THE ASSESSMENT OF INTERNET ADDICTION AMONG UNIVERSITY STUDENTS: SOME FINDINGS FROM A FOCUS GROUP STUDY

Jasmine A. L. Yeap, T. Ramayah, Sherah Kurnia, Hasliza Abdul Halim, Noor Hazlina Ahmad

Original scientific paper

The university student population has been regarded as one of the most susceptible to developing Internet addiction among all demographic groups of Internet users. This paper reports the findings obtained from a focus group study conducted among 8 undergraduate students on the issue of Internet addiction. Data and insights were sought from the undergraduates regarding their Internet use patterns as well as their response to the Generalized Problematic Internet Usage Scale 2 (GPIUS2). Findings revealed that Internet use patterns have changed in recent times and that the GPIUS2 is an appropriate measurement tool for Internet addiction among students. Other implications from the findings are duly discussed in this paper.

Keywords: focus group; GPIUS2; Internet addiction; Internet usage; problematic Internet usage; university students

Procjena ovisnosti o Internetu sveučilišnih studenata: neki rezultati proučavane grupe

Izvorni znanstveni članak

Smatra se da je populacija sveučilišnih studenata najotvorenija za razvijanje ovisnosti o Internetu među svim demografskim grupama korisnika Interneta. U ovom se radu daju rezultati dobiveni ispitivanjem grupe sastavljene od 8 studenata po pitanju ovisnosti o Internetu. Od studenata su se tražili podaci i njihove spoznaje o načinima uporabe Interneta kao i odgovori na pitanja postavljena u Generalized Problematic Internet Usage Scale 2 (GPIUS2) (generaliziranoj ljestvici problematične uporabe Interneta). Rezultati su pokazali da su se u novije vrijeme promijenili načini uporabe Interneta te da je GPIUS2 odgovarajući alat za mjerenje ovisnosti studenata o Internetu. U radu su odgovarajuće obrađeni i ostali zaključci ispitivanja.

Ključne riječi: GPIUS2; ovisnost o Internetu; problematična uporaba Interneta; proučavana grupa; sveučilišni studenti; uporaba Interneta

1 Introduction

The Internet has always been favourably regarded as informative, convenient, resourceful and capable of producing economical as well as social benefits. However, criticisms encircling its negative effects are rapidly arising. Evidences from studies conducted revealed that excessive and unmanageable use of the Internet is associated with social, psychological and occupational impairment [1]. This type of pathological Internet use is more commonly referred to as Internet addiction [2, 3, 4] or Internet dependence [5, 6].

Compared to all demographic groups of Internet users, the university student population has been regarded as one of the most susceptible to developing problematic or excessive Internet usage [1, 7]. This is a generation of people who have been exposed to personal computers and the Internet since young [8]. Having grown up with technology, this generation is heavily wired on campus and relies on the Internet in almost every aspect of varsity life. They are regarded most vulnerable to use the Internet excessively considering the low level of monitoring or censoring of what they say or do online and also the newly experienced freedom from parental control as most of them stay away from their families in university hostels that are not situated in their hometowns. Furthermore, most universities or colleges provide Wi-Fi connections within campuses thus granting students free and available access to the Internet.

There have been cases where students become so engrossed with using the Internet that they miss classes or skip exams, even when they are aware that they might fail their classes [9, 10]. Young [4] found that 58 % of students reported a decline in study habits, a significant drop in grades, missed classes or being placed on probation and even faced expulsion from the university

due to uncontrollable Internet use. Given such grave consequences, much needs to be understood about university students' patterns, drivers as well as impact of Internet usage. This is because these students will be taking their online behaviours into their lives after university and that will likely lead to significant changes in work and leisure.

In this paper, we report the findings obtained from a focus group study conducted among university students on the issue of Internet addiction. The aim of the focus group study was to pre-test a preliminary version of a survey instrument for a research intending to develop a holistic framework that captures both drivers and consequences of Internet addiction. Additionally, the focus group was conducted to elicit new data and insights about Internet usage patterns. For this paper, we present the findings on two significant sections of the survey instrument namely the sections measuring the focus group participants' Internet usage profile as well as their problematic or addictive Internet usage. Findings from the focus group study will be used to refine the items in the survey instrument. Implications drawn from the findings may also serve to be useful for future researchers embarking on Internet addiction studies among university students.

