



## **Internet Addiction Between Malaysian Male and Female Undergraduate Human Sciences Students of The International Islamic University Malaysia**

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### **Abstract**

The purpose of this study is to examine the internet addiction between Malaysian male and female undergraduate human sciences students of IIUM. The sample consisted of 19 male and 31 female students. The instrument used in this study was the Internet Addiction Test (IAT) by Young (1998). Previous studies investigating psychometric features of the IAT involved English speaking population samples. There is a lack of local data regarding the reliability, validity and factor structure of the IAT. This study attempts to evaluate the psychometric properties of the IAT using a Malaysian sample. Relationship between IAT scores and academic performance was also briefly looked into. Factor analysis of the IAT revealed five factors. These factors showed good internal consistency and the whole scale had good internal consistency as well. There were no significant differences in the IAT scores between male and female students and with academic performance. Students who scored high in the IAT reported that they were engaged in mainly non-interactive activities like surfing the Web and writing e-mails when they were on-line. Overall, the IAT is a reliable instrument that may be used in further research on internet addiction.

Keyword : Internet addiction, undergraduate students

### **Introduction**

The internet has become an increasingly important tool used by people around the globe today. Whether it is for leisure or business, the internet serves an important function to the world population. Since the past ten years, some academics have pointed out that excessive internet use can be pathological and addictive. First studied by Young (1996), issues on the excessive use of internet or internet addiction has been widely explored from different angles and several scales have been developed to study the matter empirically.

In a critical review by Widyanto and Griffiths (2006), it is summarized that empirical research on 'internet addiction' can be categorized into five areas: 1) comparison between excessive internet users and non-excessive users, 2) survey studies on vulnerable groups of excessive internet use, 3) studies on the psychometric properties of excessive internet use, 4) case studies on excessive internet users and the treatment, and 5) correlational studies examining the relationship of excessive internet use with other behaviors.

The vulnerable groups mentioned earlier refer to the student population. They are deemed to be vulnerable and at risk of internet addiction as they have easy access to the internet and have more flexibility with time (Moore, 1995, as cited in Widyanto and Griffiths). Students are not restricted to specific working or studying hours, and they have a number of term breaks and holidays throughout the year. In addition to that, Kandell (1998, as cited in Chou, 2001) stated that college students usually have free and easily accessed

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connections, meaning that internet use is both implicitly and explicitly encouraged by a recognized, institutional authority. Furthermore, due to high necessity of internet connection for both academic and organizational purposes, most education institutions today do provide internet access for the students in the campus.

The idea of students being at risk of excessive internet use, and its implications on academic aspects are supported by many researches. For an example, Young (1996) found that 58% of students reported a decline in study habits, a significant drop in grades, missed classes, or being placed on probation due to excessive internet use. She further elaborated that although the internet makes an ideal research tool, students use it more for leisure at the expense of productivity. In a more recent study, she identified several factors contributing to student internet abuse. These include free unlimited internet access, huge blocks of unstructured time, newly experienced freedom from parental control, no monitoring of what they say or do online, full encouragement from faculty and administrators, and social intimidation and alienation (Young, 2004).

Chou (2001) did an empirical qualitative study on Taiwan college students through online interviewing. Six major themes were presented: (1) internet use and reasons; (2) internet features; (3) the internet as replacement for other media; (4) impact of internet overuse; (5) controlling internet use; and (6) coping with internet withdrawal. It can be summarized that the college students involved in the study appreciate and use the internet for various reasons. Although these subjects recognize the effects of internet addiction, very few see it as a serious problem.

In a different study, Ozcan and Buzlu (2007) administered the Online Cognition Scale (OCS) to 730 university students in Turkey to examine the relationship between internet use and their psychosocial conditions. The OCS assesses problematic internet use in four dimensions, namely loneliness/depression, diminished impulse control, distraction, and social comfort. In addition to using standardized scales, the researchers also asked specific questions concerning internet use, such as how long the students had been using the internet, where they accessed the internet, the activities performed online, and how much time spent online, among others. It was found that as the OCS score increased, students' performance of internet activities such as general information searches and academic research decreased and that performance of interactive and entertainment internet activities such as chat, financial transactions, game playing, sex, downloading programs, and listening to MP3s increased. This means that the students tend to use the internet more for leisure purposes than for academic purposes.

Gender differences and trends in age groups are often observed in many studies in internet addiction. A study by Young (1996) found that middle-aged women were more prone to internet addiction disorder than men and other age groups. Davis, Smith, Rodrigue and Pulvers (1999) compared gender differences in internet use in two different universities. They found that male students spend more time online than do female students in the public university, but there were no significant differences in terms of the time spent online by males and females in the private university.

