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The Factors Influencing Compulsive Social Apps and Its Impact on Technostress among Students

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This research aims to analyse the factors and effect of compulsive social apps usage on technostress among students in private higher education institutions in Malaysia. The determinants examined are the locus of control, materialism, need for touch, social interaction anxiety and technostress. This study is conducted on students who are the largest population using digital technologies in their everyday lives. Five hypotheses were constructed to analyse the determinants of compulsive social apps usage on technostress. A total of 285 valid questionnaires that measured factors of compulsive social apps and technostress were collected through the face-to-face method. The data was analysed using partial least squares (PLS) from students of the private higher education institutions. The mean score of compulsive usage of smartphone (M = 3.92) and that of technostress (M = 3.57) were not above the mid-point 4 in our 5-point scale, suggesting that the participants were not serious compulsive users. The results indicate the need for touch and that technostress is a significant effect of compulsive social apps usage. The findings showed that need for touch has the maximum impact on compulsive social apps usage and technostress.

Keywords: compulsive social apps, technostress, locus of control, materialism, need for touch, social interaction anxiety

INTRODUCTION

Social media is a technology that facilitates the creation of virtual connections and communities through sharing of digital content such as text, photos or videos. Social media can be accessed through a variety of devices including computers, smartphones and tablets. There are many types of social media platforms. Some focus on fostering relationships by facilitating messaging and digital interactions while others revolve around creating and sharing digital content. Some examples of popular social media are Facebook, Twitter, Google+, Wikipedia, Pinterest and LinkedIn. There are other apps that provide a variety of features. Snapchat allows users to send self-deleting picture messages to friends and families. Foursquare is a location-based app that shows you what is nearby based on user suggestion. As a companion app to Facebook, Facebook Messenger simplifies Facebook's messaging feature through a standalone app. This app allows you to create chat groups and comes with typical messaging app features. The Pinterest app allows users to pin content searched from anywhere on the internet. There are a lot of apps that can be build nowadays to attract users.

A few researchers have examined the connection between personal development, compulsive usage of social apps and overuse of mobile apps as possible signs for further investigation. For example, individuals who are not addicted to mobile smartphone usage may still be distressed about mobile app compulsive use during certain daily activities (Ryding and Kuss, 2020). Although they were only restricted to 1% of respondents as addicts, Tang et al. (2016) found that in their analysis of Facebook users found that about 20% of college students were described as compulsive Facebook users.

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Moreover, the effects of compulsive social app usage on technostress has not been well examined. Thus, this study will be investigating the effect of psychological traits on technostress and the relationships between psychological traits, compulsive usage and technostress. The relationship between the four aspects covered include the locus of control, social interaction anxiety, need for touch and materialism which are believed to have correlation with compulsive usage which eventually gives rise to technostress.

Psychological traits are a method to review human identity. Trait theorists are primarily interested in the measurement of traits, which can be described as the patterns of behaviour, thought and emotion of addicted individuals. As such, in this study, psychological traits were used as an underlying theory. Several psychological traits were specifically proposed in this study to determine the factors that affect compulsive social apps usage and technostress among students. Four features were picked: the locus of influence, anxiety about social contact, materialism and the need for touch. The two crucial personality traits used to illustrate compulsive behaviour are the locus of control and materialism (Chak & Leung, 2004; Haynes & Ayliffe, 1991; Rindfleisch, Burroughs, & Denton, 1997; Iskender & Akin, 2010).

Expanded mobile use and reasons for mobile use and enjoyment are also related to anxiety about social media and a desire for contact. A great deal of media attention was placed on the use of smartphone among young adults as a social interaction issue (Atchley & Warden, 2012, Hediansah & Surjono, 2019).

This study makes two contributions to the literature. First the factors and outcomes of compulsive social apps were tested among students. Second, the underlying theory of psychological traits were measured with different cultural settings in a developing country.

Literature Review and Hypothesis Development

Compulsive Social Apps Usage

Compulsive usage has been illustrated by O'Guinn and Faber (1989) as an "answer to an uncontrollable drive to attain, use or experience a sensation, substance or action that leads to repeat conduct that endangers the person or others in a definite way". Subsequently, it will illustrate the design of competition which accounts for all of the person's behaviour such as window shopping, eating and all exercises that have been done in ordinary life as specified by Parylak, Koob and Zorrilla (2011).