2 Method
2.1 Study design and setting

Focus groups are particularly appropriate and useful in identifying and describing in-depth issues that are not well-known or understood by researchers. They are basically guided discussions among a small group of 6 to 12 participants, led by an interviewer who functions as a moderator. Participants are supposedly experts on the topic discussed in the focus group, because the topic is an

issue that is related to what they think, feel and do. The focus group was conducted among undergraduate students who are currently enrolled in a public university in Malaysia. Internet penetration in Malaysia is among the highest in Asia [11]. As of June 2012, there were 17 723 000 Internet users in Malaysia, representing 60,7 % of the population in the country [12]. A large percentage of Internet users in Malaysia are young people comprising mainly university/college students and school-going adolescents. As revealed by comScore [13], majority of Malaysian Internet users are between 15 to 24 years old (38 %), followed by 25 to 34 years old (26 %), 35 to 44 years old (23 %), 45 to 54 years old (9 %) and 55 years old and above (5 %).

2.2 Participants

Participants of the focus group were recruited via a purposive sampling method whereby participants had to fulfil the criteria of being technology-savvy and active users of the Internet. The recruitment of participants for the focus group was done over the course of a week in a public university located in the north of Malaysia. The focus group study was conducted within a day. As many as 8 undergraduates volunteered to participate in the study. At the point of recruitment, the volunteers were told that they would be participating in a study on Internet usage. They comprised second and third year students who were aged around 21 to 23 years old. All of them were males and of Chinese ethnicity except one participant who was a Malay. They had been using the Internet for about 5 to 10 years already since their adolescence.

2.3 Procedure

The focus group was led by a moderator who facilitated the session. At the beginning of the session, the moderator briefed the participants that the purpose of the study was to pre-test and solicit feedback regarding a survey instrument on Internet usage. No reference was made to the subject of Internet addiction. This was done to enable the participants to express their views freely without any inhibitions or adverse reactions during the discussion. The participants were then asked to answer the survey items. Subsequently, the moderator proceeded to check for any ambiguities or difficulty of questions with the participants. As the participants were probed for any problems in answering the survey items, the moderator would also clarify with them any indirect or unclear meanings in their responses. Participants were allowed to raise important issues that researchers might not have foreseen as well as present their views and opinions during the discussion. Before the session ended, the moderator revealed that the subject under scrutiny was actually Internet addiction. Following this, the moderator queried the participants on whether they considered themselves as Internet addicts or not. The entire discussion lasted approximately 100 minutes and was audio-recorded for future reference.

2.4 Material

As many as 6 items in the survey instrument were constructed to assess the participants' Internet usage patterns. On the other hand, the items measuring participants' problematic or addictive Internet usage were adopted from Caplan's [14] revised version of the Generalized Problematic Internet Use Scale, i.e. GPIUS2. The GPIUS2 features 15 items anchored on a 5-point Likert scale (1 = definitely disagree to 5 = definitely agree) measuring 5 core components that are believed to characterize problematic or excessive Internet usage. A brief description of the components as stated by Caplan [14] is as follows:
1) Preference for online social interaction – the belief that online interpersonal interactions and relationships are more secure, comfortable, effective and less threatening than traditional face-to-face interactions.
2) Mood regulation – the use of the Internet to mitigate anxiety, feelings of isolation or negative emotions.
3) Cognitive preoccupation – obsessive thought patterns involving Internet use.
4) Compulsive Internet use – inability to control or regulate one's own Internet use.
5) Negative outcomes – The extent to which individuals experience problems (e.g. personal, social, academic or employment) as a result of their dysfunctional Internet use.

Though deemed as having good validity [14], this scale has not very often been applied to adolescents [15] and young adults such as university students, specifically in developing countries like Malaysia. It is professed to have an added advantage over other Internet addiction scales such as the Internet Addiction Test [16] and the Problematic Internet Usage Questionnaire [17] because it was developed based on a theory-based cognitive-behavioural model while most other scales were developed from a non-theoretical perspective using the addiction criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders.