Kubey, Lavin and Barrows (2001, as cited in Widyanto and Griffiths, 2006) did a survey on the internet usage, study habits, academic performance, and personality among university students. Results show that male students were more internet dependent than women. Age was not found to be a factor, but first year students were found to make up 37.7% of the dependent group. Dependents were four times more likely than non-dependents to



report academic impairment due to their internet use. In terms of their internet usage, dependents who were also academically impaired were found to be nine times as likely to use synchronous functions of the internet (chat programs). In other words, students who were more dependent to the internet were those who use it more for leisure purposes.

Simkova and Cincera (2004) translated Young's Internet Addiction Test into Czech and conducted the test to two groups of respondents – Czech online chat users and Czech university students. They found that among the online chat users, men are more likely to spend longer time chatting online than do women, although the women who are more serious chatters tend to be more dependent than men users. They also found that men have more problems with the internet addiction disorder than do women. No gender differences were observed when age of respondents was compared. The research also revealed that internet addiction disorder is known among university students.

In a more recent study, Rees and Noyes (2007) found that significant sex differences were reported for computer and internet use, internet attitudes, and computer anxiety, although both females and males were generally competent and frequent users of both technologies. The findings were said to support previous claims in the literature which says that females are less frequent users of technology as compared to males, and that females have less positive attitudes, and greater anxiety towards technology.

Wu and Cheng (2007) did a study on the phenomenon of internet café addiction among adolescents in Taiwan and found that males' stay hours in internet café are longer than females', and males also get higher internet café addiction scores than females. This shows that males are more likely to be addicted to the internet than females.

Ferraro, Caci, D'Amico, and Di Blasi (2007) administered the Italian version of the Young's Internet Addiction Test (IAT) to 236 Italian chatters who were different in terms of gender, age, and occupation. Results revealed that young users are more at-risk subjects for internet addiction than adults. No significant differences were found between male and female respondents in terms of the total IAT scores.

In some studies, the common types of internet usage are explored to see if they contribute to internet addiction. Some of these researches have been mentioned earlier, such as the study by Ozcan and Buzlu (2007) which highlighted several online activities by university students in Turkey including general information searches, academic searches, and interactive and entertainment activities.

Widyanto and McMurrin (2004) have categorized various functions of the internet into four. The first category is the non-interactive functions which include information search, searching the Web, downloading computer games, and MUD games. The second one is the asynchronous interactive functions which include activities whereby users are able to interact with other users although they do not get an immediate reply. This category includes e-mails, auctions, and discussion forums. The third category is the synchronous interactive functions which include chat rooms and MUD chat. In this category, users can interact with other users in real time. The fourth category includes the non-specified functions.

From the literature review, it can be observed that internet addiction is a cross cultural syndrome (Ferraro, et al., 2007). In studying excessive internet use among students, standardized measures were used and adapted to suit different cultures. Young's Internet Addiction Scale for an example, which is originally in English language, has been adapted to different languages such as Chinese, Italian, and Czech in different studies. Studies in internet addiction using student samples have also been done in Taiwan and Turkey, among others.



However, the researchers did not come across any related studies done on Malaysian student sample.

Due to the relevance and importance of the matter, the researchers investigated the gender differences in internet addiction among the undergraduate Human Sciences students at the International Islamic University Malaysia. The effects of excessive internet usage among these students on their academic performance were also looked into.

### ***Cross-Cultural Problems***

In conducting a cross-cultural research, there are some problems which must be minimized first. Frijda and Jahoda (1966, as cited in Wan Rafaei Abdul Rahman, 2005) listed four problems to be minimized before conducting a cross-cultural research. They are: 1) equivalence of descriptive categories, 2) equivalence of phenomena studied, 3) equivalence of method, and 4) equivalence of samples used in the study.

Brislin, Lonner, and Thorndike (1973) have also listed seven problems in conducting a cross-cultural research. They are:

- 1) determining the meaning of cross-cultural research,
- 2) choosing appropriate topics for study,
- 3) discovering the problems specific to a given investigation,
- 4) experimenter and demand effects,
- 5) plausible rival hypothesis,
- 6) sampling respondents in different cultures, and
- 7) emic-etic distinction

As the present study would involve investigation of cultural differences of a particular phenomenon, these cross-cultural problems must be overcome. According to Campbell (1969, Winch and Campbell, 1969, as cited in Brislin, Lonner and Thorndike, 1973), researchers should rule out some 'threats' which may jeopardize the validity of any explained data. These 'threats' or factors provide a good list of plausible rival hypothesis which researchers can examine and exclude to support his preferred interpretation of cultural differences.

In the present study, the cross-cultural problems are overcome through equivalence, matching of samples, and by minimizing the rival hypothesis.

## **Concept Definition**

### ***Theoretical definition***

Currently there is no accepted set of criteria to diagnose internet addiction listed in the Diagnostic and Statistical Manual of Mental Disorders -Fourth Edition (DSM-IV; American Psychiatric Association, 1995). However, of all the diagnoses referenced in the DSM-IV, Pathological Gambling was viewed as most similar to the pathological nature of internet use (Young, 1996). According to Young (as cited in Ozcan & Buzlu, 2007), problematic internet use is excessive time spent on various activities on the internet to an extent that might have negative effects on the user's physical and psychological health; social, academic, professional, and marital relationships, and other areas of life.