Matusik and Mickel (2011) had found that compulsive behaviours are dependent on more particular, negative results of psychological discomforts, such as discouragement. While Lee at al. (2014) mentioned that compulsive behaviours are known as a sign of technostress. In R.K. Jena's (2015) study on the compulsive use of smartphone and technostress among Indian students, the author indicated that the main determinants are gender differences and technological exposure. Nevertheless, the study focused more on technology exposure rather than on social apps usage. Besides that, the findings may only be adequate for technology exposure rather than specifically on social app usage. Besides that, Hsiao et al. (2016) mentioned that compulsive mobile application usage and technostress composed for personality traits and psychological traits, such as extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, external locus control and materialism. This research does not address additional elements such as social interaction anxiety and need for touch. Jeffery a. Clements' (2021) study on compulsive technology use was based on automatic behaviour theory and found that the factors influencing compulsive technology use are technology habit, perception of sunk cost, technology instability, technology complexity and technology-enabled triggers.

The effect of compulsive social app usage on technostress and academic performance from the perspective of personality traits indicated that the factors are neuroticism, agreeableness, extraversion, openness and conscientiousness. The research finding is inadequate to determine the psychological traits that influence compulsive social apps usage. Besides, the study represents the relationship between Big Five personality traits which may lead to biased results. Furthermore, the compulsive use of Facebook through reinforcement processes supports the theories of addiction (Cheung, Lee, & Lee, 2013).

Previous Studies of Compulsive Social Apps Usage

In a study by Olasadu et al. (2020) on compulsive use of smartphone and technostress among Nigerian students, the main determinants shown were gender differences and technological exposure. Nevertheless, the study focused more on technology exposure rather than on social apps usage. This may lead to inaccuracy of research findings when it comes to adoption of social apps. Besides that, the result findings may only be adequate for technology exposure rather than on social apps.

Hsiao's (2017) study on compulsive mobile application usage and technostress indicated for personality traits and psychological traits which including extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, external locus control and materialism. This research does not represent an underlying additional elements namely social interaction anxiety, need for touch in the study. In fact, the factor is significant to determine the mobile usage rather than focus on social app usage.

Clements & Boyle's (2018) study on compulsive technology use which used the automatic behaviour theory and the factors influencing are technology habit, perception of cost, technology instability, technology complexity and technology enabled triggers. The research finding is mainly on technology use which is not specific to the needs and requirements of compulsive social apps usage.

Hsiao et al.'s (2017) study on the effect of compulsive social app usage on technostress and academic performance on perspective from the personality traits which indicated that the factors influencing are Neuroticism, Agreeableness, Extraversion, Openness and Conscientiousness. The research findings are also inadequate to determine the psychological traits that influence compulsive social apps usage. Besides, the study represents the relationship between Big Five personality traits which may lead to results bias.

Farhat et al.'s (2021) study on understanding the compulsive use of Facebook through the reinforcement processes indicate the theories of addiction. The research was done on three aspects: need for mood alteration, feeling of withdrawal and preference for online social interaction. Again, the research does not entirely focus on social apps as it is only restricted to Facebook.

Locus of Control

The locus of control is the degree to which individuals accept that they have the capacity to influence results which indicates an individual's impression of the cause of activity in their life (Rotter, 1966). The elements of a situation or behaviour depend on internal strength, individual choices and intention to determine and control what happens with life which indicates the internal locus of control (Lefcourt, 1991).

On the other hand, individuals with actions that are not within their control but in the hands of some external driving force known as the external locus of control—the impact on acknowledging that their lives are affected or controlled by destiny, luck and other individuals. In the study, the locus of control influences how one copes with stress and factors that influence compulsive social apps usage (Qiang et al., 2010). Individuals with an external locus of control are more likely to experience compulsive use

of smartphones rather than individuals with an internal locus of control. Thus, the study hypothesised that:

H1: External locus of control has a positive effect on compulsive social apps usage.

Social Interaction Anxiety

Social interaction anxiety is when interacting with strangers in a public place gives an extreme sense of unease (Schlenker & Leary, 1982). To allow socially distressed people to reduce their chances of making undesired impressions on others, individuals need to reduce their anxiety (Hoffman et al., 2020).

Researchers have found that individuals with social anxiety, who feel lonely and distressed, positively benefitted from online interactions (Morahan-Martin & Schumacher, 2003; Yen et al., 2012). Consequently, when these individuals connect online rather than in real life, they feel less social anxiety. Thus, using online approaches to fulfil the needs of individuals with low social anxiety is becoming a useful, proven alternative (Reid & Reid, 2007; Yen et al., 2012). Individuals with high social interaction anxiety will be more inclined to depend on their smartphones than those with low social interaction anxiety. Thus, the study hypothesised that:

H2: The higher level of social interaction anxiety has a positive effect on compulsive social apps usage.