3 Findings
3.1 Internet usage profile

Tab. 1 presents the items assessing the participants' Internet usage profile. The participants' responses' as well as comments to each of the items are discussed as follows:

- *Do you have Internet access on your mobile phone?*

Participants felt that the question asked was unclear. They commented that "almost all mobile phones these days are equipped with Wi-Fi capabilities". A more appropriate alternative would be to ask if respondents had any data plan subscription on their phones. Among all of the participants, only 1 of them subscribed to a data plan on his smartphone.

- *What electronic device/gadget do you **primarily** use when you are on the Internet?*

Majority of the participants accessed the Internet primarily on their laptops/PCs. To further improve the line of inquiry, they suggested that a ranking method can be applied to this question which allows respondents to rank the device/gadget that they use when they are on the Internet from the most often used to the least often used. One of the participants reasoned that it was difficult to decide on only one device/gadget used when in fact they also own and use other devices/gadgets to access the Internet.

Table 1 Items assessing the participants' Internet usage profile

Response options	Frequency (%)
Do you have Internet access on your mobile phone?	
Yes	1 (12,5)
No	7 (87,5)
What electronic device/gadget do you <u>primarily</u> use when you are on the Internet?	
Laptop/PC	5 (71,4)
Mobile phone	2 (28,6)
Tablet (e.g. iPad)	-
Others	-
Where do you <u>primarily</u> access the Internet?	
Home	3 (42,9)
University	4 (57,1)
Wi-Fi hotspot	-
Others	-
On average, how often do you use the Internet?	
Less than once a month	-
Once a month	-
A few times a month	-
A few times a week	-
About once a day	-
Several times a day	8 (100)
On average, how much time do you spend using the Internet?	
Less than 30 minutes	1 (12,5)
From 30 minutes to 1 hour	1 (12,5)
1 – 2 hours	-
2 – 3 hours	1 (12,5)
More than 3 hours	5 (62,5)
What do you use the Internet for?	
Check e-mail	7 (87,5)
Being on Facebook or other social network	8 (100)
Using messenger or chat	8 (100)
Participating in online games	3 (37,5)
Downloading, viewing, or listening to movies or music	8 (100)
Surfing the Internet looking for information	8 (100)
Buying items over the Internet	3 (37,5)
Meeting new people with the intention of meeting them face to face	1 (12,5)
Others	-

- *Where do you **primarily** access the Internet?*

Half of the participants accessed the Internet primarily within the university while others who stay off-campus accessed the Internet in their homes. They were, however, a little perplexed about "Wi-Fi hotspot" as one of the options listed for this question's response. They perceived the options 'home' and 'university' as of the same category (i.e. place) whereas 'Wi-Fi hotspot'

seemed to indicate a type of Internet connection. They proposed that this item could be broken down into another question which inquires the type of connection used by the respondent (e.g. broadband or dial up connection, wireless or Local Area Network - LAN cable).

- *On average, how often do you use the Internet?*

All of the participants were highly active users of the Internet, using the Internet several times a day. With the Internet being so widespread, they commented that some of the response options such as 'less than once a month' and 'once a month' were no longer relevant in our modern digital society. They recommended that the response options be amended to better reflect current times.

- *On average, how much time do you spend using the Internet?*

Almost all the participants spent significant amounts of time on the Internet, reporting that they are usually engaged on the Internet for more than 3 hours. However, participants perceived this question to be rather vague. As they were answering, they were unsure whether the question meant usage per day or per log in.

- *What do you use the Internet for?*

The participants expressed that they used the Internet for a variety of activities. Social networking, messaging or chatting, downloading, viewing, or listening to movies/music and surfing the Internet looking for information are the popular activities among all of them. The participants were particularly engrossed in chat/messaging applications (apps) on their smartphones such as Whatsapp, WeChat, Line and Kakao. They also admitted that they were avid users of Facebook and the availability of a Facebook mobile app greatly extended their usage of the social networking service apart from their usual logins on the PC/laptops. One of the participants suggested that the list of activities be expanded to include "downloading/using apps" as this has now become a commonplace activity. The participants shared that in addition to the chat/messaging and Facebook apps, they also use other apps on their smartphones such as Google Hangouts, Instagram and Twitter. Apart from that, the participants stated that they adopted cloud computing for academic purposes, using applications such as Dropbox, Google Drive, Evernote and some cloud presentation tools.

