Digital Divide in Taiwan 2008
Summary

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Research, Development, and Evaluation

Commission, Executive Yuan, Taiwan

Contents

Summary of Digital Divide in Taiwan 2008

I. Introduction

According to "World Information Society Report 2007" published by the International Telecommunication Union(ITU), Taiwan was ranked 7th out of 181 countries included in the Digital Opportunity Index(DOI), an index comprising of three sub-indexes(infrastructure, opportunity and application) used to analyze the development status and trends of a information society, moving up from its 10th ranking in 2006.

However, despite its outstanding performance in the IT industry, Taiwan encounters a similar problem as other advanced countries in the widespread of information technology – the digital divide. The digital divide inevitably resulted from different community groups having different capability in using information technology equipment and the Internet due to inconsistent accessibility to computers and their use of the Internet at different periods of time.

To bridge the domestic digital divide and to realize the dream of equal e-opportunities, the government has incorporated the "Program for Bridging the Digital Divide" into the "e-Taiwan Project" since 2004 and listed it as a key focus in policy implementation. Each year, the Research, Development, and Evaluation Commission (RDEC) conducts a digital divide survey, to evaluate the status of information infrastructure implementation and the result of digital divide reduction, hoping to understand the current situation of Taiwan's digital divide through survey and research methodology consistent with modern social science standards. The results can be adopted not only as reference for the government in formulating the digital divide policy accordingly, but also in evaluating the progress and benefits of the implementation of the digital divide policy. At the same time, the results also help to sustain achievements from the digital divide research in previous years to further understand the changes in domestic digital divide trends, as well as connecting and conducting dialogue with international studies.

II. Study Methodology

In line with the purpose and spirit of its past studies, the 2008 Digital Divide Survey was contracted to the Survey Research Center of the UDN Group. The survey was conducted using computer assisted telephone interviews (CATI) from July to September 2008. Random sampling interview was used to interview population of Taiwan nationality at or over the age of 12 in the two major metropolitan cities in Taiwan (Taipei and Kaohsiung), and 23 other counties and cities.

The survey was conducted after 6pm from Monday through Sunday. The survey

collected 16,131 valid random samples in Taiwan, with a response rate of 68.8% .The estimated and actual distribution of random samples completed in counties and cities are shown in Table 1.

Table1 Distribution and Actual Number of Samples Interviewed for Individual/Household Telephone Survey

County/City	Number of residents aged 12 and above	Estimated Error	Sample Size	Actual Valid Samples
Total	19,932,625	±0.8%	16,000	16,131
Taipei City	2,313,349	±3.5%	800	815
Kaohsiung City	1,330,617	±3.5%	800	809
Taipei County	3,317,594	±3.5%	800	806
Yilan County	401,205	±4.0%	600	611
Taoyuan County	1,638,358	±3.5%	800	801
Hsinchu County	416,860	±4.0%	600	618
Miaoli County	485,081	±4.0%	600	621
Taichung County	1,328,616	±4.0%	600	614
Changhua County	1,132,696	±4.0%	600	616
Nantou County	465,298	±4.0%	600	612
Yunlin County	631,217	±4.0%	600	612
Chiayi County	482,447	±4.0%	600	614
Tainan County	974,052	±4.0%	600	618
Kaohsiung County	1,091,003	±4.0%	600	615
Pingtung County	777,779	±4.0%	600	619
Taitung County	203,028	±4.0%	600	611
Hualien County	299,337	±4.0%	600	604
Penghu County	81,249	±4.0%	600	616
Keelung City	342,958	±4.0%	600	611
Hsinchu City	336,114	±4.0%	600	614
Taichung City	901,024	±4.0%	600	610
Chiayi City	234,069	±4.0%	600	612
Tainan City	667,105	±4.0%	600	623
Kinmen County	72,788	±4.0%	600	612
Leinchiang County	8,781	±4.0%	600	617

Data Source: Department of Statistics, Ministry of the Interior, "Age structure of Each County / City in Taiwan and Fuchien Area", July 2008.

