

Malaysian Students' Preferences to Online Products and Services on the Internet: An empirical study

¹Paul H.P. Yeow, ²Ali Khatibi and ³Jayanty Kuppasamy

^{1,3}Centre for E-Services Entrepreneurship and Marketing, Faculty of Business and Law,
Multimedia University, Malaysia

²Faculty of Business Management and Professional Studies,
Management and Science University (MSU), Malaysia

Abstract: The study aims to discover the preferences of Student Internet Users (SIUs) for Online Products and Services (OPS) and research into the demographic factors that affect SIUs' preferences. A questionnaire survey was conducted on 800 SIUs from private institutions of higher learning in Malaysia, an Industrially Developing Country (IDC). Parametric statistical methods were used to analyze the survey data. It was found that SIUs preferred OPS under the following categories, i.e. education (e.g. loan, scholarship and credit transfer), entertainment (e.g. songs and artistes' photos for downloading, shared music and computer games), news and information (e.g. online newspaper, news on famous artistes, book reviews and jobs) and communication and collaboration (e.g. free e-mail, SMS and ring tones/logos/pictures). It was also found that gender, race and faculty (field of study) influence SIUs' preferences. The research findings can provide some useful insights to providers of OPS and policy makers.

Key words: Online products, knowledge of the internet, industrially developing country

INTRODUCTION

Nowadays, online products and services (OPS) are becoming very popular. Based on the Commerce Department of the US, retail sales via the Internet rose successfully from USD3.4 billion to USD15.7 billion in the second quarter of 2004 compared to the same period in 2003 [25]. A survey by Thomas Register and Visa USA Inc. indicated the reasons for the high interest in OPS, i.e. convenience, 24 h availability, quick access to large amount of information and quick-response time [24]. In addition, users are increasingly satisfied with their online experiences. Based on a survey in the US [10], from the year 2000 to 2003, there has been an increasing percentage of users who were satisfied with the ease of getting online (from 49 to 71% of the respondents) because of the technological improvements in the Internet such as access speed, quality of service and technological standards. In addition, more people reported that the Internet usage had become a part of their daily routine (from 52 to 62% of the respondents), increased the frequency of contacts with friends and relatives via e-mail (from 48 to 54%), changed the way home chores are done (from

40 to 45%) and replaced the telephone as the major communication device (from 10 to 16%). The most popular OPS were e-mail, games, hobbies, news, travel, shopping and health information.

Murugesan and Ginige [18] recommended ten key steps for a successful website. One of the key steps is the need to clearly identify the stakeholders i.e. the main users of the website. Website users vary and are categorized in several ways. Several previous research have categorized users in taxonomy/categories such as college students and young adults [21], Asians and Europeans [7], elderly or senior citizens [14], etc. This research chooses to study students who very much fits into the category of college students. College students or identified as Student Internet Users in this research have special/unique characteristics that separates them from other Internet user groups distinctively. Student Internet Users generally are characterized by their familiarity with computers and online technologies, up-to-date with latest electronic gadgets in the market, have tendency to spend long hours using the Internet, having a reasonable financial ability to purchase online and are attached to an educational institution. These

Corresponding Author: Paul H.P. Yeow, Centre for E-Services Entrepreneurship and Marketing (CESEM),
Faculty of Business and Law, Multimedia University, Malaysia

characteristics and more make this user group an attractive online market segment.

Another way of clustering Internet users is through demographics. This is commonly done when the Internet community profile is portrayed in different homogeneous groups^[4,12]. Copas^[2] suggested that online users be described by personality traits. Personality traits are seen as strong consistencies that can be used to categorize people based on their behavior in different times and situations. The author studied two different personality traits in his study, which include vigilance (suspicious) as the first trait and openness to change as the second personality trait. The study found that people with vigilance personality trait have negative tendency to purchase online. On the contrary, people with openness to change were having positive tendency to purchase online. In addition, Copas^[2] also suggested online users who have greater frequency in using the Internet, in the author's study where users used the Internet at least twice a week for communication or fun, be described as the Internet Community.

One such group that would belong to the Internet Community is Student Internet Users as described above. Pastore^[19] found that Student Internet Users use the Internet for shopping and that a large group of college students describe themselves as Internet dependent and cybergeeks. Consistent with Pastore is Greenspan^[6], who also observed that college students surf the Internet extensively and participate actively in online spending. These high levels of Internet penetration by college students are believed largely due to the fact that many of them essentially grew up with computers and have incorporated the Internet into their daily routine. Greenspan^[7] also found that Asian students in particular, lead in income and spending through electronic commerce. Thus, studying the preference of Asian college students for online product and services will help this market segment be understood better, and consequently reached more effectively.

Looney and Lyman^[15] found that the best connected population segment is the Student Internet Users (SIUs). Enos^[5] found that this segment is the second fastest growing segment to be connected to the Internet with a 32% growth between the year 2000 and 2001. In the year 2002, 86% of students went online compared to 59% of the other population segments^[10].