Need for Touch

Need for touch is interpreted as a choice for usage of sensory information which they obtained through touch or the haptic system (Peck & Childers, 2003a; Peck & Childers, 2003b). Individuals who enjoy touching groceries items in supermarkets and are always touching other people's arm or shoulder during conversations have a particular need for touch (Peck & Childers, 2003a).

The two essential dimensions of touch are instrumental and autotelic touch. According to Oulasvirta et al. (2012), 35% of individuals with the need for touch satisfied it with phone usage. Users with a higher need for touch may become compulsively dependent on smartphones than would those with less need for touch. Thus, the study hypothesised that:

H3: A stronger need for touch has a positive effect on compulsive social apps usage.

Materialism

Materialism refers to individuals' acceptance about control of having material in their life (Richins & Dawson, 1992). Materialistic individuals tend to care less about interpersonal relationships when communicating with others, the individuals prefer to spend more on themselves (Richins, 2004).

The issues leading to the materialism include drug dependency (Haynes & Ayliffe, 1991), compulsive consumption (Rindfleisch et al., 1997) and addiction (Chang & Arkin, 2002). Individuals with material possessions wish to create a sensitive attachment to their phones (Wehmeyer, 2008). This study posits that materialism may result in compulsive smartphone. Thus, the study hypothesised that:

H4: A higher level of materialism has a positive effect on compulsive social apps usage.

Technostress

Intense compulsive behaviour which encourages symptoms of individual's disturbance and distress is an obsessive-compulsive disorder. The features of a smartphone allows users to check their phones regularly to easily access incentives such as social networking and to use as a communication device. Compulsive behaviour can be considered as constant checking of mobile phones (Oulasvirta et al.,

2012). Those who use their mobile heavily, also spend more time on the computer and have trouble controlling themselves and are easily distracted by the telephones (Bush & McCarthy, 2021). In the scenario of social apps, the indicator of stress can present itself as technostress. It is therefore expected that compulsive smartphone use would contribute to technostress. Thus, the study hypothesised that:

H5: Higher compulsive social apps usage leads to higher technostress:

METHOD

Sample and Data Collection

This study targets the tertiary education population in the states of Penang. A total of 300 surveys were distributed to students in private higher education institutions. The criteria were students who are smartphone users or owners between 18 and 54 years old. The questionnaire was printed and distributed to potential respondents through the face-to-face method. However, only 285 out of the 300 questionnaires were eligible to be used. This represented a response rate of 85% after accounting for 15 no-responses. Table 1 shows a summary of the responses.

Table 1
Summary of response rate

Questionnaire	No of Distribution
Printed	300
Total Distributed	300
**No-Responses	15
**Qualified Respondents	285

Instruments

The questionnaire was made up of two parts: Part A and Part B. The first part contains questions on the four determinant factors of compulsive social apps usage: locus of control, social interaction anxiety, need for touch and materialism. The determinant factors and technostress were adapted from Lee et al. (2014). The measurements were reported to support the reliability and validity with composite reliability from .83 to .93. The questionnaire adopted a 5-point Likert-scale from "Strongly Disagree" to "Strongly Agree". The scale is ranked from 1 to 5 as [1] Strongly Disagree, [2] Disagree, [3] Neutral, [4] Agree, [5] Strongly Agree. Part B contains eight questions collecting basic information to create a demographic profile such as gender, if they are a social media user, time spend on social media a day, etc.

Respondents

Table 2 shows that 40.7% of respondents spend more than 5 hours on social apps, 27.4% of respondents spend 3 to 5 hours on social apps, 23.9% of respondents spend 1 to 3 hours and 8.1% of respondents spend less than 1 hour on social apps. It reveals that over 65.3% of respondents have been using social media for more than 5 years. 21.1% of respondents have been using social media for 3 to 5 years, 10.2% of respondents have been using social media for 1 to 3 years, and 3.5% of respondents have been using social media for less than 1 year. The highest respondents using social media is from the 25 to 34 years old age group with 92.3% of respondents. Next, 5.6% of respondents are from 35 to 44 years old. 1.1% of respondents are from 18 to 24 years old, and 0.4% of respondents are from more than 54 years old.