### ***Operational definition***

Young (1996) modified the DSM-IV criteria for pathological gambling to develop an eight-item scale. In 1998, Young expanded the scale to 20 items to include areas of a person's life might be affected by excessive internet use. Internet addiction will be measured using Young's (1998) 20-items Internet Addiction Test (IAT).



## **Method**

### ***Participants***

Participants consisted of 19 male and 31 female Malaysian IIUM Human Science undergraduate students. They were selected using purposive sampling. They were selected from several final year classes from Psychology Department, Communications Department, English Language and Literature Department, Political Science Department and Sociology and Anthropology Department. The test was administered either at the beginning or at the end of the class, as per the preference of the respective lecturers. To prevent experimenter and demand effects, the purpose of the study was not informed to the participants. The purpose of the test was only informed to the lecturers prior to entering their respective classes. The instructions given were the same for all the classes that were administered the test.

### ***Instruments***

One questionnaire was distributed to each participant (Appendix 1). The questionnaire has three sections. The first section requested respondent's demographics like gender, age, course, year/level of course and nationality. These demographic data was required for screening and matching purposes. This was to ensure that the data analysis would only include respondents who are Malaysians and Human Science undergraduate students in their final year.

In the second section, respondents were required to provide some details on their internet use such as the number of hours per week of internet use, number of years of internet use, where they usually get internet access, the internet function that they use mostly (e.g. E-mail, browsing the Web, downloading software, playing games, chatting etc.) and which function do they spend the most time while on-line.

The third section of the questionnaire had the Internet Addiction Test (IAT). This scale has 20 items which respondents were asked to rate items on a five-point Likert scale (from 1 = never to 5 = always), covering the degree to which their internet use affects their daily routine, social life, productivity, sleeping pattern, and feelings. The minimum score is 20, and the maximum score is 100, the higher the score, the greater the problems internet use causes. A score of 20-39 points is an average online user who has complete control over his/her usage; a score of 40-69 signifies frequent problems due to internet usage and a score of 70-100 means that the internet is causing significant problems. This scoring was based on the participants Young recruited through announcements in newspapers, posters distributed at colleges, electronic postings and search engines on the Web.

### ***Internet Addiction Test***

There are several scales available pertaining to the internet. There are those that measure internet addiction, pathological internet use, computer anxiety and attitude towards internet. For the purpose of this study, Young's (1998) expanded version of the Internet Addiction Test (IAT) was used. This test included Young's original eight items along with 12 new items. The 20 items is divided into 6 factors. Factor 1 (five items) measures salience. Factor 2 (five items) measures excessive use. Factor 3 (three items) measures neglect of work. Factor 4 (two items) measures anticipation. Factor 5 (three items) measures lack of control. Factor 6 (two items) measures neglect of social life. Table 1 shows the items according to their respective factors.

According to Widyanto & McMurrin (2004), the internal consistency within the items in each factor, Cronbach's alphas were all highly to moderately reliable from .82 to .54 with



an average of .71. It was also calculated that the six factors are significantly correlated with each other ranging from Pearson's  $r = 0.226$  to  $r = 0.62$ .

Several words on some of the items had to be changed to reflect the student population. This is in line with the recommendation by Winch and Campbell (1969, as cited in Brislin et al, 1973) to address the rival hypothesis of the irrelevant responsiveness of measures in one culture compared to another culture. For item 2, the words 'household chores' were replaced with 'coursework/assignments', for item 3, the word 'friends' was added, for item 6, the words 'missing classes' were added and for item 8, the word 'job' was replaced with 'academic'. Table 1 shows the items by factor.

Table 1: IAT items According to 6 IAT Factors

Factor 1: Saliency	
Q19	How often do you choose to spend more time online over going out with others?
Q13	How often do you snap, yell, or act annoyed if someone bothers you while you are online?
Q12	How often do you fear that life without the internet would be boring, empty and joyless?
Q15	How often do you feel preoccupied with the internet when off-line or fantasize about being online?
Q10	How often do you block disturbing thoughts about your life with soothing thoughts of the internet?
Factor 2: Excessive use	
Q2	How often do you neglect coursework/assignments to spend more time online?
Q14	How often do you lose sleep due to late night log-ins?
Q20	How often do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?
Q1	How often do you find that you stay online longer than you intended?
Q18	How often do you try to hide how long you've been online?
Factor 3: Neglect of work	
Q6	How often do your studies suffer (e.g. missing classes, postponing things, not meeting deadlines, etc.) because of the amount of time you spend online?
Q8	How often does your academic performance or productivity suffer because of the internet?
Q9	How often do you become defensive or secretive when anyone asks you what you do online?
Factor 4: Anticipation	
Q11	How often do you find yourself anticipating to go online again?
Q7	How often do you check your E-mail before something else that you need to do?
Factor 5: Lack of control	
Q17	How often do you try to cut down the amount of time you spend online and fail?
Q5	How often do others in your life complain to you about the amount of time you spend online?
Q16	How often do you find yourself saying "Just a few more minutes" when online?
Factor 6: Neglect of social life	
Q4	How often do you form new relationships with fellow online users?
Q3	How often do you prefer excitement of the internet to intimacy with your partner/friends?