In order to infer the opinions of the whole population over the age of 12 in our country from the survey, sample data need to be fitted with weight to be in

compliance with the population data. The sample composition of this survey has been fitted with weights according to the proportion of sex and age in the population over the age of 12 of each county/city in Taiwan as released by the Ministry of the Interior in July 2008.

Apart from fitting the sample composition of each county/city with weights, we have carried out a second stage weighted reduction on them according to the proportion of the population over the age of 12 of each county/city in that of the whole country. This is because that the sampling design of this survey is based on that the allotments of samples for each individual county/city are so assigned that the sampling errors never exceed ±4% so as to ensure that those counties/cities with little population which might not gather enough samples for inference through random sampling can still produce enough samples for inference. Despite such practice has the advantage of offering basically uniform opportunity to all counties/cities, however, it also give rise to a shortcoming due to this advantage: the overrepresentation of samples from some of the counties/cities. Thus, it is hard to directly infer the overall opinion of the population over the age of 12 of our country. Therefore, samples from those counties/cities that have inflated sample sizes must be fitted with weights according to the proportion of the population over the age of 12 of each county/city in that of the whole country to ensure the correctness of the survey results in the following comparisons and analysis of the overall digital divide except for those simple comparisons between counties/cities. The sex/age distribution of samples before and after weighted are as shown in Table 2.

Table 2. The Sex/Age Distribution of Samples in The Individual/ Household Telephone Survey

Items	Actual Samples	Percentage before Weighted	Percentage after Weighted
Gender			
Male	8,000	49.6	50.4
Female	8,131	50.4	49.6
Age			
12-14	787	4.9	4.9
15-20	1,792	11.1	9.7
21-30	2,278	14.1	19.4
31-40	2,895	17.9	18.5
41-50	3,058	19.0	18.9
51-60	2,604	16.1	14.0
61-64	604	3.7	3.0
65 and above	2,113	13.1	11.7

III. Study Framework and Survey Items

Succeeding the essence of the previous surveys, the 2008 Digital Divide Survey explores the digital divide status of various population in Taiwan area from three aspects, i.e. access to information technology, information literacy and information application.

In order to find out digital divide measuring indicators that are most representative of the state quo of the development of information technology and to keep pace with international trends, the indicators used in the 2008 Digital Divide Survey are determined in two stages. In the first stage, the research unit reviewed the newest relevant research documentation of domestic and abroad, made revision to existing investigation indicators, and drafted the first draft of the indicator framework. After symposia, scholars and experts adopted a resolution which confirmed that the framework and investigation indicators for the 2008 Digital Divide Survey are as shown in Table 3.

Table 3. The Study Framework and Major Investigation Items of the Individual and Household Digital Divide Survey 2008

Primary Dimension	Secondary Dimension	Tertiary Dimension	Indicators (The Coverage of Each Dimension)	Remarks
Individual Digital Status	Access to Information Technology	Access to information equipment	1. Used the Computer before	Used to measure the usage of computer and other information equipments
		Access to the Internet	1. Used the Internet before 2. Number of daily Internet usage hours 3. Access the Internet using mobile phone	Used to measure the usage and frequency of the Internet
	Information Literacy	Information Technology Literacy	1. Ability to use email	Used to measure the basic skills of using a computer and the ability to shoot troubles
		Information Security Literacy	1. Install anti-virus software 2. Set up personal password 3. Back up data periodically	Used to measure one's idea on information security and protection
	Information Application	Application at work	1. Search for information at work 2. Online Learning	Used to measure the application of computer at work and in study
		Citizenship behavior	1. Know government agencies' websites 2. Used the Internet to search for public notices 3. Submitted online applications through government websites 4. Participated in Internet public citizen issues	Used to measure the status of e-government and the participation of people in discussions on political and social issues through the Internet