3.2 Internet addiction or problematic Internet usage

All the 15 items measuring problematic Internet usage registered Cronbach's Alpha values which exceeded the minimum acceptable standard of 0,70 recommended by Nunnally [18], indicating that the items were reliable. With the exception of items GP1 to GP4 and GP13 to GP15, the mean values for all other items were above 3,00, the midpoint mark.

- *Preference for online social interaction*

Tab. 2 presents the items assessing the component, preference for online social interaction. The participants had no problems understanding the 3 items measuring this component. Most of them either did not prefer online social interaction over face-to-face interaction or they were indifferent about it. Despite being heavy users of the Internet, they firmly did not feel that their Internet usage will turn them into reclusive hermits who avoid having direct contact with people.

Table 2 Items assessing preference for online social interaction

Item wording	Mean (SD)	Cronbach's α
GP1. I prefer online social interaction over face-to-face communication.	2,625 (0,744)	
GP2. Online social interaction is more comfortable for me than face-to-face interaction.	2,750 (0,707)	0,797
GP3. I prefer communicating with people online rather than face-to-face.	2,625 (0,744)	

- *Mood regulation*

Tab. 3 presents the items assessing the component, mood regulation. Some of the participants interpreted the words "down" in item GP5 and "upset" in item GP6 as having the same meaning. However the moderator clarified the difference between the two terms by explaining that "down" concerns being low in spirits or depressed whereas "upset" refers to being in an unhappy or worried state of mind. Participants acknowledged that they have, on certain occasions, used the Internet to relieve emotional distress.

Table 3 Items assessing mood regulation

Item wording	Mean (SD)	Cronbach's α
GP4. I have used the Internet to talk with others when I was feeling isolated.	2,750 (1,165)	
GP5. I have used the Internet to make myself feel better when I was down.	3,250 (1,035)	0,726
GP6. I have used the Internet to make myself feel better when I've felt upset.	3,250 (1,035)	

Table 4 Items assessing cognitive preoccupation

Item wording	Mean (SD)	Cronbach's α
GP7. When I haven't been online for some time, I become preoccupied with the thought of going online.	3,375 (0,916)	
GP8. I would feel lost if I was unable to go online.	3,125 (0,991)	0,850
GP9. I think obsessively about going online when I am offline.	3,125 (1,126)	

- *Cognitive preoccupation*

Tab. 4 presents the items assessing the component, cognitive preoccupation. As the Internet occupies a large area in their daily lifestyles, the items measuring this component do not seem strange to them. Should they be deprived of the Internet, the participants described that they would feel "lost", "bored" and "not know what to do". One participant claimed that he would be "miserable" without the Internet while another participant declared that he would feel "disconnected" from the world if he is unable to use the Internet.

- *Compulsive Internet use*

Tab. 5 presents items assessing the component, compulsive Internet use. Of all the items, participants felt that they identified the most with items GP10 and GP11. Majority admitted they have found it difficult to control the amount of time spent online, leading them to stay online longer than originally intended. Some of them confessed that they deliberately missed classes the next day as a result of using the Internet until late hours of the night. There were also some participants who admitted that they tend to procrastinate studying or doing their assignments or projects as a result of their inability to control their Internet use. The participants' alleged that the Internet is laden with seductive properties which can easily distract them away from their studies. This is why they found it hard to resist the urge to go online and when they are online, they found it difficult to limit the amount of time spent there.

Table 5 Items assessing compulsive Internet use

Item wording	Mean (SD)	Cronbach's α
GP10. I have difficulty controlling the amount of time I spend online.	3,625 (1,188)	
GP11. I find it difficult to control my Internet use.	3,429 (0,976)	0,807
GP12. When offline, I have a hard time trying to resist the urge to go online.	3,125 (1,246)	

- *Negative outcomes*

Tab. 6 presents items assessing the component, negative outcomes. Although the participants were cognizant of the fact that they were heavily-dependent on the Internet, they did not feel that their use of the Internet has created major impediments in their lives. With the exception of the occasional missed lectures or procrastination issues, they did not feel that their heavy usage of the Internet has affected their self-esteem, social relationships or interaction with other people, nor has it caused them to sink into depression or experience bouts of loneliness. Despite the absence of psychosocial problems, the participants complained that prolonged use of the Internet caused them to experience back pain and worse still, eye strain. One participant even pointed out that his heavy usage of the Internet has led to his weight gain.