69.1% of respondents were female, and 30.9% of respondents were male from a total of 285 qualified respondents. The majority of the respondents have a bachelor's degree at 58.6%. Next were diploma

holders at 34.0%. This was followed by respondents with certificates at 2.8%, others with unknown education level with 2.5%, and Master and PhD at 2.1%. Besides that, the findings also showed that 96.5% of respondents are social media users which indicates social apps as a ubiquitous tool. Only 3.5% of them are not frequent social media users.

Table 2
Summary of respondents profile

Respondent Profile		Frequency	Percentage %
Social Media User	Yes	275	96.5
	No	10	3.5
Time Spent	Less than 1 hour	23	8.1
	1-3 hours	68	23.9
	3-5 hours	78	27.4
	More than 5 hours	116	40.7
Time Use	Less than 1 hour	48	16.8
	1-3 hours	91	31.9
	3-5 hours	69	24.2
	More than 5 hours	77	27.0
How long using social media	Less than 1 year	10	3.5
	1-3 years	29	10.2
	3-5 years	60	21.1
	More than 5 years	186	65.3
Gender	Male	88	30.9
	Female	197	69.1
Age	18-24 years old	3	1.1
	25-34 years old	263	92.3
	35-44 years old	16	5.6
	45-54 years old	2	0.7
	> 54 years old	1	0.4
Level of Education	Certificate	8	2.8
	Diploma	97	34.0
	Degree	167	58.6
	Master PHD	6	2.1
	Others	7	2.5
Category	Full Time Students	251	88.1
	Part Time Students/ Full Time Employed	17	6.0
	Academicians	8	2.8
	Manager	3	1.1
	Others	6	2.1

Data Analysis

The data was analysed with SPSS (Statistical Package of Social Science). SPSS was used to perform descriptive analysis of the sample. Partial Least Square (PLS) analysis technique and variance-based SEM approach were used to examine complex and higher levels of abstractions.

FINDINGS

Descriptive Analysis

Descriptive statistics helps to explain of data in an impartially. SPSS was used to evaluate the dependent and independent variables. Mean, and the standard deviation was selected to evaluate the central tendency of variables. The mean and standard deviation for each variable are listed in Table 3. A five-point rating scale is employed for this survey where the mean of the variables ranges from 3.57 to 4.04. The mean for compulsive usage for social apps is 3.92, locus of control is 4.04, need for touch is 3.71, materialism is 4.03, social interaction anxiety is 3.66 and technostress is 3.57, respectively. Here, the construct with the highest mean is the locus of control with the highest mean of 4.04 while the least central tendency is technostress with the lowest mean of 3.57. Meanwhile, technostress has the highest standard deviation at 1.079, while compulsive usage of social apps has the lowest standard deviation at 0.619.

Table 3
Results of descriptive statistic

Constructs	Mean	Standard Deviation
Compulsive Social Apps	3.92	0.619
Locus of Control	4.04	0.910
Need for Touch	3.71	1.065
Materialism	4.03	0.913
Social Interaction Anxiety	3.66	1.051
Technostress	3.57	1.079

Measurement Model

Cronbach's Alpha coefficient was adopted to measure the inner consistency of the six constructs, which are compulsive social apps, locus of control, materialism, need for touch, social interaction society, technostress. Table 2 shows that the Cronbach's Alpha value for compulsive social apps is 0.692, locus of control is 0.866, materialism is 0.816, need for touch is 0.866, social interaction anxiety is 0.702 and technostress is 0.846. This indicates that all constructs with its alpha value ranging from 0.692 to 0.866 are consistent and reliable, which fulfils the acceptable value of 0.7 or above as proposed by Nunnally (1994). Besides, it also confirmed that the measures are homogeneous for the same construct.

Goodness-of-fit (GoF) with R2 value of 0.794 greater than 0.500 is declared as good-fit according to Wetzels, Odekerken-Schroder and Van Oppen (2009). It means that 79.4% of the variance in compulsive usage of social apps towards students could be explained by the locus of control, need for touch, materialism, social interaction anxiety, and technostress.

A summary of the results is shown in Table 4. The Composite Reliability (CR) value for each construct is within the range of 0.780 and 0.898, which has surpassed the concept value of 0.7 (Hair et al., 2010). The Average Variance Extracted (AVE) value is within the range of 0.509 and 0.589, which also has passed the recommended value of 0.5 (Hair et al., 2010). Thus, the validity and reliability of all measurement items applied in this study are acceptable.