SIUs' interest in the Internet has created a huge market for OPS. According to Greenfield Online (US-

based research company), 81% of US college students were active online shoppers^[19]. In addition, Saliba^[22-23] found that SIUs spent about USD164 billion online per year. Furthermore, Hillebrand^[9] found that most college students were willing to pay for online goods and services as shown in the case where they did not mind paying to keep their privileges in Napster's website. Stark and Meier^[24] believed that Internet purchase among students would continue to grow tremendously. Their findings showed that the average expenditure per student had increased yearly, i.e., US\$235 in 1998, US\$381 in 1999 and US\$471 in 2000.

Online preferences of Student Internet Users: Mary Bryett Whitfield, Director of the Pricewaterhouse Coopers E-Retail Intelligence, emphasized the need to understand SIUs' online preferences: E-tailors who capture teenagers' attention can tap into a market of Internet savvy customers whose purchasing power is sizeable today and will undoubtedly increase in years to come^[20]. SIU's online preferences are products and services that students like to purchase through the Internet and online activities that they participate in.

Pricewaterhouse Coopers surveyed the SIU's online preferences in the US^[20] and found that 83% of respondents used e-mail, 68% searched for online information, 51% played online games, 40% chatted online, 38% downloaded online music and videos, 31% sent e-cards, 26% shopped online and 23% read online news. In another survey by Greenfield Online, out of 1,135 US students, 92% used the Internet to send and receive e-mail and 72% surfed the Internet for topics of interest^[19]. In Malaysia, Hasim^[8] did a study on students and lecturers in institutions of higher learning and found that 70.7% of the respondents used the Internet for communication, 61.0% for education, 36.1% for research, 28.1% for entertainment and 14.5% for electronic commerce.

Pricewaterhouse Coopers also found that the top five products purchased by SIUs were CDs/cassettes, clothing, books, computer software and toys^[20]. In addition, Saliba^[22-23] discovered that the items most likely to be purchased by teenagers (in the US) were clothes, music, books and video games. Moreover, Greenfield Online's study reported that the most common items which college students (in the US) bought were CDs (64%), books (58%), clothing (42%) and concert tickets (32%)^[19]. In Malaysia, Hasim's survey showed that the top five products and services

which students and lecturers would like to buy online were airline tickets (85.9%), books (80.4%), magazines (79.4%), hotel accommodation (77.4%) and bank transactions (71.7%)^[8].

Malaysia and Student Internet Users: Many Malaysian cyberpreneurs lack the skills in capturing the attention of SIUs. Very few websites specifically cater to SIUs' needs and these websites are mostly academic websites published by a particular university or college. For example, the Malaysian Student Network Community website was established to help introduce Malaysian students to the Internet and to encourage them to use the Internet. It also aims to foster good relationship among student communities via interactions and exchange of ideas in cyberspace.

Another example is Xfresh.com, a student portal that provides fun as well as educational activities for those aged between 13 and 20. Its main objective was to be the best teen e-community in the country and to provide teens with useful information.

Although the SIUs market is large and SIUs have high purchasing power^[16], only a few companies tap this market, perhaps due to insufficient market information. Besides, studies on SIUs market in Malaysia, an industrially developing country, are very limited (as shown in the previous section). Most studies so far were conducted in the western countries and were about different Internet user groups such as older and higher income group^[3, 11], less risk adverse group^[3], different gender groups^[3], convenience-oriented group^[3], innovative and variety-seeking group^[3], brand- or price-sensitive groups^[3] and innovative and experience groups^[1]. Thus, the objectives of the present study are:

- To identify the OPS preferences of Malaysian SIUs.
- To research into the demographic factors that affect SIUs' preferences

Figure 1 shows the theoretical framework of the study. There are 3 independent factors representing the demographic factors (i.e. gender, race and faculty), 1 moderating factor (i.e. knowledge of the Internet) and 1 dependent factor (i.e. SIUs' preferences for 45 OPS).

This study provides cyberpreneurs first-hand information on the likes and dislikes of SIUs and on how demographic factors can affect their preferences. With this information, cyberpreneurs can better target their marketing effort on the specific needs of SIUs.

