

# A Comparison of Internet Access between Korean and Japanese University Students

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## 요약

이 논문은 한국과 일본 대학생들의 인터넷 사용과 이러닝 그리고 인터넷쇼핑 이용 실태에 대한 비교 연구이다. 연구대상은 한국 대학생과 일본대학생으로 연구방법은 설문지를 통해 이루어졌다. 한국 대학생 92명과 일본대학생 137명이 설문에 응하여 총 229명의 유효한 설문이 이루어졌다.

한국대학생의 경우 절대 다수인 92.4%가 집에서 인터넷을 접속하여 사용하고 있지만, 일본 대학생의 경우는 집에서 인터넷 접속이 57.7% 그리고 대학교에서의 접속이 36.5%로 여전히 대학교를 통한 인터넷 접속이 활발하게 이루어짐을 보여주고 있다. 이러닝관련 설문에서는 설문에 응한 한국 대학생들의 52.7%가 전혀 이용해본 경험이 없다고 답한 반면 일본 대학생들은 94.7%가 경험하였다고 응답하여 훨씬 활발하게 이러닝을 이용하고 있음을 보여주고 있다. 그러나 이용목적에 대한 복수 응답에 대해서는 한국 대학생들이 훨씬 다양하게 이용하고 있는 것으로 조사되었다. 인터넷 쇼핑에서는 한국 대학생들이 더 활발하게 이용하고 있으며 의류 구입이 첫 번째며, 이어서 책과 은행 이용이 각각 뒤를 이었다. 그러나 일본 대학생의 경우 책 구입이 첫 번째 의류와 온라인 경매 참가가 각각 뒤를 이었다.

전반적으로 한국 대학생들의 인터넷 사용이 일본 대학생들보다 활발하게 이용하고 있으며, 특히 집에서의 인터넷 접속이 일본 대학생들 보다 더 많음을 보여주고 있는데 이는 그 만큼 한국 가정에서의 광대역 인터넷 시설이 잘 되어있기 때문으로 간주된다.

**Key Words** : Information Technology(IT), Internet Use, e-Learning, e-Commerce, Korea, Japan

## 1. Introduction

The use of computers and internet has been burgeoning with new emerging economies adding to

the waves of users of technology [2]. The use of computers has been so pervasive that there is hardly any school or university that is not using computers to teach or for students to learn with. While each emerging economies are racing to increase the computer and student ratio, those with a longer history of computer exposure are observed to be sustaining their level of use and perpetuation of information technology (IT). Both Korea and Japan are leading countries in Asia in the of usage of computers and internet penetration [7]. While other Asian countries

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such as China and India are among the fastest growing IT users, Korea and Japan have longer IT exposure and a more matured IT society. But what is the state of affairs between these two countries' IT usage in education and especially among students? How does one compare with the other?

An early adoption of IT habits ensures a sustained practice for the future. This is especially so in the developmental stage of the child when they begin to cultivate the culture and form mindsets in the adolescent age. This research is targeted at University students to gauge the IT awareness of this adolescent age where they are about to enter the adult age. The development cycle would have matured at this stage. The study will look at the IT behavior and awareness of these adolescents and examine how they compare with each other between the two IT powerhouses. This study makes a comparison of IT awareness between students in Japanese and Korean Universities and suggests a better way to improve IT facilities.

## 2. Internet Users

Korea and Japan have one of the highest numbers of internet users per capita in the world today. In terms of Internet users per 100 inhabitants, Korea (71.1) and Japan (68.3) ranked 6th and 8th respectively [5]. The highest was Netherlands at 88.8 according to the Internet World Stats [10]. A report from the Organization for Economic Cooperation and Development's (OECD) in 2007 showed that South Korea ranked first in terms of household Internet penetration with 94% of South Korean households having Internet access while Japan ranked at 15th [16]. And in terms of total population, Korea has 70.7% while Japan has 73.8% penetration [10] making them among the top 10 countries of the highest numbers of internet users. However, in terms of Internet access in schools, Korea ranks 4th at 6.3<sup>1)</sup> compared to Japan's 5.15 at 26th position [4] according to World Economic Forum Executive Opinion Survey