Table 4
Measurement model evaluation

Model of Construct	Measurement Item	Cronbach Alpha	R^2	Loadings	CR	AVE
Compulsive Social Aps	Others complain about me using my mobile phone too much	0.692	0.794	0.796	0.811	0.533
	I often get angry if someone interrupts me during my mobile phone use			0.435		
	I can't concentrate in class because of mobile phone use			0.686		
	I check for missed calls and messages all the time when I am awake			0.915		
Locus of Control	I get nervous when I must talk to a teacher or a boss	0.866		0.741	0.892	0.509
	I sometimes feel tense when talking to people of my own sex if I don't know them very well.			0.786		
	I would be nervous if I was being interviewed for a job.			0.777		
	I often feel nervous when talking to an attractive member of the opposite sex.			0.596		
	In general, I am a shy person.			0.700		
	I often feel nervous when calling someone I don't know very well on the telephone.			0.700		
	I get nervous when I speak to someone in a position of authority			0.679		
	I often feel nervous even in casual get together			0.708		
Materialism	I admire people who own expensive homes, cars, and clothes	0.816		0.654	0.863	0.514
	I like to own things that impress people			0.689		
	Buying things gives me a lot of pleasure			0.805		
	I like a lot of luxury in my life			0.712		
	I'd be happier if I could afford to buy more things			0.720		
	It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like			0.712		
Need for Touch	When walking through stores, I can't help touching all kinds of products.	0.866		0.624	0.898	0.598
	Touching products can be fun.			0.731		
	When browsing in stores, it is important for me to handle all kinds of products.			0.688		
	I like to touch products even if I have no intention of buying them.			0.865		
	When browsing in stores, I like to touch lots of products.			0.861		
	I find myself touching all kinds of products in stores.			0.838		
Social Interaction Anxiety	I use my mobile phone even when talking or eating with others	0.702		0.397	0.780	0.565
	I feel like my mobile phone is ringing or vibrating but it isn't.			0.877		
	I prefer to use my mobile phone rather than spend time with others			0.876		
Technostress	I am forced by my mobile phone to live with very tight time schedules.	0.846		0.757	0.886	0.564
	I am forced to change habits to adapt to new developments in mobile phones.			0.770		
	I have to sacrifice my personal time to keep current on new mobile phone technologies			0.760		
	I feel my personal life is being invaded by mobile phone technologies.			0.751		
	I do not find enough time to study and upgrade my technology skills in mobile phones.			0.747		
	I am threatened by people with newer mobile phone technology skills.			0.721		

Discriminant Validity

A discriminant validity test was carried out to determine that the measures for different constructs should not highly correlate with each other. This test is also used to determine if the correlation among the measures is an overlapping construct. Table 5 shows all values on the Heterotrait- Monotrait Ratio (HTMT) as below than 0.85 and 0.900 (Hair et al., 2017), so there is no discriminant validity issue.

Table 5
Heterotrait-monotrait ratio (HTMT)

	Compulsive Social Apps	Locus of Control	Materialism	Need for Touch	Social Interaction Anxiety	Technostress
Compulsive Social Apps						
Locus of Control	0.245					
Materialism	0.312	0.302				
Need for Touch	1.037	0.182	0.242			
Social Interaction Anxiety	0.195	0.291	0.220	0.134		
Technostress	0.446	0.555	0.376	0.366	0.428	

Assessment of Structural Model

Bootstrapping was used to inspect the hypotheses testing. A minimum number of bootstrapping sample of 5000 was selected. 1.65 is the critical values for 5% level of significance in one-tailed test and 2.33 for 1% level of significance as per Hair et al. (2017). The results of bootstrapping showed the significance of all the hypotheses.

Table 6 showed that there are two-dimension factors which influence the compulsive usage of social apps. The two-dimension factors which have been identified to have the positive and significant relationship with compulsive usage of social apps are need for touch (ß = 0.873, p < 0.01) and technostress (ß = 0.331, p < 0.01). Thus, H3, H5 is supported. Meanwhile, the locus of control (ß = -0.028, p > 0.05), materialism (ß = 0.031, p > 0.05) and social interaction anxiety (ß = 0.037, p > 0.05) are found to be not significant and were not supported at all in the results.

