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Mobile Game Addiction and Social Interaction Anxiety of Malaysian Youth

Mohamad Noorman Masrek[1], Waqas Ahmed[2], Abdurrahman Jalil[1], Mohammad Fazli Baharuddin[1]

[1] Faculty of Information Management, Universiti Teknologi MARA, Selangor Branch, Malaysia
[2] UniKL Business School, Universiti Kuala Lumpur, 50300 Kuala Lumpur, Malaysia

mnoorman@uitm.edu.my, waqas.ahmed@s.unikl.edu.my, abdurrahman.jalil@uitm.edu.my, fazli811@uitm.edu.my
Tel: 03-79622001

Abstract
With individuals of all ages confined to their homes for extended periods of time, the pandemic laid the groundwork for an upsurge in online mobile gaming addiction and risky internet usage. According to research, those who are hooked to online gaming are more likely to experience social interaction anxiety. This research is an additional attempt to confirm prior findings in the context of Malaysian youth. The data was acquired via an online questionnaire as part of the survey research procedure. The respondents were reached through convenient sampling, and the 377 replies provided more evidence on the association between gaming addiction and social interaction anxiety.

Keywords: Mobile addiction, social anxiety, youth

1.0 Introduction
Covid-19 became not only a horrific disease that continues to torture humanity to this day, but it is also the source of a slew of sub-problems such as addiction. While reports indicate that the epidemic produced a huge surge in substance misuse, there is one sort of addiction that has actively risen to the top of the rankings — online gaming and internet addiction. With people of all ages confined to their homes for extended periods of time, the pandemic prepared the door for an increase in online mobile game addiction and hazardous internet usage.

According to Apple Insider, the percentage of consumer app spending on the App Store and Google Play climbed by 40% in the first quarter to a total of $32 billion when compared to the same period in 2020. Total app downloads on both main app platforms increased dramatically, with a 10% rise over the previous year. According to the media site, which cited an App Annie research, the epidemic has boosted mobile gaming over the previous year, with gaming downloads outperforming non-gaming apps nearly three times through the troubled 2020.

Since the dawn of digital technologies, many software developers have developed digital games. With the widespread of personal computers many people have used adopted digital games as a source of entertainment. Slowly, people of all ages especially teenager and adults have so obsessive and reach to the point where they become addicted. The situation get worsen when the Internet and mobile phone started to penetrate households. More teenagers and youth are greatly affected as they become so hooked to the digital games. As the time spent on mobile games increases, physical interaction with people have become less and this has an impact to their social interaction capabilities. Many studies have shown that there is an association between on-line games addiction and social interaction

capabilities (Hyun et al. 2015; Park et al. 2016). Those who spent a great deal of time to playing digital games have the tendency to develop anxiety when socializing with other people.

Previous research into the link between game addiction and social interaction anxiety has been focused on personal computers rather than mobile phones. Unlike personal computers, mobile phones are easier to transport and use in a variety of situations. People can simply play games on their mobile phones while travelling by airline, bus, automobile, or even in the audience of any concert or presentation, as opposed to playing games on personal computers. Furthermore, people can continue to play mobile games while using the restroom. This disparity has left certain gaps in our understanding of mobile addiction, particularly during the pandemic's global lockdown. Hence, the aim of the study is to examine the relationship between mobile game addiction and social interaction anxiety. The study focuses on youth because this group of users has received little attention in prior studies.

2.0 Literature Review

2.1 Games Addiction
According to Sussman and Sussman (2011), at its inception, "addiction" simply meant "giving over" or being "very dedicated" to a person or activity, or engaging in a regular behaviour, which might have positive or negative consequences. Griffiths (2017) described addiction as a condition that may be classified as either substance or behavioural. Substance addiction (or drug addiction) is a neuropsychiatric disorder characterised by an uncontrollable desire to use the drug despite adverse consequences, whereas non-substance addiction (or behavioural addiction) encompasses pathological gambling, food addiction, and digital addiction (Zou et al. 2017). Behavioral addiction, such as digital addiction, is comparable to drug addiction in that the individual is addicted to the behaviour or emotion elicited by the relevant activity rather than the substance (Alavi et al., 2012).