2007. While this may be an opinion, it gives an indication on how extensive most students have frequent access.

In terms of accessibility of digital content: text and audiovisual content software via multiple platforms (fixed-line Internet wireless and Internet mobile network satellite), Korea ranked 3rd, with a score of 6.39<sup>2)</sup>, while Japan ranked 20th, with 5.79 [4]. This accessibility affects the implementation and success of e-learning which has rolled out in a big way in leading institutions today [1] [11] [13]. Most, if not all, courses offered today has an online component. Students are able to access lectures and notes when they miss classes or do group discussions in online group discussion forums [17]. Some courses give out assignments and allow online submissions [12] [15]. In fact, some courses are conducted solely online without the student having to come to class physically. With powerful VLE systems in place, students practically register, attend, participate and receive grades online. So, how do the Japanese and Korean Universities compare from the students' perspective. This study will look into the patterns of e-learning and levels of accessing learning materials online.

In terms of companies using the Internet extensively for buying and selling goods and interacting with customers and suppliers, Korea ranked first with 6.12<sup>3)</sup> while Japan ranked 9th with 5.67 [3]. The alternative method of buying online has become a real option for many in these two countries [9]. But what is the internet buying behavior of the students in these two countries? This case study will look at the University students' internet habits.

In terms of owning a personal computer, Japan scores a 67.5 compared to Korea 53.2 [6]. What is the rate of computer ownership? What is the amount of time spent and frequency on the internet? How do their internet habits compare in terms of e-learning and e-commerce? And are there differences between gender of each country? These are the issues that this research is looking at. Besides looking at the internet

1) 1 = very limited; 7 = extensive most children have frequent access

2) 1 = no digital content is not accessible 7 = yes digital content is accessible via a wide range of platforms  
3) 1 = strongly disagree 7 = strongly agree

access, two types of internet activity, e-learning and e-commerce will be examined. This case study will not only take a look at the individual status of each country's situation but will also compare between the two.

### 3. Research Methodology

Three Universities in both Japan and Korea participated in this research. The Universities in Japan were Nishinippon Institute of Technology and Miyazaki International College, and in South Korea, WooSuk University. All Universities are located at cities that are medium in size with about more than half a million in population, and they are considered to be urban based. All the universities have broadband connection and wireless capabilities on campus, thus offering students the option of both wireless connection and desktop computer stations.

A questionnaire was conducted from 8th to 12th of October 2008. The students in Japan completed an online questionnaire while Korean students completed the same questionnaire in pen and paper form. The students ranged between first to third year of studies and have different majors. There were a total of 92 Korean students and 137 Japanese students participated in this research making a total of 229 of respondents <Table 1>. 60 students from Miyazaki International College and 77 from Nishinippon Institute of Technology participated from Japan while all the Korean students were from WooSuk University.

<Table 1> Number of students: nationality and gender

	Male		Female		Total	
	no	%	no	%	no	%
Korean	62	67.4	30	32.6	92	40.2
Japanese	104	75.9	33	24.1	137	59.8
Total	166	72.5	63	27.5	229	100

Most of the students are in their first year of study. The gender composition is shown in <Table 1> with male 72.5% and female 27.5% respectively.

All the data collected were analyzed using SPSS 12.0 and the data were frequency and cross tab analyzed.

## 4. Findings and Discussion

### 4.1 Computer Ownership

<Table 2> shows that both countries have about the same rate of 87.6%-88% of students owning a computer.

However, slightly more Japanese females own a computer compared to their counterparts in Korea <Table 3>. The males fared about the same in either country. <Table 3> also shows that for every Korean male who did not have a computer, there were 7.9 that did when compared to 6.9 for Japanese males. Japanese females were better with every one who did not have a computer, there are ten who did.