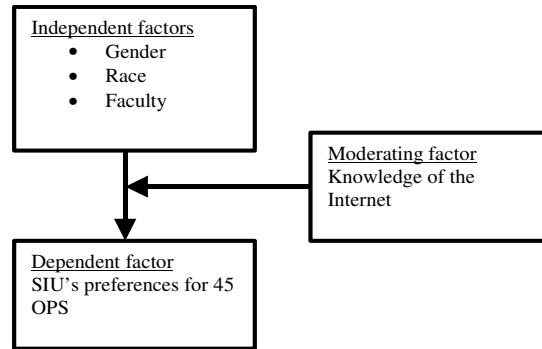


Fig. 1: Theoretical framework

MATERIALS AND METHODS

A questionnaire survey was conducted on 800 SIUs from private institutions of higher learning across the central region of Malaysia, including Melaka, Kuala Lumpur and Selangor. These students were from Multimedia University (200 samples), Tenaga University (150 samples), Monash University (100 samples), Metropolitan College (100 samples), Inti College (100 samples), Kolej Yayasan Melaka (100 samples) and Stamford College (50 samples). The questionnaire was personally administered and distributed randomly to the SIUs. The questionnaire was divided into two sections. Section 1 relates to students' background. Dichotomous scale (yes or no) and category scale were used. Among the variables surveyed were faculty, gender, race, years of experience using the Internet and knowledge of the Internet. Section 2 relates to the respondents' degree of interest / preference towards a list of OPS which consists of 45 products and services from 6 categories. The categories were i) education, ii) entertainment, iii) technology, iv) news and information, v) communication and collaboration and vi) travel and transportation. Likert's 5-point scale was used - 1 (Very Uninterested), 2 (Uninterested), 3 (Neutral), 4 (Interested) and 5 (Very Interested).

RESULTS

Profile of respondents: The average age of the respondents was 20.18+1.68 years old. The maximum age was 27 while the minimum age was 16.

Table 1 shows the profile of the respondents. The response rate was very high (i.e. 99%) where 792 responded to the survey. About 27.6% of the respondents were from Multimedia University,

Table 1: Profile of respondents

Profile	N	Percent
Name of Institution	219	27.6
Multimedia University	176	22.2
Tenaga University	100	12.6
Monash University	98	12.4
Inti College	94	11.9
Metropolitan College	81	10.2
Kolej Yayasan Melaka	24	3.0
Stamford College		
Faculty		
Engineering (Eng)	185	23.4
Business (Bus)	379	47.8
Information Technology (IT)	114	14.4
Foundation Studies (Found)	76	9.6
Missing Value	38	4.8
Gender		
Male	407	51.4
Female	378	47.7
Missing Value	7	0.9
Race		
Chinese	508	64.1
Malay	180	22.7
Indian	59	7.4
Others	36	4.5
Missing Value	9	1.1
Years of Experience		
No experience	20	2.5
Less than 2 years	50	6.3
More than 2 years and less than 5 years	596	75.3
More than 5 years and less than 7 years	47	5.9
More than 7 years	9	1.1
Missing Value	70	8.8
Knowledge of the Internet		
Very Poor	17	2.1
Poor	52	6.6
Average	480	60.6
Good	180	22.7
Excellent	40	5.1
Missing Value	23	2.9

Note: n- number of respondents

followed by 22.2% from Tenaga Nasional University. Ten to 12% were from each of the following universities: Monash University, Inti College, Metropolitan College and Kolej Yayasan Melaka. The smallest percentage of respondents was from Stamford College (3%). The highest percentage of SIUs was from business studies (47.8%), followed by engineering studies (23.4%) and information technology studies (14.4%). The lowest was from foundation studies (9.6%). Males accounted for 51.4% of the respondents while females 47.7%. 64.1% of the respondents were Chinese, 22.7% Malay, 7.4% Indian and 4.5% other races. 82.3% of the respondents have more than 2 years of Internet experience. A very small percentage did not have any experience in using the Internet (2.5%). 60.6% of the respondents had average knowledge of the Internet, 22.7% had good or excellent knowledge and only 8.7% had poor or very poor knowledge. Therefore, the SIUs were generally knowledgeable of the Internet.

Table 2: Preferences for online products and services (OPS)

Category	OPS	Mean	S.D	
Education	Loan and scholarship	3.49	1.13	
	Information on credit transfer	3.47	1.09	
	Student exchange program	3.41	1.12	
	Industrial training	3.37	1.13	
	Students' clubs & societies	3.36	1.08	
	Student accommodation	3.11	1.08	
	Textbook	2.65	1.14	
	Group mean	3.27		
	Entertainment	Songs for downloading	3.98	1.07
		Shared music	3.62	1.10
Artistes' photos for downloading		3.48	1.18	
Computer games		3.45	1.16	
Cinema /concert tickets		3.28	1.16	
Discount coupons		3.05	1.22	
Booking of retreat centers		2.93	1.13	
Compact disks		2.92	1.14	
Make-up tips		2.68	1.32	
Clothes		2.45	1.10	
Technology	Cosmetics	2.28	1.13	
	Group mean	3.10		
	Online bill payment	3.01	1.30	
	E-banking transactions	2.97	1.24	
	Personal computer hardware	2.64	1.11	
	Mobile phone (MP)	2.62	1.15	
	Group mean	2.81		
	News and Information	Online newspaper	3.60	1.09
		News on famous artistes	3.51	1.14
		Full-time jobs	3.50	1.17
Book reviews		3.48	1.07	
Sports		3.40	1.20	
Language learning		3.38	1.18	
Part-time jobs		3.36	1.10	
Artistic paintings/pictures		3.27	1.20	
Horoscope		3.25	1.18	
Stock market		3.07	1.19	
Communication and Collaboration	Classified ads	3.04	1.09	
	Cooking recipes	3.03	1.24	
	Group mean	3.32		
	Free e-mail	4.12	1.00	
	Free SMS	4.07	1.09	
	Free ring tones	4.00	1.14	
	/logos /pictures for MP			
	Greeting cards	3.96	1.00	
	Information sharing database	3.78	1.06	
	Web-hosting	3.67	1.05	
Travel and Transportation	Chat /discussion room	3.54	1.13	
	Electronic circles	3.52	1.05	
	Group mean	3.83		
	Overseas tours	3.10	1.23	
	Local tours	3.03	1.19	
	Bus tickets	2.94	1.29	
	Group mean	3.02		