**Results**

***Participants***

Over a 3 weeks period, 71 responses were collected. Respondents who were not Malaysians, final year students and not from Human Sciences Faculty were not included in the data analysis. A total of 50 responses were used in the analysis. The sample was made up of 19 (38%) males and 31 (62%) females. Out of these 50 respondents, 11 (22%) were from Psychology Department, 11 (22%) from Communications Department, 12 (24%) from English Language and Literature Department, 14 (28%) from Political Science Department and 2 (4%) from Sociology and Anthropology Department as in Table 2.

Table 2:  
Number and Percentage of Participants According to Gender and Department

Category		No. of participants	% of participants
Gender	Male	19	38
	Female	31	62
Department	Psychology	11	22
	Communications	11	22
	English Language and Literature	12	24
	Political Science	14	28
	Sociology and Anthropology	2	4

***Internet use***

Table 3 shows the numbers of years of internet use. Out of the 50 respondents, 64% have used the internet for more than 5 years and 6% have only used the internet for less than 6 months. The duration of internet use among the respondents ranged from less than 2 hours per week (16%) to more than 40 hours per week (8%). 44% of the respondents spend 2 – 6 hours a week on the internet as shown in Table 4. 50% of the respondents connect to the internet by using the university computer lab or from the Mahallah. They also access the internet from home (24%), cyber cafes (21.3%) and university offices (.04%) (See table 5). When they are on the internet, 48% of the respondents use the internet for asynchronous interactive activities like using the e-mail, participate in auction rooms and discussion rooms as well as find resources for university assignments. 38% of the respondents use the internet for non-interactive activities, for example surfing the web, downloading software or programs, playing computer games and also to keep abreast in any new developments in their area of interest. 12% of the respondents use the internet as a means for meeting new people, chatting with friends or others who share their interests. These activities fall into the synchronous interactive category of the various functions of the internet. The remaining 2% of the respondents spend most of their time on the internet for blogging or reading the news, as shown in Table 6.



Table 3: Number of Years of Internet Use

Number of years	No. of Participants	Percent
0 - 3	2	4.0
3 - 6	1	2.0
1 - 2	6	12.0
2 - 5	9	18.0
more than 5	32	64.0

Table 4: Number of Hours per Week of Internet Use

Number of hours	No. of Participants	Percent
0 - 2	8	16.0
2 - 6	22	44.0
6 - 10	8	16.0
10 - 20	5	10.0
20 - 40	3	6.0
more than 40	4	8.0

Table 5: Location for Connecting to the Internet

Location	Percent
University computer lab	32.0
Mahallah	18.7
Home	24.0
Cyber café	21.3
Others	0.04

Table 6: Type of Internet Activity

Type of Activity	Percent
Asynchronous Interactive	48
Non-interactive	38
Synchronous Interactive	12
Others	2

**Factor Analysis**

Measures of sampling adequacy were carried out on the IAT to see whether it was suitable for factor-analysis. Bartlett’s test of sphericity indicated a chi square value of 520.33,  $p < .0001$ ; while Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy indicated a value of .70. When a basic scree-test and eigenvalue at  $>1.0$  criteria were used, five factors (7.15, 2.25, 1.75, 1.33, 1.11) were generated from the IAT. These five factors, which were rotated to position of orthogonality in eleven iterations, explain 67.94% of the variance (see Table 7).





Table 7: Eigenvalue and Percentage of Variance Explained

Factor	1	2	3	4	5
Cronbach's standardized alpha	.89	.88	.81	.85	.75
Eigenvalue	7.15	2.25	1.75	1.33	1.11
Percentage of variance explained	16.46	16.15	14.43	10.75	10.15

Principal component analysis with Varimax rotation resulted in five-factor solution indicating that the IAT is multidimensional. Factor 1 (6 items) account for 16.46% of the variance and factor loadings were from .61 to .73. Factor 2 (4 items) account for 16.15% of the variance and factor loadings were from .65 to .74. Factor 3 (5 items) account for 14.43% of the variance and factor loadings were from .46 to .83. Factor 4 (2 items) account for 10.75% of the variance and factor loadings were from .62 to .72. Finally, Factor 5 (3 items) account for 10.15% of the variance and factor loadings were from .65 to .75 (See tables 7 and 8).