<Table 2> Overall students: ownership of computers

	Korean		Japanese		Total	
	no	%	no	%	no	%
Own	81	88	120	87.6	201	87.8
Do not own	11	12	16	11.7	27	11.8
Total	92	100	137	100	229	100
Rate	7.4	-	7.5	-	7.8	-

<Table 3> Ownership of computers by gender

	Korean				Japanese			
	male		female		male		female	
	no	%	no	%	no	%	no	%
Own	55	88.7	26	86.7	90	87.4	30	90.9
Do not own	7	11.3	4	13.3	13	12.6	3	9.1
Total	62	100	30	100	103	100	33	100
Rate	7.9	-	6.5	-	6.9	-	10.0	-

In the question 'Do you own a computer/ laptop/ PDA/ pocket PC?', <Table 2> shows that 87.6% of Japanese owned at least one computer with 85.8% of this percent <Table 4> having at least one computer. This was compared to 88% of Koreans and 69.1% of this percent. However, more Koreans owned more than one computer compared to the Japanese. <Table 4> shows that 30.9% of Koreans who owned computers have more than one computer compared to 24.2% of the Japanese. What is interesting to note was that 4.2% of Japanese with a computer has more than three computers, while there were none among Koreans.

In the question 'If you have a computer, how many

<Table 4> Ownership of multiple computers

	one		two		three		> three		total	
	no	%	no	%	no	%	no	%	no	%
Korean	56	69.1	17	21	8	9.9	0	0	81	100
Japanese	103	85.8	10	8.3	2	1.7	5	4.2	120	100
Total	159	79.1	27	13.4	10	5.0	5	2.5	201	100

<Table 5> Ownership of multiple computers by gender

	Korean male		Japanese male		Korean female		Japanese female	
	no	%	no	%	no	%	no	%
one computer	37	67.3	78	86	19	73.1	25	83.3
more than one computer	18	32.7	12	13.3	7	26.9	5	16.7
Total	55	100	90	100	26	100	30	100

do you have?', <Table 5> shows that more Korean males (32.7%) have than one computer when compared to Japanese males (13.3%). Korean females registered a similar rate (26.9%) compared to Japanese females (16.7%). What is interesting, however, was that all of the Japanese who has more than three computers <Table 4> were males.

These showed that the rates of 87.8% (ownership of computers per 100 students) <Table 2> surpassed the Global Information Technology Report [6] of 67.5 for Japan and 53.2 for Korea. Students seem to have a higher computer ownership rate than the general population. In general, more Koreans (30.9%) have multiple computers compared to the Japanese (14.2%) <Table 4>. And there is really no distinction between genders when it comes to owning a computer <Table 3>.

#### 4.2 Internet Access Location

In the question 'Where do you usually access to the Internet?', <Table 6> shows that a sharp contrast between the Koreans and Japanese where students used the computer to surf the internet. 92.4% of the Koreans accessed the internet at home while only 57.7% of Japanese did so. In contrast, 36.5% of the Japanese and only 3.3% of the Koreans went into the internet in their University <Table 7>. These places were on-campus computer facilities such as the library, computer rooms and laboratories. However, in general, both nationalities logged into the internet at home

(71.6%) <Table 6>. <Table 6> also shows that using public internet access places (1.3%) such as internet cafes or using personal wireless computer were not preferable for either nationality.

<Table 6> Locations where students access internet

	Korean		Japanese		Total	
	no	%	no	%	no	%
on-campus	3	3.3	50	36.5	53	23.1
at home	85	92.4	79	57.7	164	71.6
personal wireless	2	2.2	7	5.1	9	3.9
public internet places	2	2.2	1	0.7	3	1.3
Total	92	100	137	100	229	100

<Table 7> shows that significantly more Japanese females (42.4%) preferred Universities' internet facilities rather than home when compared with the Korean females (3.3%). When compared 'Internet use at home' between the females, the Koreans overwhelmingly chose to stay at home (93.3%) compared to about half of the Japanese 54.5% <Table 7>. While the Japanese males would prefer the home most, about one third of them prefers the campus. However, this was in sharp contrast to the Koreans, who decidedly declared that their home is the place for internet access.