Notes: MP – Mobile Phone, OPS – Online Products and Services, SMS – Short Messaging Service.

Preference for online products and services: Table 2 shows that SIUs interest towards OPS. Overall, the mean values ranged from 2.81 to 3.83 for the six categories tested. The highest category was communication and collaboration (3.83) while the lowest was technology (2.81). Under the education category, the rating for loan and scholarship was the

highest, with a mean rating of 3.49 indicating moderate interest (based on Likert's scale). This interest could be due to SIUs' need for finding financial aid to support their education. Information on credit transfer (3.47) and student exchange program (3.41) was also their areas of interest.

SIU also have interest towards product and services under the entertainment category. Their interest was consistent with their lifestyle. OPS such as songs for downloading, shared music, artistes' photos for downloading, computer games, cinema/concert tickets and discount coupons were of higher interest with mean values of above 3. Products such as clothes and cosmetics were of less interest (mean values below 2.5). The reason could be that SIU preferred obtaining these two products through the traditional method i.e. straight from the shopping stores. Their interest for

technological products and services was less as shown by the mean ratings of 3.01 and below, for all items under this category. For the OPS under news and information category, the mean values are above 3. OPS of interest specifically can be seen for online newspaper (3.60), news on famous artiste (3.51), full-time job (3.50), part-time job (3.36) and book reviews (3.48). This is probably due to their need for information to complete assignments, to find jobs and to get updates on their favorite stars. They also have interest on OPS under the communication and collaboration category particularly free e-mail (4.12), free Short Messaging Service (4.07) and free ring tones/logos/pictures for mobile phone (4.00). In addition, they have shown interest on OPS under the travel and transportation category especially online overseas tours (3.10) and local tours (3.03).

Table 3: Independent t-tests on gender preferences for online products and services (OPS)

Category	OPS	Gender	Mean	SD	*p-value	Significant difference
Education	Student exchange program	Male	3.35	1.12	0.049	yes
		Female	3.51	1.10		
Entertainment	Information on credit transfer	Male	3.39	1.13	0.012	Yes
		Female	3.58	1.03		
	Computer games	Male	3.64	1.11	<0.001	Yes
		Female	3.26	1.17		
	Compact disks	Male	3.01	1.12	0.041	Yes
		Female	2.85	1.15		
Cosmetics	Male	2.11	1.12	0.041	Yes	
	Female	2.46	1.11			
Technology	Make-up tips	Male	2.18	1.19	<0.001	Yes
		Female	3.22	1.25		
	Discount coupons	Male	2.98	1.25	0.069	Yes
		Female	3.14	1.18		
	Personal computer hardware	Male	2.75	1.14	0.005	Yes
		Female	2.52	1.08		
Mobile phone (MP)	Male	2.70	1.17	0.068	Yes	
	Female	2.55	1.12			
Online bill payment	Male	3.10	1.33	0.051	Yes	
	Female	2.92	1.25			
News and Information	Part-time jobs	Male	3.26	1.14	0.004	Yes
		Female	3.49	1.02		
	Full-time jobs	Male	3.43	1.21	0.039	Yes
		Female	3.60	1.10		
	Sports	Male	3.67	1.12	<0.001	Yes
		Female	3.12	1.11		
	Horoscope	Male	2.94	1.19	<0.001	Yes
		Female	3.59	1.07		
	Language learning	Male	3.16	1.21	<0.001	Yes
		Female	3.59	1.10		
	Cooking recipes	Male	2.72	1.23	<0.001	Yes
		Female	3.39	1.16		
Artistic paintings/pictures	Male	3.09	1.25	<0.001	Yes	
	Female	3.46	1.10			
Communication And Collaboration	Chat/discussion room	Male	3.46	1.21	0.017	Yes
		Female	3.65	1.05		
	Free e-mail	Male	4.05	1.06	0.021	Yes
		Female	4.21	0.91		
	Greeting cards	Male	3.79	1.07	<0.001	Yes
		Female	4.13	0.90		
Free ring tones /logos /pictures for MP	Male	3.83	1.21	<0.001	Yes	
	Female	4.18	1.03			
Travel and Transportation	Local tours	Male	2.94	1.23	0.022	Yes
		Female	3.14	1.14		
	Overseas tours	Male	2.97	1.26	0.001	Yes
		Female	3.26	1.18		

* Only the OPS that tested significant (using $\alpha = 0.05$) are shown in the table. MP – Mobile Phone.

