Conclusion & Recommendations

As shown in this research, video games have fewer adverse effects on undergraduate students at the Universiti Teknologi MARA Kedah Branch. There was minimal proof that playing video games had immediate negative consequences on conduct. Each respondent's lifestyle is impacted by the excessive player's development of a bad behavioral feature compared to a positive one. Nevertheless, because it is imperative to manage which players are most at risk for developing a health condition and cannot be handled earlier, poor sleep behavior may be the result. Most of the respondents admitted that they already spend the majority of their time engaging in video games because they have become physically addicted to them. Nowadays, sleep disorders and video game addiction are the focus of practitioners across the globe. Yet, since we are in the fifth industrial revolution, excessive online gaming has helped to improve internet connectivity. Most articles in the middle of the 1990s focused on using internet gaming to treat video game addiction.

The research findings also revealed the following elements to be linked to user motivation not only user interface. Respondents said that the ranking and reward systems encouraged them to play both types of video games (video games and game-based learning), which was a good sign because the lecturer had developed video games as an alternative mode of instruction, particularly with regard to rewards and grades. Regarding the user interface, using the video game's preferences as a guideline can help improve game-based learning in the classroom. Additionally, the students recommended that the educator develop original and imaginative games to keep them engaged. The educator needs to go further into the game's mechanics and every aspect of it in order to make it more engaging.

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