Both cultures showed a distinct preference to where they prefer to access the internet: the Koreans at home while the Japanese prefer the universities. With 8.78 out of 10 of these students <Table 2> own at least one

<Table 7> Locations where students access internet by gender

	Korean male		Japanese male		Korean female		Japanese female		Koreans		Japanese	
	no	%	no	%	no	%	no	%	no	%	no	%
On-campus	2	3.2	36	34.6	1	3.3	14	42.4	3	3.3	50	36.6
At home	57	91.9	61	58.7	28	93.3	18	54.5	85	92.5	79	57.6
Personal wireless	1	1.6	7	6.7	1	3.3	0	0.0	2	2.1	7	5.1
Public internet places	2	3.2	0	0.0	0	0.0	1	3.0	2	2.1	1	0.7
Total	62	100	104	100	30	100	33	100	92	100	137	100

computer; it is interesting to note that the Japanese spend less time at home on the internet, whereas the Koreans spend most of their time there. In addition, the lack or preference for wireless connection may be due to many reasons but it is an interesting observation in the light of the high computer ownership. The lack for wireless connection might be explained that still it is not cheap enough to use it for students.

### 4.3 Time Spent on the Internet

<Table 8> Number of times accessing the internet in the University

	Koreans		Japanese		Total	
	no	%	no	%	no	%
1-4 times /week	10	10.9	80	58.4	90	39.3
5-6 times /week	18	19.6	28	20.4	46	20.1
2-4 times /day	23	25.0	29	21.2	52	22.7
>4 times /day	41	44.6	0	0	41	17.9
Total	92	100	137	100	229	100

<Table 8> shows a contrasting difference between the number of times accessing the internet in the University between the Japanese and Koreans. 44.6% of Koreans spend more than four times a day on the internet when compared to the Japanese which had none. Conversely, 58.4% of the Japanese would access

the internet once to four times a week compared to only 10.9% of the Koreans. The moderate internet users were roughly the same for both nationalities, each having about 20% for either five to six times a week or two to five times a day.

<Table 9> shows that more Korean females spent less time on the internet than the Korean males, but it was definitely more than the Japanese females. The Japanese males spent much less time on the internet than the Korean males and have a similar pattern with the Japanese females.

<Table 10> shows that almost half of both the Korean and Japanese students spend, on the average, between 1-3 hours on the internet daily. One third of the Japanese would spend less than one hour a day but 50% of the Koreans spent more than 3 hours a day on the internet daily with 22.8% having more than 5 hours a day. This was a sharp contrast between the two nationalities.

<Table 10> Time spent on the internet

	Korean		Japanese		Total	
	no	%	no	%	no	%
< 1 hour	4	4.3	45	32.8	49	21.4
1-3 hours	42	45.7	62	45.3	104	45.4
3-5 hours	25	27.2	25	18.2	50	21.8
>5hour /day	21	22.8	5	3.6	26	11.4
Total	92	100	137	100	229	100

<Table 9> Number of times accessing the internet by gender

	Korean male		Japanese male		Korean female		Japanese female		Koreans		Japanese	
	no	%	no	%	no	%	no	%	no	%	no	%
1-4 times /week	4	6.5	61	58.7	6	20	19	57.6	10	10.9	80	58.4
5-6 times /week	13	21.0	23	22.1	5	16.7	5	15.2	18	19.6	28	20.4
2-4 times /day	15	24.2	20	19.2	8	26.7	9	27.3	23	25.0	29	21.2
>4 times /day	30	48.4	0	0	11	36.7	0	0	41	44.5	0	0
Total	62	100%	104	100	30	100	33	100	92	100	137	100

<Table 11> Time spent on the internet by gender

	Korean male		Japanese female		Korean female		Japanese female	
	no	%	no	%	no	%	no	%
< 1 hour	3	4.8	37	35.6	1	3.3	8	24.2
1-3 hours	26	41.9	39	37.5	16	53.3	23	69.7
3-5 hours	16	25.8	23	22.1	9	30	2	6.1
>5 hour/day	17	27.4	5	4.8	4	13.3	0	0
Total	62	100	104	100	30	100	33	100

Comparing the same gender, <Table 11> shows that the Korean males clearly spent more time on the internet than the Japanese but with a slight increase in percentage points for 3-5 hours of time a day spent. These show that the boys spent slightly longer time on the internet than the girls. The Korean females definitely spent more time than the Japanese females with 43.3% Koreans spending more than 3 hours daily compared to 93.9% Japanese spending less than 3 hours.