Table 6 Items assessing negative outcomes

Item wording	Mean (SD)	Cronbach's α
GP13. My Internet use has made it difficult for me to manage my life.	2,625 (1,408)	
GP14. I have missed social engagements or activities because of my Internet use.	2,500 (1,309)	0,930
GP15. My Internet use has created problems for me in my life.	2,250 (1,035)	

3.3 Self-diagnosis of Internet addiction

In general, the participants believed that the Internet contributes positively to their studies. They unanimously agreed that the Internet helped them in their studies by providing them a means to search for information and resources to improve their general study skills. Ironically when probed, the participants admitted that they spent more time online for leisure purposes rather than academic-related purposes. When asked if they considered themselves as Internet addicts, all of them admitted that they were addicted to the Internet. However, from their perspective, their addiction refers to a heavy reliance on the Internet in their daily lifestyles. They did not feel that their addiction towards the Internet is so severe to the extent that they cannot function properly in their lives. In fact, they went on further to suggest that Internet users who are susceptible to serious addiction levels would usually be the avid gamers or school children who are still too young to be able to regulate their Internet usage.

4   Discussion and implications

In this focus group study, the objective was to gather deeper insights on Internet usage behavior among university students' in Malaysia as well as to pre-test a preliminary version of a survey instrument towards developing a holistic research framework on Internet addiction. The major implications garnered from the findings are discussed as follows:

- *On the change in computer and Internet ownership and use patterns*

Internet usage behaviour is a crucial component forming Internet addiction studies. In recent years, the ubiquity of technological devices and Internet access has increased tremendously. Electronic gadgets such as smartphones and tablets have become more affordable with a wide variety of brands and models to choose from. High speed Internet access plans offered by competing service providers have also flourished in the wake of widespread assortment of mobile electronic gadgets. In addition to their high-resolution touchscreens, web browsers, media players, compact digital and video cameras, GPS navigation as well as other computing ability features, mobile electronic gadgets like smartphones and tablets are equipped with cellular and wireless connectivity, allowing connectivity to the Internet on the go. With such features, users' Internet access is not restricted to their laptops/PCs as how things were years ago when being on the Internet required one to be hooked up to a desktop or laptop computer. In addition, there has also been an increase of wireless hotspots in public areas which has greatly broadened Internet connectivity.

The change in Internet usage behaviour as a result of rising technological device ownership and Internet access calls for a change in how Internet usage will be measured in Internet addiction studies. As the participants of the focus group pointed out, the items used to assess Internet usage behaviour in this study should be modified to reflect more current times. In developing measures to assess Internet usage for Internet addiction studies, researchers should take into consideration 1) the types of Internet-enabled technological gadgets/devices that the respondents own; 2) to rank the Internet-enabled technological gadgets/devices used by the respondents when they are online according to frequency of use; 3) the type of broadband Internet access that respondents use (e.g. fixed wireless broadband or Wireless Local Area Networks (WLANs) within their homes, university campus and other hotspots or mobile wireless broadband services offered by telecommunication service providers); 4) to redefine the hours spent on the Internet (as it is now possible that one is connected to the Internet 24 hours a days, perhaps researchers can inquire hours spent in one sitting or for a particular activity); 5) to include the fast-becoming commonplace activities of downloading/using apps in the list of activities online. In addition, researchers should also ask respondents the percentage of time spent online which counts as productive work (e.g. academic-related purposes) and as leisure (e.g. entertainment, hobby-related interests).

