

# **Profiling Thai Student's Use of the Internet: Implications for Web Page Design**

**Peter Vitartas**

School of Commerce and Management  
Southern Cross University, AUSTRALIA  
*pvitarta@scu.edu.au*

**Sutida Sangkamane**

DBA Candidate, Graduate College of Management  
Southern Cross University, AUSTRALIA  
*ssangkamane@yahoo.com*

## **Abstract**

*This paper reports on the Internet behaviour of university students in Thailand and in particular on the results of research into the impact of the Internet on media usage and factors considered important in Web page design for this group. The findings reveal that the use of the Internet is prevalent among University students in Thailand and that it is used for leisure and entertainment as well as study, E-mail to friends and contact with the university. The Internet does not appear to influence the amount of television viewing or print media usage and the key factors identified for Web page design include information content, graphic/ perceptual effects, entertainment and rewards/benefits obtained from the page. Implications for Web page design and limitations are discussed.*

## **Keywords**

*Internet behaviour, Web page design, Media use, Thailand, University students*

## **Introduction**

The Internet has evolved to provide people with a new way to communicate and interact (Gates, 1995; Rheingold, 1993). Its adoption in teaching has provided academics with many new opportunities to communicate and deliver teaching materials to students (Siegel, 1996), Recently we have seen universities starting to utilising the Internet in a number of ways including the delivery and provision of course materials,

course information, enrolment and payment of fees. In addition, students are becoming exposed to and more familiar with the use of the Internet from an early stage in their life. These developments raise questions concerning how students are using the Internet and what impact it is having on activities such as television and media usage and what are considered the important aspects of Web page design.

One country which has recently experienced the introduction of the Internet and expecting its rapid growth is Thailand. While currently there is only a small proportion of the population (2%) reported as having access to the Internet (Cyberatlas 1999) its use particularly among University students is increasing rapidly. This adoption of the Internet by students and the Universities alike has not been researched. This paper reports on the Internet behaviour of university students in Thailand and in particular on the results of research into the impact the Internet is having on media usage and factors considered important in Web page design.

### **Use of the Internet**

The Internet is an effective channel to carry messages from sender to receiver in an information society and is an important medium for students to search for information for assignments as well as being a resource for lecturers and staff in the education field (Atwong & Hugstad, 1997). Significant proportions of school age children and university students now use the Internet on a regular basis. In the USA alone, approximately 90% of college or university students have access to the Internet compared to less than 10% of the population at large (Chidley 1996). Closer to home, one study of Australian university students found only 3% of students having never used the Internet (Napoli & Ewing, 1998). As such, the digital revolution is producing a generation of technologically sophisticated people (Morrison 1997). Atwong and Hugstad (1997) have argued that graduates who are proficient in operating computer mediated environments will gain a competitive edge over less sophisticated adopters and thus we can expect students to learn much of their Internet behaviour from these early years at University. While the number of people using the Internet continues to grow, many web users have experienced disappointment with the success of commercial web sites and there have been calls for a better understanding of the web user (Korgaonkar, 1999). A similar view can be taken for understanding the student web user.

## **Students and the Internet**

The Internet offers students many advantages including the speed of making contact with others and an ability to access resources. Through the Internet students are able to keep in contact with other students and friends using e-mail, in some cases these contacts may be overseas or interstate. They can more easily find information on courses and enrol or contact the university and use the Internet for course related activities such as finding information for assignments. (Siegal, 1996; Atwong & Hugstad, 1997) Beyond using the Internet for study, students also use it for leisure or entertainment purposes (Donthu & Garcia 1999). Examples would include anything from playing games and checking sporting scores to finding out the latest information on a favourite band or TV show. They can also use it to get free samples, purchase products or even apply for jobs (Teo, Lim and Lai, 1997)