Table 8: Rotated Component Matrix

Scale Items	Components				
	1	2	3	4	5
1			.483	-.507	.334
2	.699		.478		
3			.717		.301
4			.457	.407	
5	.732	.417			
6	.698	.359			
7					.731
8	.636	.338			
9	.684			.331	
10				.718	
11				.569	.655
12					.750
13		.474		.624	
14	.334	.650			
15		.687			
16		.338	.772		
17			.828		
18	.614	.436		.324	
19		.724			
20		.742		.324	

**Reliability**

Reliability of the IAT was examined by computing the Cronbach alpha. The overall Cronbach alpha was .89 (p<.005) and Cronbach alpha if item deleted, ranged from .88 to .90 (p<.005) (See table 9). The internal consistencies of the five factors ranged from .75 to .89 (See table 7).



Table 9:  
Corrected Item-Total Correlations and Cronbach's Alpha if Item Deleted

	IAT Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	Stay online longer than intended	.28	.90
2	Neglect assignments	.46	.89
3	Prefer excitement to intimacy	.52	.89
4	Form new relationships with online users	.32	.89
5	Others complain about time spent online	.60	.89
6	Studies suffer	.75	.88
7	Check email before something else	.30	.89
8	Academic performance suffer	.43	.89
9	Become defensive or secretive	.48	.89
10	Block disturbing thoughts using internet	.58	.89
11	Anticipate going back online	.48	.89
12	Fear life would be boring without internet	.33	.90
13	Annoyed when bothered while online	.61	.89
14	Lose sleep	.50	.89
15	Feel preoccupied	.65	.88
16	Say "Just a few more minutes"	.57	.89
17	Try to cut down and fail	.52	.89
18	Hide how long have been online	.69	.88
19	Go online over being with friends	.62	.88
20	Feel depressed when offline	.72	.88

**t-test**

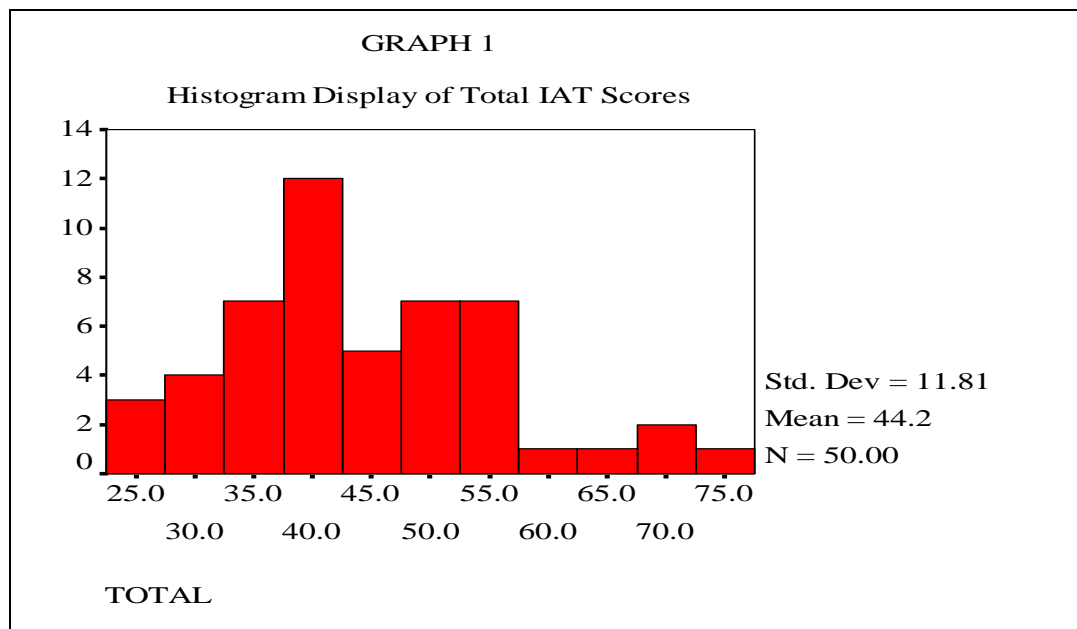
The results of independent sample t-test indicated absence of any significant difference in the mean of IAT scores of male (M = 45.47, SD = 14.07) and female (M = 43.48 , SD = 10.35 ),  $t(29.94) = .53, p = .60$  where equal variances is not assumed (Table 10)

Table 10:  
Difference between Mean Scores and Standard Deviations by Gender on the IAT

Gender	N	M	SD	t	p
Male	19	45.47	14.07	.53	.60
Female	31	43.48	10.35		



*IAT score*



Graph 1 shows the histogram display of the Total IAT scores. The mean is 44.2, standard deviation is 11.81 and the mode is 40. According to Young (1998, as cited in Widyanto and Mc Murrin, 2004), the interpretation for IAT scores are as follows:

- 20-39: Average online user who has complete control over his/her usage
- 40-69: Frequent problems due to internet usage
- 70-100: Internet is causing significant problems

Following these criteria, 38% of the respondents are average online users, 58% have frequent problems due to internet usage and 4% have significant problems due to internet use. However, these criteria were based on Young’s respondents which were recruited through announcements in newspapers, posters distributed at colleges, electronic postings and search engines on the Web.