Gender: Table 3 shows the results of t-tests which test the difference between male and female SIUs on their interest for OPS. Under the education category, female SIUs were more interested in student exchange program and information on credit transfer. Under the entertainment category, male SIUs had significantly higher interest for computer games and compact disks. Conversely, female SIUs had significantly higher interest in buying cosmetics and getting make-up tips and discount coupons. Overall, OPS under the technology category were not much favored except for online bill payment which was much preferred by male SIUs. Under the news and information category, females preferred services such as jobs search,

horoscope, language learning, cooking recipes and artistic paintings whereas males preferred sports. Under the communication and collaboration category, females had a higher interest for chat/discussion room, free e-mail, greeting cards and free ring tones/logos/pictures than males. Finally, under the travelling and transportation category, females preferred local and overseas tours more than males.

Race: Table 4 presents the results for interest towards OPS according to race. Overall, Malay students showed a higher interest in comparison with other races. Information on student accommodation was much required by Malay students.

Table 4: ANOVA test on race preferences for online products and services (OPS)

Category Difference	OPS	Race	Mean	SD	**p-value	Significant	
Education	Industrial training	Malay	3.56*	1.12	<0.001	Yes	
		Chinese	3.24*	1.09			
		Indian	3.47	1.15			
		Others	3.89*	0.95			
	Student accommodation	Malay	3.33*	1.02	0.010	Yes	
		Chinese	3.05*	1.08			
		Indian	2.92*	1.18			
		Others	3.25	1.13			
	Student's clubs and society	Malay	3.54*	1.00	0.063	Yes	
		Chinese	3.32*	1.07			
		Indian	3.17*	1.29			
		Others	3.33	1.17			
Entertainment	Compact disks	Malay	3.11*	1.12	0.05	Yes	
		Chinese	2.85*	1.12			
		Indian	2.95	1.21			
		Others	3.03	1.25			
	Discount coupons	Malay	3.16*	1.22	0.022	Yes	
		Chinese	3.07	1.20			
		Indian	2.61*	1.36			
		Others	2.94	1.19			
	Technology	Personal computer hardware	Malay	2.79*	1.18	0.041	Yes
			Chinese	2.60	1.06		
			Indian	2.42*	1.13		
			Others	2.92	1.27		
Online bill payment		Malay	3.13*	1.29	0.035	Yes	
		Chinese	3.00*	1.27			
		Indian	2.63*	1.38			
		Others	3.31*	1.35			
E-banking transactions		Malay	3.13*	1.22	0.04	Yes	
		Chinese	2.94	1.21			
		Indian	2.64*	1.35			
		Others	3.17*	1.40			
News and Information	Part-time jobs	Malay	3.64*	1.09	<0.001	Yes	
		Chinese	3.24*	1.06			
		Indian	3.47	1.24			
		Others	3.44	1.03			
	Full-time jobs	Malay	3.70*	1.15	0.025	Yes	
		Chinese	3.41*	1.15			
		Indian	3.64	1.21			
		Others	3.56	1.23			
	Web-hosting	Malay	3.86*	0.96	0.056	Yes	
		Chinese	3.62*	1.05			
		Indian	3.61	1.16			
		Others	3.56	1.23			
Travel and Transportation	Bus tickets	Malay	3.15	1.27	0.059	No	
		Chinese	2.92	1.28			
		Indian	2.67	1.28			
		Others	2.92	1.38			

* Significant difference (5%) in the Post-hoc test.

** Only the OPS that tested significant (using $\alpha = 0.05$) or close to that are shown in the table

Table 5: ANOVA test on faculty preferences for online products and services (OPS)