Any level of Internet usage is going to consume time and this would be at the expense of other activities. Usage of the Internet will require time for composing messages, reading and searching activities. As a result the level of Internet usage is likely to have an impact on the amount of time students have to undertake other tasks. In other studies it has been found that the Internet has not adversely affected the level of television usage (Coffey and Stipp, 1997; Cartellieri et al, 1997; Napoli & Ewing, 1998) Of interest is whether other media besides television is affected by Internet usage. An important consideration in the development of a Web site is the design of web pages. The appeal of a Web page to the reader will determine the amount of time which is spent there and will have an influence on the amount of time spent at the web site (Novak and Hoffman, 1997; Raman & Leckenby, 1998). From an educators point of view it is believed that important elements in the Web page design will influence the amount of time a student will spend at a web page. This has implications for the design of Web pages which appeal to students. Elements which have been shown to be important for web page design include information content, entertainment value, personal relevance and efficiency in terms of down-load time and the page's ability to display on the computer (Eighmey, 1997; Shereshefsky, 1997; Tapscott, 1998; Ducoffe, 1996; Teo et al, 1996; Maddox et al, 1997; Napoli & Ewing, 1998).

The majority of research reported in the literature on Web page design is based largely in western cultures. Very little research has been reported on studies of Asians' use of the Internet (see Teo et al, 1997 for an exception)

and particularly those of students despite calls for such studies (Napoli & Ewing, 1998).

## **Methodology**

Respondents were 170 students studying at Assumption University in Thailand, which is located in Bangkok. There are over 40 universities in Thailand, with most of them providing computer and Internet services to their students. Assumption University (ABAC) is the first International University in Thailand. It has numerous facilities to assist students with their use of computers and the Internet. ABAC students use the Internet for enrolment, checking result and for contact with the university.

Respondents consisted of students from various years of study ranging from first to fifth. Respondents were enrolled in both undergraduate and postgraduate programs (88.2% and 11.8% respectively) and from a variety of courses including architecture, arts, biotechnology, business, mass communication, nursing, science and technology, law and engineering although a large proportion were studying business and mass communication courses (70%). The majority of respondents were aged between 19-21 (54%) while 11.8% were between 16-18 and 34.1% more than 22 years of age. Respondents were predominantly male (59%).

Data was collected using a questionnaire, which had been developed from prior research and was an extension of work done by Napoli & Ewing (1998). The questionnaire was administered in Thai in order to make the respondents feel more comfortable reading it and to avoid any problems they may have in translating the questions. Although the students study in English, it was believed they would read Thai more fluently and also understand the instructions more clearly. The questionnaire was translated into Thai and then back translated into English by an independent translator who was competent in Thai. A comparison between the two English questionnaires was undertaken and modifications made where required. Pre-testing was undertaken with Thai students studying at Southern Cross University.

## **Findings**

Respondents were asked questions in relation to their current access to the Internet either at home or university. Overall 47% indicated they had

access to the Internet at home while 82% indicated they had access at the university. Only 7.1% indicated they had never used the Internet, while 23% indicated they had been using it for less than 12 months. 20% of respondents had been using the Internet for between 1-2 years and almost 30% for between 2-3 years. Just over 20% had been using the Internet for 3 or more years. The access figures indicate the sample has varying levels of experience with the Internet. With respect to the frequency of access, 90% of respondents indicated they accessed the Internet. 19% accessed the Internet at least once per day, 31% a few times per week while 40% either a few times per month or less.

Based of this information, the sample was divided into three user groups, namely light, moderate and heavy users of the Internet. The criteria which was used to classify these three groups of Internet users was based on the method adapted by Napolie & Ewing, (1998). Heavy users were classified as those respondents who accessed the Internet at least once per day and spent more than three hours using it. Moderate users were those who accessed the Internet a few times per week for between one and three hours and light users were those who spent less than one hour on the Internet and accessed it less than a few times per month. On this basis just on half of respondents were categorised as light users (50%), while moderate users accounted for 31%, and heavy users 19% of the sample.

## **Internet Use**

Respondents were asked to rate, on a five point Likert Scale ranging from “1” (Never) to “5” (Always), how frequently they used the Internet to perform various tasks. The results are shown in Table 1.

