



## Mediating Effect of Attitude on Awareness toward the Addiction Behaviour of Pokémon Go Players in Malaysia

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### ABSTRACT

**Objective** – This study looks at the addiction behaviour of Pokémon Go players in Malaysia. Its purpose is to identify the addiction behaviour of Pokémon Go players in terms of their awareness and attitude. Using the Theory of Planned Behaviour (TPB), the objectives of the study are (1) to identify the level of awareness, attitude and addiction behaviour of Pokémon Go players in Malaysia; (2) to determine the relationships among addiction behaviour, awareness, and attitude of Pokémon Go players; and (3) to investigate the mediating effect of attitude on awareness toward the addiction behaviour of Pokémon Go players.

**Methodology** – This study employs the quantitative research design using a self-administered survey questionnaire for data collection. A total of 270 respondents are identified from selected places in the Klang Valley.

**Findings** – The study finds that the addiction behaviour of Pokémon Go players are significantly related to awareness and attitude. In addition, attitude partially mediates the relationship between awareness and addiction behaviour on Pokémon Go players.

**Novelty** – The level of Pokémon Go addiction behaviour is low. Therefore, it posits that the addiction behaviour of Pokémon Go is neither chronic nor a threatening phenomenon in Malaysia.

**Type of Paper:** Empirical

**Keywords:** Gaming attitude; Malaysia; Pokémon Go addiction behaviour; Pokémon Go awareness; Theory of Planned Behaviour.

**JEL Classification:** D11, L82, L86.

### 1. Introduction

Pokémon Go is a location-based augmented reality game that first swept the globe in 2016. Originally, Pokémon was a popular children anime and game which has been expanded from Nintendo game boy, a handheld video game device to films, toys, and trading cards until it is rebranded to become online gaming (Ashinoff, 2014; Ling, 2016). Malaysia is no exception to be hit by Pokémon Go which has taken the world by storm since it was launched on August 6, 2016 (Kumar, 2016). He reports that the game is especially

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popular among people in their 20s, including professionals and university students who grew up watching and being attached to the Pokémon anime TV show and video game.

The research is set to find out the addictive behavior of Pokémon go users in Malaysia. It aims (1) to identify the level of awareness, attitude, and addiction behavior of Pokémon Go players in Malaysia; (2) to determine the relationship among addiction behavior, awareness, and attitude of Pokémon Go players; and (3) to investigate the mediating effect of attitude on awareness toward the addiction behavior of Pokémon Go players.

Palernos (2017) finds that the police have proposed safety guidelines to remind Pokémon Go players of accident cases and property trespassing. Several concerns on the Malaysian social fabric have also been raised, especially in relation to safety and security issues. The Malaysian Communications and Multimedia Commission (MCMC) advises and promotes public safety among players to curb undesirable incidents such as robbery, burglary, injury, invasion of personal space, addiction, and emotional disorder (NST, 2016). Security experts have warned that the game application poses a huge security risk as it can be used for espionage and information gathering (Ling, 2016).

Psychology and Education have laid foundation studies on online gaming, but restricted works have been conducted in Communication research, compared to the hype and craze for Pokémon Go (Blinka & Mikuska, 2014). Therefore, the current findings may provide insights to narrow the gap in understanding the addiction behavior among game players in Malaysia. The results can provide input to assist the government in formulating new policies pertaining to public security and safety (May, 2016) and to heighten safety awareness. The output of this study can benefit organizational bodies such as the Association of Malaysian Hauliers (AMH) which can appeal for government funding for the new Global Positioning System (GPS) with a closed-circuit television (CCTV) installed in trucks to ensure drivers practice good safety following the alarming issue of them playing Pokémon Go while driving (Ching, 2016). Finally, this study may contribute further to an understanding of the addiction of Pokémon Go players in Malaysia.

## **2. Literature Review**

### **2.1 Theoretical framework**

This study applies the Theory of Planned Behavior (TPB) by Icek Ajzen (1985) that offers an understanding and new views of the gaming mechanism. TPB is based on the Theory of Reasoned Action (TRA) which states that one's belief affects attitude which, in turn, influences behavior. However, TPB is similar to the inclusion of perceived control on certain behaviors (Haagsma et al., 2012).

TPB is constructed to accurately predict behavior based on the individual's intention (Wong & Lam, 2016) and it explains the intention as one's attitude as well as the norm and control in behavior (Haagsma et al., 2012). This is because the intention is like an instruction, we give ourselves when interacting or engaging in a behavior. Attitude drives the individual to act positively or negatively. Thus, the more positive our attitude on Pokémon Go, the more likely we will keep on playing.