Table 6
Results of path coefficient and hypothesis testing

Hypothesis	Relationship	Coefficient	*t*-value	*p*-value	Decision
H1	Locus of control-Compulsive usage of social app	0.028	1.039	0.150	Not Supported
H2	Social interaction anxiety-Compulsive usage of social app	0.037	1.193	0.117	Not Supported
H3	Need for touch- Compulsive usage of social app	0.873	65.642***	0.000	Supported
H4	Materialism- Compulsive usage of social app	0.031	0.996	0.160	Not Supported
H5	Compulsive usage of social app-technostress	0.331	6.322***	0.000	Supported

NOTES: *** P < 0.01

DISCUSSION

The results showed that the locus of control does not significantly affect compulsive social apps usage and technostress among students. This finding is inconsistent with research executed by Hsiao (2017),

which found that people who have a greater smartphone propensity and those with an external control locus are more likely to use smartphones compulsively. The majority of respondents are degree students who are more mature and know what they want in their lives. This finding is however consistent with Chak and Leung, (2004) where the research revealed that individuals who were externally-oriented and believe that others have an influence on controlling their lives were found to be weak at managing their internet use. Individuals who have problems controlling their internet use are typically individuals who are externally oriented. Students nowadays are increasingly from Generation Y, who have been brought up surrounded by digital technologies and they are easily influenced by others and attractive environments. This category of the respondent is more to an internal locus of a control-oriented individual. Additionally, individuals who cannot control, cut back, or stop from either internet use, mobile use as well as social media use are externally oriented individuals.

The findings also showed that social interaction anxiety does not significantly affect the compulsive social apps usage. The finding is inconsistent with previous researchers who observed a strong positive correlation between social interaction anxiety and compulsive use of web applications. It is probably because the smartphone was initially utilised to manage daily life activities, but ultimately became a tool to engage with social networks (Hanif, 2020). On the other hand, many people can moderate smartphone usage to ensure it is helpful, time-saving, convenient, and enjoyable, rather than a source of stress, tension and disappointment.

The analysis showed that the need for touch significantly affects the compulsive social apps usage on technostress towards students. This finding supports the underlying theory of psychological traits. This finding was consistent with previous research by Lee et al. (2014). Individuals who tend to use smartphones compulsively are individuals who have a stronger need for touch. Moreover, the intention to keep using apps will turn into a habit which results in constant use of mobile apps (Liao, Tsou, & Huang, 2007). In addition, students nowadays are constantly exposed to digital technologies. Individuals with a need for touch will have the attitude that constant use of social apps that make them feel comfortable.

The results showed that materialism does not significantly affect compulsive social apps usage. However, the findings are inconsistent with research executed by Hsiao (2017) which showed a significantly positive relationship between materialism and compulsive social apps usage. It is apparent that smartphones, along with other consumer products, are desired possessions which is purchased for practical use and not specifically for social media apps. Especially in youths today, smartphones are a status symbol and a natural outgrowth of a materialistic individuals' desire to own, display and use products that enhance their self-esteem and image (Katz & Sugiyama, 2005). Hence, the businesses always to compete with each other to innovate or create their products according to customer preferences and demands. And we can see that they can produce a smartphone with the latest technology within six months. The individual with high materialism is more concern about the product specifications rather than social apps that can be downloaded in most smartphones.

Furthermore, the analysis showed that compulsive social apps usage is significantly affecting technostress. This finding is supported by Klobas et al., (2018). Technostress can be a beneficial stress measure, so the research indicates that compulsory use of the smartphone would contribute to technostress. Constant and consistent checking of mobile phones is considered as compulsive behaviour. If smartphone users spend too much on social apps, they will experience difficulty in controlling their schedule. In addition, the users may be distracted from their work or study. As a result, compulsive social apps usage is one of the factors that significantly influences technostress.

CONCLUSION AND SUGGESTIONS

In conclusion, this study has determined that the effects of compulsive social apps usage on student technostress by adding psychological traits. The results revealed that the need for touch has the highest significant effect on compulsive social apps usage. Furthermore, the results demonstrated that compulsive social app lead to the technostress among the students. The significance of this study can be observed from theoretical and practical perspectives in the context of private higher educational institutions in Penang because undergraduate students who are from generation Y primary users of social media apps. This generation has grown up with the use of mobile devices and the internet to cultivate their social contacts, as well as for educational and professional purposes. This study also helps to define the most critical factors that relevant parties can concentrate on in order to manage their social apps usage. Finally, it is expected the result will help the educators and the government better understand smartphone and social media users among students. Consequently, testing these psychological features would be useful in monitoring possible compulsive social apps users, mobile users, and aiding in intervention when compulsive users are detected.