Table 1 presents the mean and standard deviations for the overall group and the three user groups. Items where there were significant differences between the groups are indicated, as determined by analysis of variance (ANOVA). The results indicate respondents most frequently used the Internet to find information for leisure or entertainment activities, studies, enrolment or contact university (e.g. checking result) and e-mailing overseas friends. They were rarely accessing the Internet to find information for a specific institution or company, or specific products or services. Also, finding information for others, e-mailing local friends and gaining free samples were scored as “rarely or never”.

All items had significant differences between categories except when using the Internet to purchase products on-line and to apply for job on-line. The main differences between user groups were the between light and moderate/ heavy group. Moderate and heavy users rated activities such as finding information for leisure or entertainment, study, on a specific company, for others and e-mailing local friends significantly higher than light users. However, significant differences were found to exist among light, moderate and heavy users for e-mailing overseas friends and enrolment or contact with the university. Also, heavy users were different from the moderate/ light users groups. Heavy users rated activities such as finding information on products or services and gaining free samples significantly higher than light and moderate users.

	All Three N=170		Light Users N=86 a		Moderate Users N=52 b		Heavy Users N=32 c	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Find information for leisure or entertainment activities	3.16 <sup>*</sup>	1.18	2.73 <sub>bc</sub>	1.24	3.54	1.06	3.69	1.06
Find information for study	3.04 <sup>*</sup>	1.13	2.66 <sub>bc</sub>	1.13	3.46	0.94	3.38	0.94
Enrolment or contact with the university	2.93 <sup>**</sup>	1.35	2.69 <sub>c</sub>	1.38	2.96	1.25	3.5 <sub>a</sub>	1.25
E-mail overseas friend	2.50 <sup>*</sup>	1.45	1.94 <sub>bc</sub>	1.17	2.94 <sub>ac</sub>	1.42	3.78 <sub>ab</sub>	1.42
Find information on company	2.40 <sup>*</sup>	1.14	2.05 <sub>bc</sub>	1.07	2.62	1.07	3.00	1.07
Find information on products or services	2.25 <sup>*</sup>	2.13	1.93	1.03	2.33	0.98	2.97 <sub>ab</sub>	0.98
Find information for others	2.11 <sup>*</sup>	1.08	1.70 <sub>bc</sub>	0.95	2.42	1.02	2.72	1.02
E-mail local friend	2.11 <sup>*</sup>	1.36	2.60 <sub>bc</sub>	1.31	3.92	1.05	4.19	1.05
Get free sample	2.04 <sup>**</sup>	1.23	1.65	1.00	2.15	1.13	2.86 <sub>bc</sub>	1.13
Apply for job on line	1.25	0.72	1.22	0.74	1.19	0.56	1.41	0.56
Purchase products on line	1.20	0.52	1.19	0.59	1.19	0.44	1.25	0.44

\* Significant at 0.001

\*\* Significant at 0.05

a, b, c subscript represents significantly different user group means for each variable at  $p < .05$  by Bonferroni

*Table 1: Tasks Performed on the Internet*

## Media Usage

The questionnaire collected responses to a number of questions relating to media usage including the amount of time spent watching television and using the Internet as well as magazine readership.

Concerning television and Internet usage the bulk of respondents indicated they spend between 1-4 hours watching TV each day (71%) with those

watching 3-4 hours representing 40% of the sample. 23% watched more than 5 hours and 6% less than 1 hour. By comparison usage of the Internet was less than 1 hour per day for over half of the respondents, sizeable groups used the Internet 1-2 hours (24%) and 2-3 hours (11%) while the remainder used it for more than 3 hours per day (13%). When comparing television viewing behaviour against Internet usage, no association was found to exist ( $R^2 = 0.002$ ,  $F = 0.293$  with  $df 1, 167$ ). This finding is consistent with those of Napoli & Ewing (1998), Coffey and Stipp (1997), and Cartellieri et al (1997) and suggest that television watching is not affected by Internet usage.