Referring to the data collected in this study, the IAT scores ranged from 25 to 75 (Graph 1). The IAT score at the 25<sup>th</sup> percentile is 35, the IAT score at the 50<sup>th</sup> percentile is 42 and the IAT score at the 75<sup>th</sup> percentile is 52. With this, the IAT interpretation for the population of final year IIUM Human Science students can be as follows:

- 20-35: Average online user who has complete control over his/her usage
- 36-51: Frequent problems due to internet usage
- 52-100: Internet is causing significant problems

Following these criteria, 26% of the respondents are average online users, 50% have frequent problems due to internet usage and 24% have significant problems due to internet use



(Table 11). In terms of male students, 26% of them are average online users, 42% have frequent problems and 32% have significant problems due to internet use. As for the female students, 26% of them are average online users, 55% have frequent problems and 19% have significant problems due to internet use.

TABLE 11: Total IAT Score Interpretation

Score	Interpretation	No. of participants (Percent)		
		Male	Female	Total
20-35	Average online user	5 (26%)	8 (26%)	13 (26%)
36-51	Frequent problems	8 (42%)	17 (55%)	25 (50%)
52-100	Significant problems	6 (32%)	6 (19%)	12 (24%)

Of the 12 respondents who scored more than 52 on the IAT, 8 of them spent most of their time on-line doing non-interactive activities like surfing the Web, downloading programs and playing computer games. The remaining 4 respondents spent most of their time on-line doing asynchronous interactive activities like using the e-mail, participate in discussion forums and auction rooms. For the 13 respondents who scored below 35 on the IAT, 8 of them spent their time on-line doing asynchronous activities and 5 of them spent their time on-line doing non-interactive activities. From the 12 respondents who scored more than 52 on the IAT, only 2 reported decreasing CGPA. The remaining respondents reported increasing CGPA or no difference in their CGPA from first year to fourth year.

### Discussion

This purpose of this study was to examine the internet addiction between male and female undergraduate human sciences students of IIUM. A total of 71 students participated in this study however, after matching these respondents in terms of nationality and course program, only 50 (19 males, 31 females) were included in the final statistical analysis.

These 50 respondents were from five out of the seven departments in Human Sciences Faculty. No respondents were obtained from the History and Civilization Department and the Arabic Language and Literature Department due to time limitations and schedule conflicts among the final year classes.

50% of the respondents access the internet either by using the university computer lab or from the Mahallah. This supports the finding by Kandell (1998, as cited in Chou, 2001) and Young (2004) which states that college students usually have free and easy access to internet connections in education institutions.

In the research by Widyanto and McMurrin (2004) and also by Kubey et al (2001, as cited in Widyanto and Griffiths 2006), the main use of the internet was for synchronous interactive activities like chatting. However, in this study, main use of the internet is for asynchronous interactive activities like using the e-mail, participate in auction rooms and discussion rooms as well as find resources for university assignments (48%). Only 12% of the respondents use the internet for synchronous interactive activities.

To address the main purpose of this study which is to determine if there are differences in internet addiction between male and female final year Human Science students, an independent sample t-test was calculated and the results showed that there were no significant differences in the IAT scores between male and female respondents. This finding is similar to the study by Ferraro, et al. (2007) on 236 Italian chatters which did not show any significant differences between male and female respondents.



In terms of the IAT scores, if Young's scoring criteria were used, 38% of the respondents are average online users, 58% have frequent problems due to internet usage and 4% have significant problems due to internet use. However, if the scores obtained from the respondents of this study only were used to develop the scoring criteria, 26% of the respondents are average online users, 50% have frequent problems due to internet usage and 24% have significant problems due to internet use.

Differences in the scoring criteria may be due to the different samples used in Young's study and in this study. This study consisted of Malaysian final year students only whereas Young's study included non-students population as well. Many other factors like socioeconomic status and societal variables may have influenced the results as well (Winch and Campbell, 1969, as cited in Brislin et al 1973).

Comparing male and female students, majority of them have frequent problems due to internet usage with 42% males and 55% females in that category. For male students, a higher percentage of them (32%) have significant problems with the internet compared to 26% of them which are average online users. This is the opposite than the female students whereby a higher percentage of them (26%) are average online users compared to only 19% which have significant problems with internet use. This is similar to the findings by Wu and Cheng (2007) which shows that males get higher internet café addiction scores than females.

From the 12 respondents who scored more than 52 on the IAT, only 2 reported decline in their Cumulative Grade Point Average (CGPA) results. The remaining respondents reported increasing CGPA or no difference in their CGPA from first year to fourth year. This does not support the finding by Young (1996) that found 58% of students in her research that reported decline in study habits and exam grades.

The psychometric properties of the IAT were also determined. Five factors were extracted from the 20 items questionnaire. All five factors showed good internal consistency with Cronbach alpha from .75 to .89 and the overall Cronbach alpha was .89 ( $p < .005$ ).