Online gaming is one of the largest growing entertainment systems in the world used by people of all ages. TPB can be used to explain why people spend so much time playing these games (Lee & Tsai, 2010). Sommer (2011) states that background factors that affect attitude include emotions (perception), experience, knowledge (awareness); all of which make up one's personality. Attitude controls and affects our intention which, in turn, influences our behaviour which ultimately lead to addiction.

### **2.2 Addiction in gaming**

Gaming is considered a favorable leisure activity, especially among youngsters. Many studies find that gaming addiction gives similar symptoms (e.g., physical, mental, and emotional withdrawal symptoms) as alcohol and drug addiction (Griffith, 2014; Kuss & Griffiths, 2012). Therefore, there is a concern that parents, friends, and mental health professionals should encourage players to prioritize life events against gaming.

Griffith (2014) adds that addicted gamers will display a loss of interest in hobbies or other activities that have nothing to do with gaming. Since gaming gives the players a sense of escape from their negative mood, they tend to increase their involvement in the game. This type of addiction, like any other, can affect the personal and professional lives of individuals concerned.

### 2.3 Gaming addiction, awareness, and attitude toward Pokémon Go

Attitude is a set of beliefs which helps in deciding if something is good or bad. It includes the tendency to behave in a certain manner in retaining or eliminating an activity (Chaiklin, 2011). Hilgard et al. (2013) state that the more positive feeling one gets from gaming, the more positive the attitude attained. Such an attitude rewards behavior and its control. Therefore, if an individual regards an activity such as gaming positively, then he/she will continue to play. Kneer, Rieger, Ivory and Ferguson (2014) say that players are aware of addictive behavior and the risks that come from a gaming addiction, but they are willing to overlook these negative issues for benefits such as social support from the other gamers. Wong and Lam (2016) explore the relationship between gaming attitude and the addiction behavior among adolescent students in Hong Kong. They find that playing games have a positive impact on them such as a sense of enjoyment and satisfaction.

This study explores awareness and attitude in affecting the Pokémon Go gaming behavior. Hence, it proposes four hypotheses, namely, H1: awareness influences behavior; H2: awareness influences attitude; H3: attitude influences behavior and H4: attitude mediates the effect of awareness on the behavior of Pokémon Go players.

### 3. Research Methodology

The research design used is the quantitative survey method across the Klang Valley targeting at the Pokémon Go player. A self-administered survey questionnaire is the research instrument. The data were collected from 11 to 26 November, 2016. A total of 285 respondents participated in this study, and the valid total of the research sample size was 270. There are 146 male and 124 female respondents with ages ranging from 8 to 60 years old ( $M=24.019$ ,  $SD=6.631$ ).

The survey questionnaire consists of demographic information and self-developed items for awareness and attitude. Addiction behavior items are adopted from the Game Addiction Inventory for Adults (GAIA) (Wong & Hodgins, 2013). Awareness of Pokémon Go consists of 18 items such as 'I heard about the release of Pokémon Go from Facebook', with Cronbach's alpha of 0.869. Ten items on attitude towards Pokémon Go like 'I like the idea of gathering with friends at some place to play Pokémon Go' with  $\alpha = 0.889$ . Ten items are adapted from GAIA used to measure the addictive behavior, for example, 'When I am not playing Pokémon Go, I often feel agitated', with Cronbach's alpha of .919. Items in the questionnaire are measured using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree.

### 4. Results

The results of the study answer the research objectives and test the research hypotheses. Table 1 shows a one-sample t-test, with a test value of 3, to identify the level of awareness, attitude, and addiction behavior. Results show that the awareness of Pokémon Go is significantly low ( $M=2.479$ ,  $SD=0.757$ ;  $t(269) = -11.311$ ,  $p=.000$ ). Attitude towards Pokémon Go is not significant ( $M=3.052$ ,  $SD=0.849$ ;  $t(269) = -0.997$ ,  $p=.320$ ). However, addictive behavior is significantly low ( $M=1.912$ ,  $SD=0.878$ ;  $t(269) = -20.365$ ,  $p = .000$ ).