Category	OPS	Faculty	Mean	SD	**p-value	Significant difference
Education	Industrial training	Eng	3.57*	1.08	0.022	Yes
		Bus	3.29*	1.14		
		IT	3.49	1.12		
		Found	3.29	1.13		
	Student accommodation	Eng	3.03*	1.12	0.037	Yes
		Bus	3.11*	1.05		
		IT	3.04*	1.04		
	Students, clubs and societies	Eng	3.43*	1.14	0.002	Yes
		Bus	3.28*	1.06		
		IT	3.37*	1.06		
	Student exchange program	Eng	3.15*	1.14	0.004	Yes
		Bus	3.74*	1.02		
IT		3.32*	1.15			
Found		3.44*	1.11			
Entertainment	Artistes' photos for downloading	Eng	3.23*	1.01	0.053	Yes
		Bus	3.80*	1.13		
		IT	3.52	1.20		
		Found	3.41*	1.13		
	Songs for downloading	Eng	3.50	1.24	0.004	Yes
		Bus	3.82*	1.13		
		IT	4.01*	1.05		
	Shared music	Eng	3.90*	1.11	0.003	Yes
		Bus	3.98*	0.99		
		IT	4.38*	0.85		
	Clothes	Eng	4.05*	1.07	0.040	Yes
		Bus	2.33*	0.98		
		IT	2.49	1.10		
	Cosmetics	Eng	2.75*	1.28	0.036	Yes
		Bus	2.10*	1.00		
		IT	2.37	1.14		
	Make-up tips	Eng	2.29	1.13	0.007	Yes
		Bus	2.42*	1.27		
IT		2.41*	1.24			
Found		2.82*	1.35			
New and information	Language learning	Eng	2.69	2.69	0.005	Yes
		Bus	2.7	2.7		
		IT	3.15*	1.14		
		Found	3.42*	1.17		
Communication and Collaboration	Artistic paintings/pictures	Eng	3.44*	1.22	0.065	Yes
		Bus	3.68*	1.12		
		IT	3.09*	1.22		
		Found	3.36	1.17		
Chat/discussion room	Eng	3.38*	1.19	0.028	Yes	
	Bus	3.28	1.16			
	IT	3.46*	1.17			
	Found	3.54*	1.08			
Free ring tones/logos/pictures for mobile phone	Eng	3.54*	1.14	0.015	Yes	
	Bus	3.91*	1.1			
	IT	3.93*	1.17			
	Found	3.91*	1.21			
		Eng	4.11	1.03		
		Bus	4.33*	0.87		
		IT				
		Found				

* Significant difference (5%) in the Post-hoc test. ** Only the OPS that tested significant (using $\alpha = 0.05$) are shown in the table. Notes: Eng – Engineering, Bus – Business, IT– Information Technology, Found – Foundation Studies.

Possibly, the majority of them were far from home, thus they would need to seek a place to rent. Under the entertainment category, Malay SIUs' interest was significantly higher than those of Chinese and Indian SIUs, such as in getting compact disks and discount coupons. Similar results were found in categories such as news and information, and communication and collaboration.

Faculty: The faculty where the SIUs were attached to also plays a part in influencing their preferences. The results are presented in Table 5. In the education category, SIUs in the engineering and IT faculties showed higher interest for industrial training. This could be due to their need for industrial exposure such as hands-on technical experience that could be valuable to their future career when they venture into the job market. However, for other services such as student

accommodation, students' clubs and societies and student exchange program, higher preferences were indicated by foundation SIUs and their ratings were significantly different from those of other faculty SIUs. This was possibly because the students were in the first year of university life and had more time and interest. Therefore, it is not surprising when similar results were obtained for OPS under the entertainment category especially for artistes' photos and songs for downloading, and shared music. Others under the entertainment category showed significant differences too but their mean values indicated low preference. The results for OPS under the communication and collaboration category also show that SIUs of foundation studies had higher preferences and their ratings were significantly different from those of other faculty SIUs.

Overall comparison between genders: Table 6 presents the t-test results of interest towards OPS categories according to gender. Significant difference is seen on all categories except for education. This means that male and female have similar interest on OPS under the education categories. However, their interest towards other OPS categories was different.

Overall comparison among races: Table 7 presents the results of the ANOVA test. The overall mean of each OPS category was tested with race. All OPS categories indicated a significant difference except for entertainment. This means that all races have significantly different interest towards all OPS

categories with the exception of entertainment. They have the same interest towards entertainment category. Post-hoc tests were conducted on all significant categories. Results revealed that Malay SIUs have significantly higher interest when compared to Chinese and Indian SIUs for all categories except for news and information.

Overall comparison among faculties: Table 8 presents the ANOVA results of interest towards OPS categories according to the different faculties. Only the entertainment category was found significantly different. A separate post-hoc test was conducted and results revealed a difference between foundation and other faculties. This indicates that SIUs from foundation faculty have the highest interest towards OPS in the entertainment category.

Table 6: Preference towards OPS categories according to genders

Category	Gender	Mean	T value	P-value	Significant Difference
Education	Male	3.23	-1.5802	0.115	No
	Female	3.32			
Entertainment	Male	3.06	-2.288	*0.022	Yes
	Female	3.16			
Technology	Male	2.89	2.493	*0.013	Yes
	Female	2.73			
News and Information	Male	3.24	-3.69	*0.000	Yes
	Female	3.42			
Communication and collaboration	Male	3.76	-2.892	*0.004	Yes
	Female	3.92			
Travel and Transportation	Male	2.93	-2.464	*0.014	Yes
	Female	3.13			