Respondents were also asked the level of usage for a number of print media using a five point Likert scale ranging from “1” (Never) to “5” (Always). The results show that the most frequently read forms of print media were Newspapers, Joke/Comics, Shopping catalogues which were received by mail, shopping catalogues in newspapers or magazines. Fashion, Automobile and computing magazines were the least frequently read by all respondents. Usage for all the print media with the exception of computer magazines did not differ significantly between the Internet users groups however heavy users rated the readership of computer magazine significantly higher than light and moderate Internet users. Table 2 summarises the results.

	All Three N=170		Light Users N=86 a		Medium Users N=52 b		Heavy Users N=32 c	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Newspaper	4.25	0.83	4.26	0.83	4.29	0.75	4.19	0.97
Joke/ Comic	3.49	1.13	3.45	1.03	3.42	1.26	3.72	1.17
Shopping Catalogues in mail	3.29	1.03	3.31	1.05	3.21	0.94	3.34	1.12
Shopping Catalogues in Newspaper Or Magazines	3.02	1.03	3.07	1.07	2.88	0.94	3.09	1.09
Fashion Magazines	2.75	1.03	2.85	1.02	2.81	1.05	2.41	0.98
Computer Magazines	2.28*	1.09	2.02	0.85	2.35	1.17	2.88 <sup>ab</sup>	1.29
Automobile Magazines	2.00	0.94	1.95	0.92	2.13	1.03	1.94	0.84

\* Significant at .001

a, b, c subscript represents significantly different user group means for each variable at  $p < .05$  by Bonferroni

Table 2: Print Media Usage

## **Important Features for Web Pages**

Respondents were asked to indicate on a five point Likert scale, the importance of a number of key attributes for Web pages. Information was collated on 16 items and subsequently factor analysed to identify the underlining dimensions. Four key factors were identified for web page attributes and combined accounted for 63.82% of the variance. The results are presented in Table 3. The first factor included the items, which related to the information content of Web pages and included items relating to whether the Web page has up to date information, relevant information, detailed information, accurate information and if it is pleasing to look at. The overall mean rating for this factor was 3.98 indicating that respondent considered this to be a very important feature of Web pages.

The second factor included items related to the graphic and perceptual effects and included items relating to links to other Web pages, the use of graphic within a Web page, use of animation and access time to connect to Web pages. The overall mean rating for this factor was 3.56 indicating that respondent considered this to be an important feature of Web pages. The third factor included items related to the entertainment value such as the interactivity of Web pages, use of sound effects and entertainment value. The overall mean rating for this factor was 3.36 indicating that respondent considered this to be an important feature of Web pages.

Features of Web Pages	Information Content	Graphic/ Perceptual Effect	Entertainment	Reward/ Benefit
	Factor 1	Factor 2	Factor 3	Factor 4
Relevant information	0.87			
Accurate information	0.82			
Easy to read/ use	0.80			
Detailed information	0.78			
Up to date information	0.74			
Pleasing to look at	0.70			
Links to other Web pages		0.73		
Use of graphic within Web pages		0.70		
Use of animation within Web pages		0.35		
Ability to trial products		0.64		
Access time to connect to Web pages		0.63		
Interactivity of Web pages			0.76	
Entertainment			0.67	
Use of sound effects			0.63	
Rewards me for my time				0.85
Offers me a special deals				0.80
Overall factor means	3.98	3.56	3.36	3.08
Factor reliability (Cronbach alpha)	0.89	0.76	0.66	0.69

Table 3. Principal Components Factor Analysis - Features of Web Pages

The final factor included items related to the reward/benefit obtained from the Web page and was represented by two items; whether the Web page rewards me for my time and if it offers me a special deal. The overall mean rating for this factor was 3.06 indicating those respondents considered this to be neither important nor unimportant.