The future research is suggested to get average responses from all Higher Education Institution in Malaysia to increase the accuracy of the result findings. Besides that, the future research should extend to analyse different group such as academics, parents and working adult. Cultural differences in this study may have been overlooked. Several dimensions by Kushlev &, Leitao (2020) including perceptions of the smartphone as fashion, attitudes about phone use in public settings, use of the phone for safety/security reasons, and use of the phone for instrumental/expressive purposes can be considered in future research.

REFERENCES

Allied Business Intelligence. “97% of all smartphones will have touchscreens by 2016, 2011”. Accessed October 2018. https://www.abiresearch.com/press/97-of-all-smartphones-will-havetouchscreens-by-20 .

Atchley, P. & Warden, A. C. (2012). The need of young adults to text now: Using delay discounting to assess informational choice. *Journal of Applied Research in Memory and Cognition, 1*(4), 229-234.

Burroughs, J. E., & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. *Journal of Consumer research, 29*(3), 348-370.

Busch, P. A., & McCarthy, S. (2021). Antecedents and consequences of problematic smartphone use: A systematic literature review of an emerging research area. *Computers in human behavior, 114*, 106414.

Chak, K., & Leung, L. (2004). Shyness and locus of control as predictors of internet addiction and internet use. *CyberPsychology & Behavior, 7*(5), 559–570.

Chang, L., & Arkin, R. M. (2002). Materialism as an attempt to cope with uncertainty. *Psychology & Marketing, 19*(5), 389-406.

Cheung, C. M., Lee, Z. W., & Lee, M. K. (2013). Understanding compulsive use of Facebook through the reinforcement processes. In Proceedings of the 21st European conference on information systems. Utrecht, Netherlands.

Clements, J. A., & Boyle, R. (2018). Compulsive technology use: Compulsive use of mobile applications. *Computers in Human behavior, 87*, 34-48.

Clements, J. A. (2021). Technology Craving and Withdrawal: Exploring compulsive mobile app use. In *International Conference on Human-Computer Interaction* (pp. 195-206). Springer, Cham.

Farhat, K., Aslam, W., Arif, I., & Ahmed, Z. (2021). Does the dark side of personality traits explain compulsive smartphone use of higher education students? The interaction effect of dark side of personality with desirability and feasibility of smartphone use. IIM Kozhikode Society & Management Review, 22779752211000479.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling. Thousand Oaks, Sage.

Hanif, M. (2020). Students' self-regulated learning in iconic mobile learning system in english cross-disciplined program. *Anatolian Journal of Education*, *5*(2), 121-130.

Haynes, P., & Ayliffe, G. (1991). Locus of control of behavior: Is high externality associated with substance misuse?. *British Journal of Addiction*, *86*(9), 1111–1117.

Hediansah, D., & Surjono, H. D. (2019). Building motivation and improving learning outcomes with android-based physics books: Education 4.0. *Anatolian Journal of Education, 4*(2), 1-10.

Hirschman, Elizabeth (1992). The consciousness of addiction: Toward a general theory of compulsive consumption. *Journal of Consumer Research, 19*, 155–72.

Hoffman, Y. S. G., Grossman, E. S., Bergman, Y. S., & Bodner, E. (2020). The link between social anxiety and intimate loneliness is stronger for older adults than for younger adults. Aging & Mental Health, 1-8.

Hsiao, K. L., Lee, C. H., Chiang, H. S., & Wang, J. Y. (2016). Exploring the antecedents of technostress and compulsive mobile application usage: personality perspectives. In International Conference on Human Aspects of IT for the Aged Population, 320-328.

Hsiao, K. L. (2017). Compulsive mobile application usage and technostress: the role of personality traits. Online Information Review, 41 (2) pp. 272-295.

Hsiao, K. L., Shu, Y., & Huang, T. C. (2017). Exploring the effect of compulsive social app usage on technostress and academic performance: Perspectives from personality traits. Telematics and Informatics, 34(2), 679-690.

Iskender, M., & Akin, A. (2010). Social self-efficacy, academic locus of control, and internet addiction. Computers & Education, 54(4), 1101–1106.

Jena, R. K. (2015). Compulsive use of smartphone and its effect on engaged learning and nomophobia. Smart Journal of Business Management Studies, 11(1), 42-51.

Katz, J. E., & Sugiyama, S. (2005). *Mobile phones as fashion statements: The co-creation of mobile communication's public meaning.* In Mobile communications, Springer, London. 63-81.