There are several types of digital addiction, including (1) cybersexual addiction (compulsive access to sex and pornographic websites), (2) cyber-relationship addiction (excessive involvement in online relationships), (3) net-compulsions (online gambling, online gaming, obsessive shopping, or day trading), (4) information overload (excessive web browsing or database searching), and (5) computer addiction (obsessive video gaming) (Young, 1999, Masrek et al. 2012). With the advancement and sophistication of mobile technology, digital addiction has rapidly transitioned from desktop computers to mobile technology, particularly smartphones.

Addiction to mobile games is a somewhat unique type of addictive behaviour (Jin et al., 2021). The primary symptom is that the individual is very reliant on the game, and the patient is strongly hooked to the gaming world, losing sight of the fact that one must confront reality, which has a significant impact on the individual's regular life. Addiction to mobile games puts a person at risk for a variety of physical and mental health issues. It can also cause substantial difficulties in one's daily life. ADD and ADHD, learning difficulties, weight gain, poor personal cleanliness, increased anxiety, sleep disorders, and poor diet are some of the prevalent issues noticed in persons suffering from a mobile game addiction.

Many factors are associated to mobile addiction which can be the individual traits, the mobile game itself (i.e. the innovation), the surroundings or environment. Babu (2022) indentified the reasons why so many people are addicted to mobile games are ease of access, freemium or free, attractive appreciation, amazing design and graphics, the pleasure of connecting with strangers, technically complete, no additional hardware required, never ending stages, socialization, unpredictable awards and complex challenges.

2.2 Social Interaction Anxiety
Social anxiety is a condition in which a person feels uneasy or uncomfortable when others observe or judge them when conversing or socialising. This feeling frequently stems from the belief that one's own activities and actions are disliked by others (Gilbert & Procter, 2006). In extreme conditions, people with social anxiety feel frightened and unsafe when they are being watched or assessed while performing their daily activities such as walking, standing, sitting, eating or drinking (Nicholls, Staiger, Williams, Richardson, & Kambouropoulos, 2014).

Social interaction anxiety infects all ages of people, whether children, teenagers, adults or older people. The youth group is no exception. Jefferies & Ungar (2020) investigated social interaction anxiety among youth in seven countries: Brazil, China, Indonesia, Russia, Thailand, the United States, and Vietnam. The Social Interaction Anxiety Scale was completed by the respondents (SIAS). The findings revealed that the global prevalence of social anxiety was substantially higher than previously reported, with more than one-third (36%) of respondents matching the criteria for having Social Anxiety Disorder (SAD). A study conducted by Morrissette (2021) found that when schools and educational centers were forced to close due to COVID19, many youth began to develop social anxiety problems. This is because they are afraid of being infected by the disease if they leave the house and interact with the general public.

3.0 Theoretical Framework and Hypothesis
Figure 1 presents the theoretical framework of the study. The independent variable is games addition while social interactions anxiety is the dependent variable. Games addiction consists of seven dimensions, derived from the work of Lemmens et al. (2009) while social interaction anxiety is derived from Mattick & Clarke (1998). Salience occurs when playing a game becomes the most essential activity in a person's life and takes over their thoughts (preoccupation), feelings (cravings), and actions (excessive use). Tolerance refers to the process through which a person gradually increases the amount of time spent playing games by playing them more often. Mood modification refers to the subjective sensations such as tranquillizing and/or relaxing feelings associated with escapism that people describe as a result of game playing. Withdrawal is the unpleasant emotions and/or physical effects that occur when game play is abruptly stopped. Relapse is the propensity to repeatedly revert to earlier trends of game play. Conflict refers to all interpersonal conflicts resulting

from excessive gaming and may include arguments and neglect, but also lies and deception. Problems caused by excessive game play, which may also arise within the individual, such as intrapsychic conflict and subjective feelings of loss of control.