Primary Dimension	Secondary Dimension	Tertiary Dimension	Indicators (The Coverage of Each Dimension)	Remarks
		Daily life applications	1. Sell or buy products on the Internet 2. E-banking 3. Information search 4. Use the Internet for recreation purposes 5. Use online instant messaging services	Used to measure one's acceptance of e-business and using the Internet for information-searching, communication and recreation
		Web2.0	1. Browse Blogs 2. Share Knowledge and Experiences	Used to measure the status of Web 2.0 application
		Information collection	1. Ability to read English Web pages 2. Ability to search for specific information	Used to measure one's ability to collect information
Household Digital Status	Household Information Environment	Household information equipment	1. Household ownership of computer	Used to measure the household ownership of computer
		Internet environment	1. Does the household have access to the Internet 2. Type of Internet connection for computers in the household	Used to measure the status of household access to the Internet and the Internet connection type
	Household Information Literacy		1. Percentage of computer users in the household 2. Percentage of Internet users in the household	Used to measure the percentage of family members using digital equipments or the percentage of family members using the Internet in a household

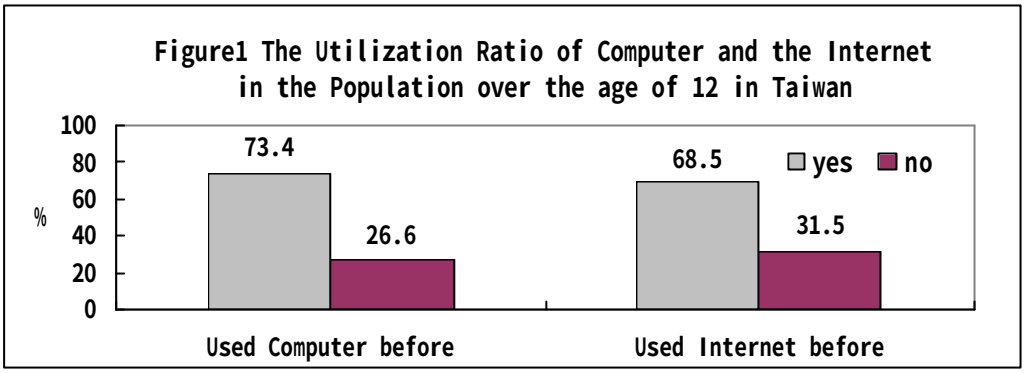
The design of 2008 digital divide questionnaire is based on trend comparison over the years, with reflection of information development trend playing a subsidiary role. Compare the structures of the questionnaires of 2007 and 2008, the key difference lies in that questions about "Shopping on the Internet", "Access to Public Internet" and "Web 2.0" are greatly increased, however, these indexes are only used for observing the digital pulsation of the society. Final digital fractions have not been brought into the calculation of this year.

1. Questions about shopping on the Internet: motive, type, amount, way of payment and non-physical shopping on the Internet;
2. Access to public Internet: situations of browsing on Internet or participating political, social or public policy comments;
3. Web 2.0: uploading and browsing of video and audio archives, P2P, asking questions or sharing experience on Internet.

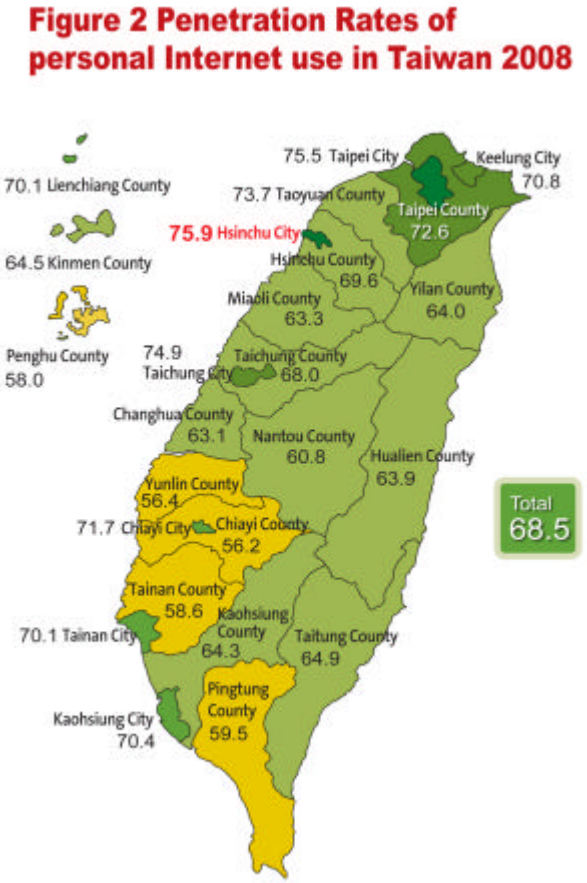
IV. Current Status of the Individual Digital Divide