Table 1. One-sample t-test on awareness, attitude, and addiction behavior

Constructs	M*	SD	t**	Df	P
Awareness	2.479	0.757	-11.311	269	.000
Attitude	3.052	0.849	.997	269	.320
Addiction behavior	1.912	0.878	-20.365	269	.000

\*On 5-point Likert scale: 1=strongly disagree, 2=disagree, 3= slightly agree, 4=agree, 5=strongly agree.

\*\* test value of 3

Pearson's correlation is used to determine the relationship among addiction behavior, awareness, and attitude. For the awareness and addictive behavior, the correlation is  $r=.312$  ( $p=.000$ ). For attitude and addictive behavior, the correlation is  $r=.364$  ( $p=.000$ ) whilst for the attitude and addiction behavior, the correlation is  $r=.364$  ( $p=.000$ ). All the results show that there is a weak significant relationship; thus, H1, H2, and H3 are supported.

Table 2 shows that there is a reduction for beta value of the awareness model 1 ( $\beta=.312$ ) and model 2 ( $\beta=.210$ ). However, the result does not show a full reduction rather a partial reduction. The result indicates that attitude partially mediates the relationship between behavior and awareness. Therefore, H4 of the study is partially supported.

Table 2: Regression for Pokémon Go addiction behavior with awareness and attitude

Model		B	SE	Beta	t	p
1	Constant	1.015	.174		5.821	.000
	Awareness	.362	.067	.312	5.383	.000
F=28.976, df1=1, df2=268, p=.000, R=.312, R <sup>2</sup> =.098, R <sup>2</sup> adj=.165, F change=28.976, df1=1, df2=268, p=.000						
2	Constant	.394	.210		4.869	.062
	Awareness	.243	.069	.210	3.524	.000
	Attitude	.300	.062	.290	4.869	.000
F=27.568, df1=2, df2=267, p=.000, R=.414, R <sup>2</sup> =.171, R <sup>2</sup> adj=.165, F change=23.705, df1=1, df2=267, p=.000						

\*Dependent variable addiction behavior

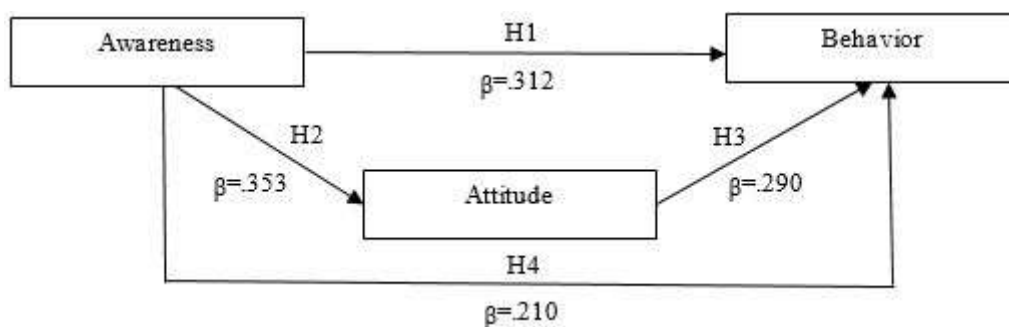


Figure 1. Beta value on Pokémon Go addiction behavior

## 5. Discussion

Pokémon Go is popular among males aged 24 years old. The results of the study show that H1 is supported and there is a weak significant relationship between awareness and addiction behavior. Hence, the more one is aware of Pokémon Go, the more addicted one becomes. This is consistent with LaBerge (1997) and Kneer et al. (2014), who relate awareness to attention as a part of the behavior. H2 is also supported with a weak

significant relationship. This means that if the player is aware of Pokémon Go, there is a possibility that he/she will like the game.

H3 is also supported by a weak but significant relationship between attitude and addiction behavior. Previous studies have found that there is positive relationship between attitude and behavior where if there is a change in attitude, the behavior changes accordingly (Chaiklin, 2011). Hence, the more positive the attitude on Pokémon Go, the more they are likely to be addicted to the game. Similarly, H4 is also supported, that is, the attitude of Pokémon Go players partially mediates the relationship between awareness and the addictive behavior. The preference of the game is more influential than awareness on Pokémon Go.

## 6. Conclusion

All hypotheses in this study are supported by weak but significant correlations between all variables, and attitude partially mediates awareness and the addictive behavior. Therefore, the study has proven that the players' attitude and awareness affect the addiction behavior of Pokémon Go. Thus, the study concludes that even though the level Pokémon Go addictive behavior is statistically significant, it is still low. This implies that the behavior of Pokémon Go players in Malaysia is still manageable and are neither chronic nor threatening.