While many Koreans may have accessed the internet many more times in a day, majority (72.9%) spent about one to five hours <Table 10>. On the other hand, the majority of the Japanese students (78.1%) mostly spent less than 3 hours with 32.8% having less than an hour on the internet <Table 11>. The Koreans clearly spent much more time and accessed more than the Japanese. This is probably due to the high incidence of the Koreans accessing the internet at home which is where students spend more time than at the University. This explains why Koreans have more broadband facilities at home than Japan.

#### 4.4 Learning on the internet

In the question 'For learning, which of the following activity do you go internet? (You can choose more than one),' <Table 12> shows that more Japanese did their learning online when compared to the Koreans. 94.7% of Japanese went onto the internet for their classes compared with 47.3% of Koreans. The pattern was similar for either nationality with the bulk accessing the internet for their classes after the face to face class time. Significantly, a little over half of the Koreans did not need to access the internet for their curriculum study.

<Table 12> Type of e-learning

	Korean		Japanese		Total	
	no	%	no	%	no	%
100% online	5	5.4	11	7.2	16	6.5
online DURING class	12	12.9	53	34.9	65	26.5
online AFTER class	27	29	80	52.6	107	47.7%
0% online	49	52.7	8	5.3	57	23.3
Total	93	100	152	100	245	100

<Table 13> shows that most Japanese and Koreans, when going online for learning, spent mostly on research for school assignments. The Koreans did more online classes for personal enjoyment or enrichment (19.5%) when compared to the Japanese (7.9%). Conversely, more Japanese (19.3%) preferred learning a language online than the Koreans (7.6%).

When compared with <Table 13>, <Table 14> shows a similar pattern for the Korean and Japanese males. The females, on the other hand, show that Korean girls doing less 'online courses for certification, language learning and research for assignments' when compared with Japanese girls.

<Table 13> : Purpose of learning online

	Korean		Japanese		Total	
	no	%	no	%	no	%
Research for assignment	81	38.6	102	50.5	183	44.4
Class for certification	15	7.1	21	10.4	36	8.7
Class for credits	29	13.8	23	11.4	52	12.6
language learning	16	7.6	39	19.3	55	13.3
Class or enrichment	41	19.5	16	7.9	57	13.8
Others	28	13.3	1	0.5	29	7.0
Total	210	100	202	100	412	100

The total number of responses suggests that the Koreans were slightly more into e-learning than the Japanese at the rate of 2.28 to 1.47 (210 selection made

<Table 14> Purpose of learning online by gender

	Korean male		Japanese male		Korean female		Japanese female	
	no	%	no	%	no	no	%	%
Research for assignment	55	37.2	71	49	26	41.9	31	54.4
Class for certification	13	8.8	15	10.3	2	3.2	6	10.5
Class for credits	20	13.5	18	12.4	9	14.5	5	8.8
language learning	11	7.4	29	20	5	8.1	10	17.5
Class or enrichment	29	19.6	11	7.6	12	19.4	5	8.8
Others	20	13.5	1	0.7	8	12.9	0	0
Total	148	100	145	100	62	100	57	100

<Table 15> E-commerce

	Korean		Japanese		Total	
	no	%	no	%	no	%
Banking online	41	19.3	20	11.1	61	16.6
Buy a book	42	19.8	59	32.8	101	27.4
Buy clothes	67	31.6	35	19.4	102	27.7
Reserve travel items	22	10.4	21	11.7	43	11.7
Pay bills online	7	3.3	16	8.9	23	6.3
Online auction	13	6.1	25	13.9	38	10.3
Others	20	9.4	4	2.2	24	6.5
Total	212	100	180	100	368	100

from 92 Koreans compared to 202 selection made from 137 Japanese participants). Interestingly with the Koreans having more internet usage, the online activity of the courses they took reflected less of the online component. While both nationalities reflected the same amount of 100% online courses, almost half of the Koreans (52.7%) had no online component in any of their courses <Table 12>. This was perhaps a reflection of the respective Universities' courses design and the majors the students are in.