*: Significant difference at 0.005

Table 7: Preference towards OPS categories according to races

Category	Races	Mean	F value	p-value	Significant Difference
Education	Malay	3.38	2.801	* 0.039	Yes (Malay different from Chinese and Indian)**
	Chinese	3.23			
	Indian	3.15			
	Others	3.44			
Entertainment	Malay	3.19	1.355	0.255	No
	Chinese	3.09			
	Indian	3.05			
	Others	3.16			
Technology	Malay	2.96	4.107	* 0.007	Yes (Malay different from Chinese and Indian)**
	Chinese	2.78			
	Indian	2.56			
	Others	3.05			
News and Information	Malay	3.42	3.274	* 0.021	Yes (Malay different from Chinese and Indian)**
	Chinese	3.27			
	Indian	3.47			
	Others	3.35			
Communication and collaboration	Malay	3.89	0.513	*0.673	Yes (Malay different from Chinese and Indian)**
	Chinese	3.82			
	Indian	3.79			
	Others	3.76			
Travel and Transportation	Malay	3.14	2.224	*0.084	Yes (Malay different from Chinese and Indian)**
	Chinese	3.04			
	Indian	2.70			
	Others	2.99			

* ANOVA Test: Significant difference at 0.005 ** Results from post-hoc tests

Table 8: Preference towards OPS categories according to faculties

Category	Faculties	Mean	F	p-value	Significant Difference
Education	Engineering	3.26	1.767	0.152	No
	Business	3.27			
	IT	3.21			
	Foundation	3.45			
Entertainment	Engineering	3.05	3.498	* 0.015	Yes (between foundation and all the other four faculties)
	Business	3.12			
	IT	3.08			
	Foundation	3.33			
Technology	Engineering	2.87	0.27	0.847	No
	Business	2.8			
	IT	2.84			
	Foundation	2.84			
News and Information	Engineering	3.25	1.290	0.277	No
	Business	3.36			
	IT	3.33			
	Foundation	3.36			
Communication and collaboration	Engineering	3.85	1.277	0.281	No
	Business	3.79			
	IT	3.89			
	Foundation	3.96			
Travel and Transportation	Engineering	3.01	0.533	0.66	No
	Business	3.08			
	IT	2.95			
	Foundation	2.98			

* Significant difference at 0.05

Table 9: Knowledge of the Internet according to categories

Category	Gender	Mean	SD	Significant Difference
Gender	Male	3.29	0.81	Yes
	Female	3.16	0.65	
Race	Malay	3.44*	0.76	Yes (Chinese different from Malay and Indian)
	Chinese	3.10*	0.71	
	Indian	3.50*	0.76	
	Others	3.5	0.62	
Faculty	Eng	3.26	0.8	Yes (between Business and IT faculties)
	Bus	3.17*	0.71	
	IT	3.39*	0.74	
	Found	3.27	0.73	

* Significant difference (5%) in the Post-hoc test. Eng – Engineering; Bus – Business; IT– Information Technology; Found – Foundation Studies.

Knowledge of the Internet: Test is also done on gender, race and faculty in relation to SIUs’ knowledge of the Internet to identify the presence of any significant difference. The results are presented in Table 9. Male SIUs are shown to have more knowledge of the Internet. Chinese SIUs were found to be less knowledgeable than SIUs of other races. Finally, SIUs from the IT faculty had the most knowledge of the Internet while those in the business faculty had the least knowledge.

DISCUSSION

The findings of this study provide some insights on the factors affecting the preferences of SIUs for OPS. These findings can be of interest to various parties such as providers of OPS and policy makers.

The first objective of this study, i.e. identification of OPS preferences of Malaysian SIUs, is an important and useful input to providers of OPS since it gives valuable information on areas for business opportunity such as some of the OPS in communication and collaboration and entertainment (as they are of higher interest). Hoffman, Novak and Venkateshi ^[10] observed a similar trend in their study in the United States where e-mail/communication and hobbies/games/entertainment seemed to be the highest and second highest preferred usage of Internet services. This study confirms that the similarity between the United States and Malaysia.

The providers of OPS should focus on SIUs since they represent a huge potential market as shown earlier in the introduction section ^[5, 9, 15, 22-24]. Furthermore, SIUs are very keen and not averse to new technologies since they are generally knowledgeable of the Internet (as shown in the results). The providers of the highly preferred products and services (as shown in Table 2) should use appropriate marketing strategy to meet SIUs’ needs and wants effectively.

Another important issue is the appropriate medium for promotion strategy. It is important that promotional message is channeled using a medium, which is of interest and used by the target market. Since the Internet is becoming closely linked to the way of life of the modern generation, offering OPS or providing information through the Internet is essential. This is supported by Lenhart, Rainie and Lewis’s ^[13] study

which found that the younger generation in the US are gradually replacing television with the Internet as their main source of entertainment, communication and education. The present research found that 82.3% of Malaysian SIUs (Table 1) have more than 2 years experience using the Internet. Blake, Neuendorf and Valdiserri ^[1] found a direct relationship between Internet experience and preference for Internet material/substance. Therefore, most Malaysian SIUs are experience in the use of Internet and they like Internet material. This supports the need to use the Internet as a medium for promotion strategy for Malaysian SIUs .