### **Conclusion**

There were no significant differences between male and female respondents in terms of the IAT scores. This could have been due to the small number of sample that was obtained. The researchers faced challenges in obtaining male participants in the Human Science Faculty. Most of the classes that were approached had small number of male students. With this small number of sample, the results should be interpreted with caution. For future researches, it is suggested that more samples be taken from other faculties and departments as well so as to get a larger sample of participants.

In terms of the IAT scores, based on the population of final year IIUM Human Science students, IAT scores from 20 to 35 represents average online user who has complete control over his/her usage. IAT scores from 36 to 51 represents frequent problems due to internet usage and scores from 52 to 100 represents significant problems with internet use. Following these criteria, 26% of the respondents are average online users, 50% have frequent problems due to internet usage and 24% have significant problems due to internet use.

The results also showed no significant correlation between the IAT scores and academic performance. The test administered was a self-report measure so there is a tendency for the respondents to intentionally or unintentionally fake good or fake bad in their responses (Cohen and Swerdlik, 2005). For future research, official academic records should be obtained from the university database instead of relying on the self-report of respondents.



The IAT is measuring some key factors in addiction. It has good internal consistency and can be used for future research in Malaysia. However, the reliability and validity should be further tested with a larger sample of respondents. A highly valid and reliable IAT that can be established with Malaysian norms would be valuable in investigating the nature of internet addiction.

### References

- Brislin, R. W., Lonner, W. J. & Thorndike, R. M. (1973). *Cross-cultural research methods*. New York: John Wiley & Sons.
- Chou, C. (2001). Internet heavy use and addiction among Taiwanese college students: An online interview study. *CyberPsychology and Behavior*, 4, 573-585.
- Cohen, R. J. & Swerdlik, M. E. (2005). *Psychological testing and assessment: An introduction to tests and measurement* (6<sup>th</sup> ed.). New York: McGraw Hill.
- Davis, S., Smith, B. G., Rodrigue, K., & Pulvers, K. (1999), An examination of internet usage on two college campuses. *College Student Journal*, 33, 257-60
- Ferraro, G., Caci, B., D'Amico, A., and Di Blasi, M. (2007). Internet addiction disorder: An Italian study. *CyberPsychology and Behavior*, 10, 170-175.
- Moore, D. (1995). *The Emperor's virtual clothes: The naked truth about the internet culture*. Chapel Hill, North Carolina: Alogonquin.
- Kandell, J. J. (1998). Internet addiction on campus: the vulnerability of college students. *CyberPsychology & Behavior*, 1, 11-17.
- Kubey, R. W., Lavin, M. J., & Barrows, J. R. (2001). Internet use and collegiate academic performance decrements: Early findings. *Journal of Communication*, 51, 366-382.
- Ozcan, N. K. & Buzlu, S. (2007). Internet use and its relation with the psychosocial situation for a sample of university students. *Cyber Psychology and Behavior*, 10, 767-772.
- Rees, H., Noyes, J. M. (2007). Mobile telephone, computers, and the internet: sex differences in adolescents' use and attitudes. *CyberPsychology and Behavior*, 10, 482-484.
- Simkova, B., & Cincera, J. (2004). Internet addiction disorder and chatting in the Czech Republic. *CyberPsychology and Behavior*, 7, 536-539.
- Wan Rafaei Abdul Rahman (2005). In search of equivalence: The cross-cultural approach. *The First International Research Colloquium: Research in Malaysia and Thailand*. Kuala Lumpur: Department of Psychology.
- Widyanto, L. & McMurrin, M. (2004). The psychometric properties of the Internet Addiction Test. *CyberPsychology and Behavior*, 7 (4), 443-450.
- Widyanto, L., & Griffiths, M. (2006). 'Internet addiction': A critical review. *International Journal of Mental Health Addict*, 4, 31-51.
- Wu, C-S., and Cheng F-F. (2007). Internet café addiction of Taiwanese adolescents. *CyberPsychology and Behavior*, 10, 220-225.
- Young, K. (1996). Internet addiction: The emergence of a new clinical disorder. *Cyber Psychology and Behavior*, 3, 237-244.
- Young, K. (1998). *Caught in the Net*. New York: John Wiley & Sons.



## Appendix 1

This research is a part of our postgraduate course in psychology. This questionnaire has statements which describe the way people feel about themselves. There is no right or wrong answer. Your frank and honest response will contribute to a better understanding of people in general and add to the existing knowledge in this area of psychology. The data will be analyzed in groups. No person other than the researchers will have access to any individual's responses. We assure you complete anonymity of your responses and hope to have your cooperation and support in this regard.

Thank you.

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Nur Amirah Binti Mohd Zam (G0727612)

Department of Psychology,  
International Islamic University Malaysia.