- *On the suitability of GPUIS2 as a measurement tool for Internet addiction*

At present, the most widely-used instrument to measure Internet addiction is purportedly Young's [16] Internet Addiction Test featuring a 20-item scale. Despite its popularity, the instrument has its drawbacks. It has mainly been criticized for lacking a theoretical basis in its development. In this focus group study, a more theoretically-grounded instrument, i.e. the GPIUS2 scale [14] was used to assess participants' problematic or excessive Internet usage. As the basis of his instrument, Caplan [19] argued that problematic Internet usage is a multi-dimensional syndrome composed of cognitive and behavioral symptoms causing negative social, academic/professional outcomes. In general, the participants in the focus group responded well to the GPIUS2. The items were straightforward and fairly easy to understand as it did not contain any confusing or sophisticated terminologies. They were also anchored on an appropriate 5-point Likert response scale (1 = definitely disagree to 5 = definitely agree). However, participants did note that the words 'down' and 'upset' may be relatively similar. To overcome any possible confusion, researchers can perhaps describe the difference in meanings between the two words in parentheses. As a measurement tool, the GPIUS2 had an ideal length of 15 items which did not dampen the participants' motivation to answer. Most importantly, though comprising of only 15 items, it still manages to cover the crucial, multidimensional facets of problematic Internet usage (i.e. preference for online social interaction, mood regulation, cognitive preoccupation, compulsive Internet use and negative outcomes). The Cronbach's Alpha values obtained showed that the items displayed good reliability. Nevertheless, it should be cautioned that the Alpha values obtained from this study should serve as a guide or preliminary indication only due to the small number of responses used in the analysis.

- *On the need to assess academic deviance as a consequence of Internet addiction*

The university culture is generally a wired one with the use of computers, smartphones, tablets and the Internet becoming mainstream in the students' daily lives. For instance, Facebook has turned into a lifestyle rather than just a hobby or a fun pastime among students [20]. Academic success is supposed to be of paramount importance to any university student. However with their unregulated fixation on being online, will university students be able to succeed academically? Despite their conviction that the Internet brings positive benefits to their academic life, the focus group participants still end up spending more time online for leisure purposes rather than on improving their studies. In fact, they have knowingly and intentionally missed classes as well as procrastinated tasks due to their uncontrolled use of the Internet. Accordingly, researchers should look into measuring academic deviance (e.g. missed classes, missed important deadlines, procrastinating projects/assignments, using the Internet for activities unrelated to class during lectures or tutorials) as a consequence of Internet addiction. Alternatively academic deviance can be examined for its mediating effect between problematic/ addictive Internet usage and academic performance (as measured by the students' grade point average score).

- *On the importance of measuring physical health risks*

Having more than two digital devices are the norm these days for young Internet users like the undergraduate students. While their dependency on the Internet may not be an indication of any serious psychosocial problems, it might on the other hand, cause more immediate impact to their physical health. Using digital devices nowadays tends to be habitual ritual which is sedentary in nature. As such, Internet users may be susceptible to weight gain and back pain. In addition, staring for long periods of time at digital devices while online will result in red, dry or irritated eyes, blurred vision, eye fatigue, neck, shoulder pain and headaches. Using earbuds and headphones connected to digital devices while online will also risk irreversible eardrum damage if the volume is too loud. Thus, future Internet addiction studies on students should not overlook the assessment of physical health problems such as back pain and eye strain because these problems can affect the students' ability of learn and carry out tasks. Ultimately their academic performance may be compromised.

5   Limitations and conclusion

One of the drawbacks to focus group studies is that the participants may be difficult to recruit. In this study, only 8 undergraduates volunteered to participate in the focus group. From a statistical standpoint, the responses gathered from this small number of participants cannot be generalized to a larger population [21]. However, this small size is considered ideal enough by focus group standards as focus group participants typically range from 6 to 12 members: large enough to provide a range of views but small enough for everyone to contribute [22].

Despite its limitation in generalizability, focus groups can produce valuable information that is not likely to be derived from surveys. That said, although further research is needed to corroborate the findings of this preliminary focus group study, the implications of the findings are still worth noting in the process of designing Internet addiction studies among university students. Overall, this study has managed to unearth some useful insights which can serve as a stepping stone to more elaborate studies.