The second objective of the study, i.e. identification of the demographic factors that affect SIUs preferences, is another useful input to the providers of OPS. The findings can provide information on the demographic distribution of the target market. Furthermore, it identifies the demographic factors which should be focused on to capture the market. The findings indicate that demographic factors such as gender, race and educational background can have a direct or indirect influence towards interest on OPS.

Female SIUs have higher interest towards exchange program, information on credit transfer, buying cosmetics, getting make-up tips, discount coupons, jobs search, horoscope, language learning, cooking recipes, artistic paintings, chat/discussion room, free e-mail, greeting cards, free ring tones/logos/pictures, and local and overseas tours. However, male SIUs have higher interest towards computer games, compact disks, online bill payment and sports. Thus, targeting promotion and sales of OPS based on gender is a good marketing strategy. In addition, the results (in Table 6) further strengthen this important point as males and females have different interest towards all OPS categories except education.

The racial distribution among SIUs in this research is not equal: Chinese 65%, Malays 23%, Indians 7.5% and others 4.6%. The high percentage of Chinese respondents was due to the high concentration of Chinese students in the surveyed private universities/colleges, which is a norm for most private education centers in Malaysia. It is interesting to find that Malay SIUs have the highest interest towards most OPS (as shown in Table 4). In addition, the results (in Table 7) show that Malay SIUs have higher preference (when compared with Chinese and Indian SIUs) for most of the OPS categories i.e. education, technology, communication and collaboration and travel and transportation. This indicates that the Malay student community is a good target market. However, the Chinese student community should not be neglected as they are the majority of the SIUs from private institutions of higher learning.

SIUs from foundation faculty have the highest interest towards OPS in entertainment category (see Tables 5 and 8) when compared to other faculties. Therefore, entertainment companies should focus more on them as they have more time for entertainment compared to other faculties. In addition, SIUs in the business faculty are found to be significantly different in their preferences for OPS in comparison with other faculty students (Table 5). Their knowledge of the Internet is significantly the lowest among SIUs from other faculties (as shown in Table 9). This is probably because business subjects are less computer-oriented compared to those subjects of other faculties. This could affect their level of comfort in dealing with the procedures involved in purchasing OPS. However, providers of OPS can overcome the problem by making the online purchasing procedures technology friendly such as providing shopping cart, text search, etc. so that those with low level of Internet knowledge will also be encouraged to be online purchasers.

For the Malaysian government and policy makers, this research has identified the importance of SIU market segment in the country. There is a need to implement policies to stimulate the growth of Malaysian companies serving this market segment as there are very few companies so far. The government, in collaboration with private companies and Internet service providers, should provide technical infrastructure to widen the coverage of the Internet to reach SIUs from both rural and urban areas. In addition, more SIU payment systems should be introduced to allow easy payment for electronic commerce transactions. This will be in line with the Malaysian government's need to create a technologically advanced society to achieve its Vision 2020 ^[17].

Limitation of study: The current study has its limitations since the focus is on the aspect of preferences and not the purchasing behavior. However, SIUs' online purchasing behavior was addressed in Yeow *et al.* ^[26]. Another limitation is this study measures the preferences of SIUs instead of the actual purchase. Nevertheless, it is difficult to measure the latter as many SIUs do not have a credit card or other forms of electronic payment that enable them to purchase online ^[26]. They mostly rely on payments through post offices and banks which are inconvenient and offered by only a few vendors.

Another limitation of the study is there may be other moderating factors that may affect the preferences of OPS. This is beyond the present research due to limitation of research resources and it would be the scope of the potential future studies. However, the

present research had uncovered the 3 main moderating factors, i.e. gender, race and faculty.

In conclusion, the study provides insights to SIUs' preferences for OPS and some of the factors affecting their preferences. The market of SIUs (in Malaysia) can be tapped or targeted for OPS in areas of education, entertainment, communication, news and information, and travelling and transportation. Gender, race and faculty are areas where SIUs' market can be focused on. The results of the study are especially useful for Internet Marketing firms targeting SIUs market. The results are also useful for researchers of consumer behavior to discover the preferences of the SIUs and to relate them to the behavior of the consumers in the Internet.

The strength of the present study lies in the large sample size (792) collected. The study can be generalized for all private institutions of higher learning in Malaysia. However, it cannot be generalized for other types of institution or other IDCs or other Asean countries as a confirmatory study has to be conducted.

Future studies can be conducted to explore the motivational factors which explain SIUs' preferences for OPS/ online purchase, the difficulties faced, the electronic payment systems for SIUs and e-fraud. Future research can be replicated to include other moderating variables that may affect SIUs' preferences such as the wealth of the parents, SIUs' location (urban versus rural), the supporting infrastructure (availability of Internet connections) and the use of different technology platform (e.g. browser, operating systems and processors).

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