Fig. 1: Theoretical Framework
(Source: Authors)

Previous studies revealed that socially anxious people may view the Internet as a safer social setting than face-to-face encounters leading to a preference for online sociability (Huang, 2022). As a result of this psychological susceptibility individuals may be predisposed to online gaming. According to Hyun et al. (2015) and Park et al. (2016) individuals with a major predisposition for problematic or addicted online gaming reported considerably greater social anxiety levels than non-problematic or engaged gamers. To this effect, the following hypothesis is put forward: *H1: Mobile Game Addiction has a positive and significant relationship with social interaction anxiety.*

3.0 Research Methodology

Following the suggestion by Noordin & Masrek (2016), this study used survey research method. In terms of data gathering, the study employed survey and questionnaire techniques. The questionnaire was based on Lemmens et al. (2009) and Mattick & Clarke's work (1998). Each construct was assessed using a number of items in the form of statements. "Strongly agree," "agree," "undecided," "disagree," and "strongly disagree" are the five-point Likert scales associated with each item. On this scale, respondents were asked to rate their level of agreeability. To ensure that the questionnaire is free from common method bias, the guidelines by Masrek & Heriyanto (2021) was adhered. The questionnaire was pre-tested with multiple experts and pilot tested with 30 potential respondents prior to collecting the research data. The questionnaire was revised based on the feedback and suggestions received during the pre-testing exercises.

The Cronbach Alpha Scores for all constructs were substantially above 0.7, indicating that the questionnaire was acceptable in terms of reliability. Due to the lack of a suitable population sample frame, the study had to rely on a non-probability sampling technique. Purposive sampling was used to identify the intended respondents from the researcher's social media contact list. This method is suitable because the study's goal is to produce theoretical generalisation rather than population generalisation. Statistical software, SPSS Version 24.0 and SmartPLS Version 3.0, were used to analyse the data. SPSS Version 24.0 was utilised for descriptive analysis, and SmartPLS Version 3.0 was used for partial least square structural equation modelling.

4.0 Findings

Table 1 presents the demographic details of the respondents. Out of 377 respondents, 38.7% were male while the remaining were female. As the focus on the study is on youth, the age range is between 18 and 24. The biggest chunk of the respondents were aged 24 years old (28.6%) followed by those aged 20 and 22 (13.3%). In terms if highest academic qualification, the majority have completed degree (54.4%) while the minority was having either PMR (lower secondary school certificate) or STPM (higher education certificate equivalent to pre-university preparation program). The respondents were mainly university students and still unemployed (51.7%). 22.3% also indicated that they are already employed full time. About 22.3% indicated that they have used mobile phones more than 12 years while 18.8% responded that they have used mobile phone between 7 and 8 years.

Table 1: Demographic Profiles of Respondents

		Frequency	Percent
Gender	Male	146	38.7
	Female	231	61.3
Age	18	25	6.6
	19	33	8.8
	20	50	13.3
	21	31	8.2
	22	50	13.3
	23	80	21.2
	24	108	28.6
Highest Academic Qualification	PMR	12	3.2
	SPM	50	13.3
	STPM	12	3.2
	Diploma	90	23.9
	Degree	205	54.4
	Professional	8	2.1
Employment Status	Full time student and unemployed	195	51.7
	Full time student and working part time	47	12.5
	Part time student and working part time	11	2.9
	Part time student and working full time	8	2.1

	Unemployed and no longer a student	32	8.5
	Employed full time and no longer a student	84	22.3
Years Using Mobile Phone	Less than 1 year	6	1.6
	Between 1 and 2 years	6	1.6
	Between 3 and 4 years	25	6.6
	Between 5 and 6 years	69	18.3
	Between 7 and 8 years	71	18.8
	Between 9 and 10 years	63	16.7
	Between 11 and 12 years	49	13.0
	More than 12 years	88	23.3

(Source: Authors)

Table 2 illustrates the results of the convergent validity assessment of the instrument. This study adopted second-order assessment instead of first order assessment for the mobile game addiction. The reason is to conform to the proponent of the instrument who developed the instrument as a multidimensional construct. The factor loading for all items are well above 0.5, while the composite reliability and average variance extracted are above 0.7 and 0.5 respectively. These values suggest that the instrument has fulfilled the convergent validity requirements.