Acknowledgement

6   References

[1] Nalwa, K.; Anand, P. Internet Addiction in Students: A Cause of Concern. // CyberPsychology & Behavior. 6, 6(2003), pp. 653-656.
[2] Egger, O. Internet and addiction. 1996. http://www.ifap.bepr.ethz.ch/egger/ibq/iddres.html. (19.07.2013).
[3] Thompson, S. Internet connectivity: Addiction and dependency study. Pennsylvania State University. 1996. http://ww.personal.psu.edu/sjt11/iads/thesis.html. (19.07.2013).
[4] Young, K. S. Internet addiction: The emergence of a new clinical disorder. 1996. http://www.net addiction.com/ articles/newdisorder.pdf. (19.07.2013).
[5] Anderson, K. Internet dependency among college students: Should we be concerned? // Paper presented at the meeting of the American College Personnel Association, St. Louis, Missouri, 1998.
[6] Scherer, H. J. College Life Online: Healthy and Unhealthy Internet Use. // Journal of College Student Development. 38, 6(1997), pp. 655-664.
[7] Yang, S. C.; Tung, C. J. Comparison of Internet Addicts and Non-Addicts in Taiwanese High School. // Computers in Human Behavior. 23, 1(2007), pp. 79-96.
[8] Djamasbi, S.; Siegel, M.; Tullis, T. Generation Y, Web Design, and Eye Tracking. // International Journal of Human-Computer Studies. 68, 5(2010), pp. 307-323.
[9] Chou, C. Internet Heavy Use and Addiction Among Taiwanese College Students: An Online Interview Study. // CyberPsychology and Behavior. 4, 5(2001), pp. 573-585.
[10] Tsai, C. C.; Lin, S. S. Internet Addiction of Adolescents in Taiwan: An Interview Study. // CyberPsychology & Behavior. 6, 6(2003), pp. 649-652.
[11] Freedom House. Freedom on the Net 2012: Malaysia. 2013. http://www.freedomhouse.org/sites/default/files/Malaysia% 202012.pdf. (19.07.2013).
[12] Internet World Stats. Internet usage in Asia: Asia Internet use, population data and Facebook statistics. 2013. http://www.Internetworldstats.com/stats3.htm#asia. (19.07.2013).
[13] comScore. Malaysia's Internet population by age. 2009. http://www.elioe.com/franz/state-of-the-Internet-statistics-focus-on-asia-malaysia/#5. (19.07.2013).
[14] Caplan, S. E. Theory and Measurement of Generalized Problematic Internet Use: A Two-Step Approach. // Computers in Human Behavior. 26, 5(2010), pp. 1089-1097.
[15] Gámez-Guadix, M.; Villa-George, F. I.; Calvete, E. Measurement and Analysis of the Cognitive-Behavioral Model of Generalized Problematic Internet Use Among

Mexican Adolescents. // Journal of Adolescence. 35, 6 (2012), pp. 1581-1591.
[16] Young, K. S. Internet Addiction: The Emergence of A New Clinical Disorder. // CyberPsychology & Behavior. 1, 3(1998), pp. 237-244.
[17] Thatcher, A.; Goolam, S. Development and Psychometric Properties of the Problematic Internet Use Questionnaire. // South African Journal of Psychology. 35, 4(2005), pp. 793-809.
[18] Nunnally, J. Psychometric Theory. 2nd ed. McGraw Hill, New York, 1978.
[19] Caplan, S. E. A social skill account of problematic Internet use. // Journal of Communication. 55, 4(2005), pp. 721-736.
[20] Ogedebe, P. M., Emmanuel, J. A.; Musa, Y. A Survey on Facebook and Academic Performance in Nigeria Universities. // International Journal of Engineering Research and Applications. 2, 4(2012), pp. 788-797.
[21] Byers, P. Y.; Wilcox, J. R. Focus Groups: A Qualitative Opportunity for Researchers. // The Journal of Business Communication. 28, 1(1991), pp. 63-78.
[22] Kumar, M., Talib, S. A.; Ramayah,T. Business Research Methods. Oxford Fajar, Selangor, Malaysia, 2013.

Authors' addresses

Jasmine A. L. Yeap, PhD
School of Management
Universiti Sains Malaysia
11800 USM, Penang, Malaysia
E-mail: jasmineyeap810@gmail.com

T. Ramayah, Prof. MBA
School of Management
Universiti Sains Malaysia
11800 USM, Penang, Malaysia
E-mail: ramayah@gmail.com

Sherah Kurnia, PhD
Department of Computing and Information Systems
The University of Melbourne
111 Barry St., Carlton,
Victoria 3010, Australia

Hasliza Abdul Halim, PhD
School of Management
Universiti Sains Malaysia
11800 USM, Penang, Malaysia

Noor Hazlina Ahmad, Assoc. Prof. PhD
School of Management
Universiti Sains Malaysia
11800 USM, Penang, Malaysia