A few limitations have been found upon conducting the research: the respondents, when approached, are reluctant to participate in the survey as they would rather play Pokémon Go. Another factor is the cooling off period among Pokémon Go users. Some participants are no longer hyped up and even have uninstalled the app. We recommend that in future studies, an online survey be used to reach Pokémon Go players as this will not interrupt their game playing.

## References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhi & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.
- Ashinoff, B. K. (2014). The potential of video games as a pedagogical tool. *Frontiers in Psychology*, 5, 1-5. doi:10.3389/fpsyg.2014.01109
- Blinka, L., & Mikuska, J. (2014). The role of social motivation and sociability of gamers in online game addiction. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 8(2), 1-11.
- Chaiklin, H. (2011). Attitude, behavior and social practice. *The Journal of Sociology & Social Welfare*, 38(1), 31-54.
- Ching, O. T. (2016, August 17). Malaysian truckers told: Don't Pokémon Go and drive. Retrieved from <http://www.nst.com.my/news/2016/08/166116/malaysian-truckers-told-dont-pok%C3%A9mon-go-and-drive>
- Griffiths, M. D. (2014). Gaming addiction in adolescence revisited. *Education and Health*, 32(4), 125-129. Retrieved from <http://sheu.org.uk/x/eh324mg.pdf>
- Haagsma, M. C., King, D. L., Pieterse, M. E., & Peters, O. (2012). Assessing problematic video gaming using the Theory of Planned Behavior: A longitudinal study of Dutch young people. *International Journal of Mental Health and Addiction*, 11(2), 172-185.
- Hilgard, F., Engelhardt, C. R., & Bartholow, B. D. (2013). Individual differences in motives, preferences, and pathology in video games: The gaming attitudes, motives, and experiences scales (GAMES). *Frontiers in Psychology*, 4, 1-13.
- Kneer, J., Rieger, D., Ivory, J. D., & Ferguson, C. (2014). Awareness of risk factors for digital game addiction: Interviewing players and counselors. *International Journal of Mental Health and Addiction*, 12(5), 585-599. doi: 10.1007/s11469-014-9489-y
- Kumar, K. (2016, August 6). You can now catch 'em all: 'Pokemon Go' released in Malaysia. Retrieved from <http://www.themalaymailonline.com/malaysia/article/you-can-now-catch-em-all-pokemon-go-released-in-malaysia>
- Kuss, D. J., & Griffiths, M. D. (2012). Adolescent online gaming addiction. *Education and Health*, 30(1), 15-17.
- Lee, M. C & Tsai, T. R. (2010). What drives people to continue to play online games? An extension of technology model and Theory of Planned Behavior. *International Journal of Human-Computer Interaction*, 26(6), 601-620.

- LaBerge, D. (1997). Defining awareness by the triangular circuit of attention. *Consciousness and Cognition*, 6, 149-181. Retrieved from <http://www.theassc.org/files/assc/2363.pdf>
- Ling, C. S. (2016, July 23). Say 'no' to Pokémon Go. Retrieved from <http://www.nst.com.my/news/2016/07/160127/say-no-pokemon-go>
- May, C. C. (2016, August 12). Citing national security, army chief bans 'Pokemon Go' on camp ground. Retrieved from <http://www.themalaymailonline.com/malaysia/article/citing-national-security-army-chief-bans-pokemon-go-on-camp-grounds>
- NST Online. (2016, August 11). MCMC issues general security guidelines for Pokémon Go. Retrieved from <http://www.nst.com.my/news/2016/08/164659/mcmc-issues-general-security-guidelines-pokemon-go>.
- Palernos, S. O. (2017). *Augmented skepticism: The epistemology design of augmented reality*. (Unpublished, PhD dissertation), University of Edinburgh, Scotland.
- Sommer, L. (2011). The Theory of Planned Behavior and the impact of past behavior. *International Business & Economics Research Journal*, 10(1), 91-110.
- Wong, I. L. K., & Lam, M. P. S. (2016). Gaming behavior and addiction among Hong Kong adolescents. *Asian Journal of Gambling Issue and Public Health*, 6(6). Retrieved from <https://ajgiph.springeropen.com/articles/10.1186/s40405-016-0016-x>.
- Wong, U., & Hodgins, D. C. (2013). Development of the Game Addiction Inventory for Adults (GAIA). *Addiction Research & Theory*, 22(3), 195-209. doi: 10.3109/16066359.2013.82456