Klobas, J. E., McGill, T. J., Moghavvemi, S., & Paramanathan, T. (2018). Compulsive YouTube usage: A comparison of use motivation and personality effects. *Computers in Human Behavior, 87*, 129-139.

Kushlev, K., & Leitao, M. R. (2020). The effects of smartphones on well-being: Theoretical integration and research agenda. *Current opinion in psychology, 36*, 77-82.

Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. *Personality and Social Psychology Bulletin, 9(*3), 371-375.

Lee, Y. K., Chang., Y Lin, Z-H Cheng. (2014). The dark side of smartphone usage: psychological traits, compulsive behaviour and technostress. *Computers in Human Behavior, 31,* 373 -383.

Lefcourt, H. M. (1991). *Locus of control.* Academic Press.

Liao, C. H., Tsou, C. W., & Huang, M. F. (2007). *Factors influencing the usage of 3G mobile services in Taiwan.* Online Information Review.

Matusik, S. F., & Mickel, A. E. (2011). Embracing or embattled by converged mobile devices? Users' experiences with a contemporary connectivity technology. *Human Relations, 64*(8), 1001–1030.

Morahan – Martin, J., & Schumacher, P. (2003). Loneliness and social uses of the Internet. *Computers in Human Behavior, 19*(6), 659-671.

Nunnally, J. C. (1994). The assessment of reliability. *Psychometric theory*.

O' Guinn, Thomas C., Ronald J. Faber. (1989). Compulsive Buying: A Phenomenological exploration. *Journal of Consumer Research, 16*, 147–57.

Oladosu, K. K., Alasan, N. J., Ibironke, E. S., Ajani, H. A., & Jimoh, T. A. (2020). Learning with smart devices: Influence of technostress on undergraduate students' learning at university of Ilorin, Nigeria. *International Journal of Education and Development using Information and Communication Technology, 16*(2), 40-47.

Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing, 6*(1), 105-114.

Parylak, S. L., Koob, G. F., & Zorrilla, E. P. (2011). The dark side of food addiction. *Physiology & Behavior, 104*(1), 149–156.

Peck, J., & Childers, T. (2003a). Individual differences in haptic information processing: The "need for touch" scale. *Journal of Consumer Research, 30*(3), 430–442.

Peck, J., & Childers, T. (2003b). To have and to hold: The influence of haptic information on product judgments. *Journal of Marketing, 67*(2), 35-48.

Qiang, W., Bowling, N. A., & Eschleman, K. J. (2010). A meta-analytic examination of work and general locus of control. *Journal of Applied Psychology, 95*(4), 761-768.

Reid, D. J., & Reid, F. J. M. (2007). Text or talk? Social anxiety, loneliness, and divergent preferences for cell phone use. *CyberPsychology & Behavior, 10*(3), 424-435.

Richins, M. L. (2004). The material values scale: Measurement properties and development of a short form. *Journal of Consumer Research, 31*(1), 209-219.

Richins, M. L., & Dawson, S. (1992). A consumer values orientation for materialism and its measurement: Scale development and validation. *Journal of Consumer research, 19*(3), 303-316.

Rindfleisch, A., Burroughs, J. E., & Denton, F. (1997). Family structure, materialism, and compulsive consumption. *Journal of Consumer research, 23*(4), 312-325.

Rotter. J. B. (1966). Generalised expectancies for internal versus external control of reinforcement. *Psychological Monographs,* (80), 1 whole No 609.

Ryding, F. C., & Kuss, D. J. (2020). Passive objective measures in the assessment of problematic smartphone use: A systematic review. *Addictive Behaviors Reports, 11*, 100257.

Schlenker, B. R., & Leary, M. R. (1982). Social anxiety and self-presentation: A conceptualisation model. *Psychological bulletin, 92*(3), 641.

Tang, J. H., Chen, M. C., Yang, C. Y., Chung, T. Y., & Lee, Y. A. (2016). Personality traits,

interpersonal relationships, online social support, and Facebook addiction. *Telematics and Informatics, 33*, 102–108.

Wehmeyer, K. (2008). User-device attachment scale development and initial test. *International Journal Mobile Communication, 6*(3), 280–295.

Wetzels, M., Odekerken – Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS quarterly*, 177-195.

Yen, J. Y., Yen, C. F., Chen, C. S., Wang, P. W., Chang, Y. H., & Ko, C. H. (2012). Social anxiety in online and real-life interaction and their associated factors. *Cyberpsychology, Behavior & Social Networking, 15*(1), 7–12.