#### 4.5 E-Commerce

In the question 'For e-commerce, which of the

following go you do Internet for?(You can have more than one)', <Table 15> shows that buying clothes online was most popular with the Koreans but it was buying books when it came to the Japanese. The next most popular e-commerce activity for the Koreans was buying books and banking online. For the Japanese, it was buying clothes followed by online auction and banking.

When comparing <Table 15>, <Table 16> shows a similar pattern with the overall e-commerce preferences of either nationality. The only slight increase was the Japanese females were more into making reservation for travel online (20.5%) <Table 16> when compared to the overall Japanese preference

<Table 16> E-commerce by gender

	Korean male		Japanese male		Korean female		Japanese female	
	no	%	no	%	no	%	no	%
Banking online	27	18.9	15	11	14	20.3	5	11.4
Buy a book	25	17.5	44	32.4	17	24.6	15	34.1
Buy clothes	44	30.8	28	20.6	23	33.3	7	15.9
Reserve travel items	16	11.2	12	8.8	6	8.7	9	20.5
Pay bills online	5	3.5	15	11	2	2.9	1	2.3
Online auction	9	6.3	21	15.4	4	5.8	4	9.1
Others	17	11.9	1	0.7	3	4.3	3	6.8
Total	143	100	136	100	69	100	44	100

(11.7%) <Table 15>. And this was also a distinct difference with the Korean females (8.7%). For the males, the Japanese were more into online auction (15.4%) and paying bills online (11%) when compared to the Koreans (6.3% and 3.5% respectively).

The total number of responses suggests that the Koreans were more e-commerce savvy than the Japanese at the rate of 2.30 to 1.28 (212 selection made from 92 Koreans compared to 180 selection made from 137 Japanese participants) <Table 15>.

## 5. Conclusion

With 70.1% of the participants in their first year of study, the high level of internet access and computer ownership is remarkable as this early stage in their University life is indicative of their IT savvy of these adolescents. This is in tandem with the recognition that both Korea and Japan are highly ranked in terms of internet usage and ownership of computers. What was significant from this study was that Koreans spend a lot more time on the internet than the Japanese. While the Koreans have more multiple computers compared to the Japanese, there is really no distinction between genders and nationality when it comes to owning a computer. Most Korean students prefer using the internet at home rather than at the University, which is the opposite of the Japanese.

In terms of using the internet for learning, both nationalities mostly use it to do research for their assignments. In general, Koreans use the internet more for e-learning than the Japanese owing to their higher rate of learning online whether it is for class or for leisure. When it comes to e-shopping, Koreans prefer buying clothes and accessories online more than buying books, but it is the reverse with the Japanese. Both nationalities also do a fair bit of banking online but the Japanese do more auction online than the Koreans. In general, Koreans use the internet more for e-commerce than the Japanese owing to their higher rate of shopping online. It may be due to the Koreans having more broadband connection at home than the Japanese.

The limitations of this study are restricted to the

type of majors and Universities surveyed. As a result too, the gender ratio may be slanted towards more males than females. A balanced ratio of equal numbers may yield a clearer result. Nonetheless, this study offers an insight to the students of today on their computer ownership, internet usage and behaviour.

For a further study, it is suggested to focus on more specific and underlining factors to be examined on these differences and how these may lead to an improvement in the quality of IT use.

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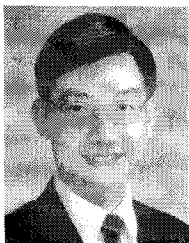
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