The Cronbach scores for each of the factor indicated a high level of reliability of the analysis especially in the first and second factors; information content (0.89) and graphic/ visual effects (0.76). The third and the fourth factor (0.66, 0.68 respectively) were weaker because they had fewer items related to these factors.

## Discussion

This research shows that use of the Internet is prevalent among University students in Thailand. Of those surveyed, 81% indicated they have access

to the Internet at university and almost half of the respondents indicated they had access to the Internet at home. Only 7% said they had never used the Internet. Respondents used the Internet for leisure or entertainment activities, study, course enrolment or contact with the university and to e-mail friends overseas. It was used either rarely or sometimes for such activities as finding information on companies, products or services, information for others, e-mail local friends and free samples. It was rarely or never used to apply for jobs on line or to purchase products. There was, however, found to be significant differences in usage between light and medium/heavy users on a number of items. Moderate and heavy users were involved far more with the Internet for leisure or entertainment activities, finding information for study or on companies and for e-mailing friends. There were also differences found between heavy and medium users, the former using the Internet more for e-mailing friends overseas and finding information on products or services and to obtain free samples. These results support the proposition that tasks performed on the Internet differ significantly among Internet users. This has implications for academics using the Internet for teaching purposes as heavier users are more likely to be familiar with the Internet and would have an advantage over lighter Internet users as proposed by Atwong and Hugstad (1997).

While Internet usage differed by the type of activities undertaken by Thai students, it appears that media usage was not affected by the level of Internet usage. For both Television and magazine usage there were no significant differences with one exception, the readership of computer magazines. As can be expected heavy users of the Internet could be expected to have higher readership of computer magazines, but no differences occurred for other publications. This suggests that the Internet does not affect the amount of time watching Television or the level of use of other media. This would suggest that time spent on the Internet is likely to be taken from other activities. Future research could explore the areas from which time is taken to spend on use of the Internet.

In relation to web page design, the findings confirmed a number of factors considered important in Web page design; information content, graphic/perceptual effects, entertainment, and rewards/ benefits. Clearly information content, and the relevance of information displayed on a Web pages is considered an important aspect of web page design, and this includes information that is relevant, accurate, up to date, easy to read and pleasing to look at. The second factor related to graphics and visual appeal and included items covering links to other pages, use of graphics, animation, product trials and down-load times. These factors appear to

relate to perceptual aspects of web pages. The remaining two factors, entertainment and reward/benefits were also considered important, but to a lesser extent than the other two factors. These findings highlight important elements for educational Web designers to consider in their provision of Internet based courses and are also consistent with findings by Napoli and Ewing (1998), Eighmey (1997), Sheresheewsky (1997), Tapscott (1998), Teo, Lim and Lai (1997) and Duncoffe (1996).

### **Limitations and Future Research**

This research provides an insight into the Internet and media usage of University students studying at an International University in Thailand. It is acknowledged that the findings are limited to a sample size which may not provide adequate representation of all Thai University students and that respondents were only drawn from one University and as such can not be considered representative of all Thai University students. Additional research could be conducted using a larger sample and include students from other Universities. Cross cultural differences could also be examined. Finally, a longitudinal study to examine whether changes in media habits are occurring overtime, particularly as the Internet becomes more integrated into Thai culture, would also be an avenue for future research.

### **Conclusion**

The number of Internet users in Thailand is increasing and it's use in the education sector set to continue and lead the introduction of the Internet into the rest of the country. This research has reported on three areas where the Internet has potential to impact on the society; it's uses, impact on traditional media and issues of Web page design. The Internet was most frequently used to access information for leisure or entertainment activities, for study, enrolment or contact with the university and e-mailing to friends. While the Internet has been entering Thai households almost as rapidly as television, the Internet is unlikely to replace television or radio. These findings could suggest that the Internet would complement, rather replace traditional media, however it is not clear as to what activities are being traded as a result of the Internet's adoption. With respect to web pages design, respondents considered information content and graphic/ perceptual effects as the most important factor for the

features of web pages. These aspects need to be kept in mind by designers of Web pages used for educational purposes.

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