Table 2: Convergent Validity Assessment

	Composite Reliability	Average Variance Extracted
Mobile Game Addiction	0.958	0.526
Social Interaction Anxiety	0.961	0.566

(Source: Authors)

To further assess the measurement model, the discriminant validity was ascertain using the Fornell & Larcker (1981) criteria. According to Hair et al. (2017), discriminant validity can be assumed when the square root of the AVE of the construct surpass the correlation value between construct. Apparently, as shown in Table 3.0, this requirement is also met, suggesting there is no issue regarding the instrument's discriminant validity.

Table 3: Discriminant Validity Assessment Based on Fornell & Larcker (1981)

	Mobile Game Addiction	Social Interaction Anxiety
Mobile Game Addiction	0.725	
Social Interaction Anxiety	0.386	0.752

(Source: Authors)

As presented in the previous section, this study has established one hypothesis, which relate to the research objectives. To test the hypothesis, the structural model is assessed and the results are summarized in Table 4. The results revealed that the path is significant as the β value is well above 0.3 (Cohen, 1988) with the corresponding t-value of 8.915 (p value < 0.001). However, the predictive relevance R^2 is relatively low but still significant. The score of Q^2 further confirmed the presence of predictive relevance of the model whereby the value is well above 0.10 (Falk & Miller, 1992). The score f^2 suggest the effect size of the model is medium and this is quite acceptable. Given this results, the hypothesis of the study is fully supported.

Table 4: Measurement Model Assessment

	β	t-value	p-value	R^2	Q^2	f^2
Mobile Game Addiction →Social Interaction Anxiety	0.386	8.915	0	0.149	0.080	0.175

(Source: Authors)

5.0 Discussion

The findings of the study are quite comparable to previous studies (Hyun et al. 2015 and Park et al. 2016). The results suggest that construct measuring mobile game addiction, namely, salience, tolerance, mood modifications, withdrawal, relapse, conflicts and problems do have some connection with social interaction anxiety. As most mobile games are played on the internet, the developers are always making new ones. Players will always come back for the next steps that lead to addiction. There are many social media sites where gamers can post about how well they did in most mobile games, so they can show off to their friends. They play more and break more stages in order to be more proud and get more attention. The mobile phone game app has a lot of prizes and rewards that make people, just like the respondents of this study, want to play more. The prize money and awards make sure that they keep playing the game and finish the whole way. Games are made in a way that makes it hard for people to get through a lot of things while playing. The different challenges and experiences make people want to play the game again and again. Because of the time spent on the game is too much, little time is available for the gamers to physical interacts with people, not only with outsiders like friends or neighbours but also with family members who are living under one roof. Slowly and gradually, the social interactions skills become diminished.

6.0 Conclusion

The aim of the study has been to examine the relationship between mobile game addiction and social interaction anxiety. The findings have shown that the relationship between these constructs are significantly positive and this supporting the hypothesis of the study. The results suggest that mobile games addiction have to some extent, a detrimental effect on an individual's social competencies. From the practical perspective, it sends a strong message on the importance of limiting our time on engaging game playing. As shown in the study, when users reached the point of addiction, there is a possibility to experience social anxiety.

While the study has achieved its objective, it is also subject to several limitation. Firstly, the results while still significant, has relatively low predictive power. More research is needed to validate our findings. The uneven composition of the educational background of the respondents could perhaps have bearing on this results. To this effect, it is suggested that future research can further replicate this study with attention given to ensure homogeneity of the respondents.

Acknowledgements

References

Alavi, S. S., Ferdosi, M., Jannatifard, F., Eslami, M., Alaghemandan, H. and Setare, M. (2012). Behavioral Addiction versus Substance Addiction: Correspondence of Psychiatric and Psychological Views. *International journal of preventive medicine*, *3*(4), 290–294.

Babu, J. (2022). Mobile Game Addiction: Has It Affected You?. WeTheGeek. https://wethegeek.com/mobile-game-addiction-has-it-affected-you/

Caplan SE. (2010). Theory and measurement of generalized problematic Internet use: a two-step approach. *Computer Human Behavior*, 26(5),1089–1097.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Falk, R.F. and Miller, N.B. (1992) A Primer for Soft Modeling. University of Akron Press, Akron.