Age: \_\_\_\_\_ Gender: \_\_\_\_\_ Nationality: \_\_\_\_\_

Course: \_\_\_\_\_ Level of course (circle one only): 1 / 2 / 3 / 4

CGPA (fill in as many as possible):

1<sup>st</sup> year: \_\_\_\_\_ 2<sup>nd</sup> year: \_\_\_\_\_ 3<sup>rd</sup> year: \_\_\_\_\_ 4<sup>th</sup> year: \_\_\_\_\_

Your CGPA have been:

- |  |   |
|--|---|
| <input type="checkbox"/> increasing    | <input type="checkbox"/> decreasing                   |
| <input type="checkbox"/> no difference | <input type="checkbox"/> Others. Please specify _____ |

I spend an average of \_\_\_\_\_ hours per week on the internet e.g. surfing the web, E-mails etc.

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| <input type="checkbox"/> 0 – 2  | <input type="checkbox"/> 10 – 20      |
| <input type="checkbox"/> 2 – 6  | <input type="checkbox"/> 20 – 40      |
| <input type="checkbox"/> 6 – 10 | <input type="checkbox"/> More than 40 |

I usually connect to the internet at

- |  |   |
|--|---|
| <input type="checkbox"/> University computer lab | <input type="checkbox"/> Cyber café                   |
| <input type="checkbox"/> Mahallah                | <input type="checkbox"/> Others. Please specify _____ |
| <input type="checkbox"/> Home                    |   |

My primary purpose for using the internet is (tick all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> surfing the Web                              | <input type="checkbox"/> to participate in discussion forums                    |
| <input type="checkbox"/> downloading programs/software                | <input type="checkbox"/> to meet new people                                     |
| <input type="checkbox"/> play computer games                          | <input type="checkbox"/> to chat with others who share my interests             |
| <input type="checkbox"/> to use the E-mail                            | <input type="checkbox"/> to be aware of new developments in my area of interest |
| <input type="checkbox"/> to participate in auction rooms              | <input type="checkbox"/> Others. Please specify _____                           |
| <input type="checkbox"/> to find resources for university assignments |   |
| <input type="checkbox"/> to chat with friends                         |   |



Which of the following function of the internet do you use mostly? (tick one only)

- |   |   |
|---|---|
| <input type="checkbox"/> surfing the Web                              | <input type="checkbox"/> to participate in discussion forums                    |
| <input type="checkbox"/> downloading programs/software                | <input type="checkbox"/> to meet new people                                     |
| <input type="checkbox"/> play computer games                          | <input type="checkbox"/> to chat with others who share my interests             |
| <input type="checkbox"/> to use the E-mail                            | <input type="checkbox"/> to be aware of new developments in my area of interest |
| <input type="checkbox"/> to participate in auction rooms              | <input type="checkbox"/> Others. Please specify_____                            |
| <input type="checkbox"/> to find resources for university assignments |   |
| <input type="checkbox"/> to chat with friends                         |   |

I have been using the internet regularly for

- |  |  |
|--|--|
| <input type="checkbox"/> 0 – 3 months  | <input type="checkbox"/> 1 – 2 years       |
| <input type="checkbox"/> 3 – 6 months  | <input type="checkbox"/> 2 – 5 years       |
| <input type="checkbox"/> 6 – 12 months | <input type="checkbox"/> more than 5 years |





Instructions: Rate each statement using a number from the following scale to indicate how characteristic this statement is of you. Circle your responses.

	Items	Never	Occasionally	Frequently	Often	Always
1	How often do you find that you stay online longer than you intended?	1	2	3	4	5
2	How often do you neglect coursework / assignments to spend more time online?	1	2	3	4	5
3	How often do you prefer excitement of the internet to intimacy with your partner/friends?	1	2	3	4	5
4	How often do you form new relationships with fellow online users?	1	2	3	4	5
5	How often do others in your life complain to you about the amount of time you spend online?	1	2	3	4	5
6	How often do your studies suffer (e.g. missing classes, postponing things, not meeting deadlines, etc.) because of the amount of time you spend online?	1	2	3	4	5
7	How often do you check your E-mail before something else that you need to do?	1	2	3	4	5
8	How often does your academic performance or productivity suffer because of the internet?	1	2	3	4	5
9	How often do you become defensive or secretive when anyone asks you what you do online?	1	2	3	4	5
10	How often do you block disturbing thoughts about your life with soothing thoughts of the internet?	1	2	3	4	5
11	How often do you find yourself anticipating to go online again?	1	2	3	4	5
12	How often do you fear that life without the internet would be boring, empty and joyless?	1	2	3	4	5
13	How often do you snap, yell, or act annoyed if someone bothers you while you are online?	1	2	3	4	5
14	How often do you lose sleep due to late night log-ins?	1	2	3	4	5
15	How often do you feel preoccupied with the internet when off-line or fantasize about being online?	1	2	3	4	5
16	How often do you find yourself saying "Just a few more minutes" when online?	1	2	3	4	5
17	How often do you try to cut down the amount of time you spend online and fail?	1	2	3	4	5
18	How often do you try to hide how long you've been online?	1	2	3	4	5
19	How often do you choose to spend more time online over going out with others?	1	2	3	4	5
20	How often do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?	1	2	3	4	5