Fornell, C. and Larcker, D.F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18 (1), 39-50.

Gilbert, P., & Procter, S. (2006). Compassionate Mind Training for People with High Shame and Self-Criticism: Overview and Pilot Study of a Group Therapy Approach. *Clinical Psychology & Psychotherapy*, *13*(6), 353-379.

Griffiths M. D. (2017). Behavioural addiction and substance addiction should be defined by their similarities not their dissimilarities. *Addiction (Abingdon, England)*, *112*(10), 1718–1720.

Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2017) A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 2nd Edition, Sage Publications Inc., Thousand Oaks, CA.

Huang C. (2022). A meta-analysis of the problematic social media use and mental health. International Journal of Social Psychiatry. 68(1):12-33.

Hyun GJ, Han DH, Lee YS, Kang KD, Yoo SK, Chung US, Renshaw PF. (2015) Risk factors associated with online game addiction: a hierarchical model. *Computer Human Behavior*, 48, 706–713.

Jefferies, P., & Ungar, M. (2020). Social anxiety in young people: A prevalence study in seven countries. *PloS one*, *15*(9), e0239133. https://doi.org/10.1371/journal.pone.0239133

Jin, Y., Qin, L., Zhang, H. and Zhang, R. (2021). Social Factors Associated with Video Game Addiction Among Teenagers: School, Family and Peers. Advances in Social Science, Education and Humanities Research, volume, 615, 763-768.

Lemmens JS, Valkenburg PM and Peter J (2009) Development and validation of a game addiction scale for adolescents. Media Psychology 12, 77–95.

Masrek, M.N. and Heriyanto, H. (2021). Prosedur Perbaikan untuk Mengontrol dan Meminimalkan Varian Metode Umum dalam Survei Penelitian Ilmu Perpustakaan dan Informasi. *Palimpsest: Journal Ilmu Informasi dan Perpustakaan,* 12(1),1-11.

Masrek, M.N., Aziz, N.S.A and Johare, R. (2012). The relationship between Internet Attitude and Internet Addiction. *Asian Journal of Information Technology,* 11(4), 125-130.

Mattick, R. P. and Clarke, J. (1989). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*(4), 455-470.

Morrissette M. (2021). School Closures and Social Anxiety During the COVID-19 Pandemic. *Journal of the American Academy of Child and Adolescent Psychiatry*, *60*(1), 6–7. https://doi.org/10.1016/j.jaac.2020.08.436

Nicholls, J. M., Staiger, P. K., Williams, J. S., Richardson, B., and Kambouropoulos, N. (2014). When social anxiety co-occurs with substance use: does an impulsive social anxiety subtype explain this unexpected relationship? *Psychiatry research, 220 (3),* 909-14.

Noordin, S.A. and Masrek, M.N. (2016). Adopting the Quantitative and Qualitative Methods in the Social Science Research: Justifying the Underpinning Philosophical Orientation. Proceeding of the 28th IBIMA Conference, Seville, Spain, 9-10 November 2016.

Park JH, Han DH, Kim BN, Cheong JH, and Lee YS. (2016) Correlations among social anxiety, self-esteem, impulsivity, and game genre in patients with problematic online game playing. *Psychiatry Investigation*,13(3), 297.

Strahan, E.Y. (2003). The effects of social anxiety and social skills on academic performance. *Personality and Individual Differences, 34*(2), 347-366.

Sussman, S. and Sussman, A.N. (2011). Considering the definition of addiction. *International Journal Environment Research Public Health*, 8, 4025-4038.

Young, K. (1999). Internet addiction: Evaluation and treatment. Student British Medical Journal, 7:351–352

Zou, Z., Wang, H., d'Oleire Uquillas, F., Wang, X., Ding, J., and Chen, H. (2017). Definition of Substance and Non-substance Addiction. *Advances in experimental medicine and biology*, *1010*, 21–41