(I) **Access to information technology**

01. The survey shows that 73.4 % of population over the age of 12 in Taiwan has used a computer before, and 68.5% of the population over that age has used the Internet before. Based on this figure, it is estimated that there are about 14.69 million computer users and 13.71 million Internet users over the age of 12 in Taiwan at present.



02. The e-level is highest in Hsinchu City, Taipei City and Taichung City. More than 75% of people in these cities have used computers before. In contrast, the e-level in Pingtung County, Tainan County, Penghu County, Yunlin County and Chiayi County is lower, less than 60%.



03. The status of public access to information technology shows distinctive

differences according to different level of urbanization in their residential areas. Regions with higher level of urbanization have a higher rate of computer and Internet usage. At present, the Internet usage rate of people living in highly remote towns and villages is 51.2%, whereas the Internet usage rate of people living in moderately remote towns and villages is 53.7%, as regards to the Internet usage rate of people living in backward but non-remote towns and villages is above 17%.

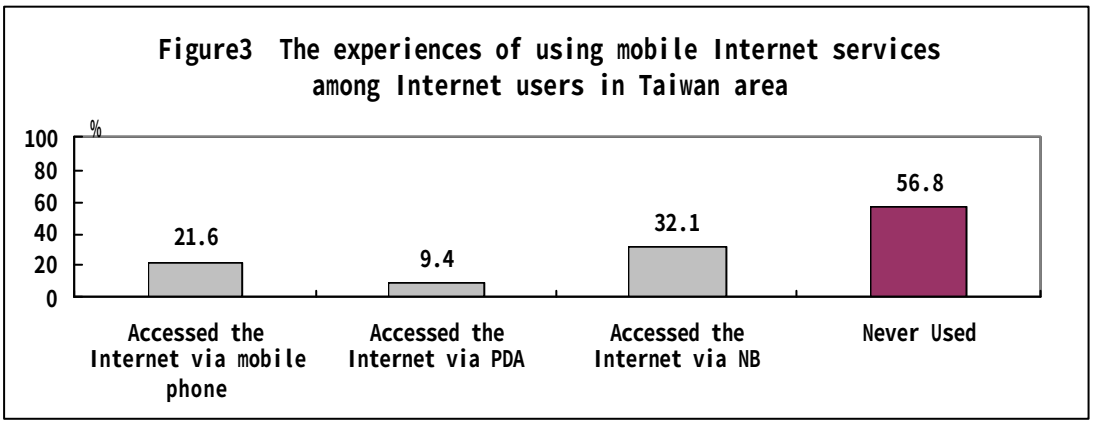
04. The computer usage rate and the Internet usage rate of people in Taiwan still present significant differences along with the differences of gender, education background, age, work post, employment status and physical and mental condition. The basic model is:

- Gender: the usage rates in male are higher than those in female by 3% to 5%;
- Education background: the usage rates in well-educated people are superior to that of poor-educated people, for example, a percentage of 95.9% or higher of the people with a college degree or above have used the computer, the percentage is 8.4 times of that of people with an education background of primary school or lower;
- Age: the young generations are far more electronized than senior people, for example, more than 90% people less than 30 years old may surf on the Internet, whereas the Internet usage rate of people between 51 and 59 years old reduces to 40.5% and that of people over 65 years old is only 7.3%;
- Work post: the Internet usage rates in professionals working in office, technicians, clerks and soldiers in active service exceed 90%, much higher than that (17.8%-61.8%) of workers engaged in agricultural industry, forestry, fishery and animal husbandry or manual workers;
- Employment status: in government sectors, as high as 93.5% of employees have used the Internet before, much higher than that of private sectors (of which the Internet usage rate is lower than 80%);
- Physical and mental condition: only 37.4% of people with physical-mental disabilities have used the Internet before, dropping behind that of non-handicapped people by 32.3%.

05. Difference of access to information technology of different ethic groups has become not so much obvious: the Internet usage rate of indigenous people is 65.4%, which is about the same as that of the Hakka group (69.8%) and ethnic groups other than the indigenous people and the Hakka group (68.3%).

06. Internet users in Taiwan spend approximately 2.8 hours/day using the Internet, of which users of 21-30 years old spend as much as 3.6 hours/day using the Internet, ranking at the top among varied age groups.

07. In total, 43.2 % of the population over age of 12 in Taiwan has used mobile Internet services before. Among people used mobile Internet services, access rate to the Internet by laptop outdoors ranks no. 1 (32.1%); however, there are 21.6% of people using mobile phone to access the Internet while 9.4% used PDA. What is special is that: despite the Internet usage rates through laptops or PDA in people living in remote towns/villages and indigenous towns/villages are relatively low, their opportunities to use mobile Internet services are similar to that of people other than remote and indigenous towns/villages, showing the potential value of mobile Internet services for solving the problem of accessing the Internet of remote towns/villages. Furthermore, the degree of acceptance of mobile Internet services by males, well-educated and young Internet users becomes higher and higher and therefore, these users hold a percentage obviously higher than that of females, poor-educated or older Internet users compared with 2007.



(II) Information literacy

01. 86.4% of Internet users in Taiwan know how to use E-Mail, among which the percentage of Internet users of 12-14 years old and above 40 years old who know how to use the E-Mail service is lower than 80%, which is obviously too low; besides, only 64.5% of Internet users with physical-mental disabilities know how to use E-Mail, which is also lower than that (86.9%) of non-handicapped people.

02. The information security of computer has become an important issue for contemporary information society and individuals who use computers, the Internet

and information technology. The survey discovered that although people in Taiwan who used the Internet had strong vigilance on virus resistance of computer and 88.6% of the respondents indicated that their personal computers in daily use had installed antivirus software or had configured firewalls; however, their concept about the security of information like setting personal passwords, backup personal archives and data regularly, etc. are a bit low; and only 44.4% of the respondents have set up passwords in their computers and only 47.5% have backed up their documents and data regularly.

03. The information security literacy of Internet users increases along with their education degree. In respect of work post, high-level managers and professionals pay much attention to the information security issue and 91% of them have adopted antivirus measures for computers; however, only 63% of them have set up personal passwords in their computers and backed up their personal data periodically.

(III) Information technology applications

01. Of people employed in Taiwan, 57.3% must use computers at work, 45.0% need Internet access, both of which increase by 3.9% and 2.1% respectively compared with that of 2007.

02. Among 25 counties and cities in Taiwan, Hsinchu City and Taipei City have the highest level of digitalization at work, with 75% of people who must use computers at work and above 65% of them who need Internet access. In contrast, agricultural counties/cities such as Chiayi, Pingtung and Yunlin have the lowest level of digitalization at work, the usage rates of computers at work in these counties/cities are about 40% and the usage rates of Internet are about 30%. In terms of work situations, professionals and affairs handling workers are the two categories with the highest digitalization. With regard to the differentiation of the extent of digitalization among various sectors, government sectors have the highest digitalization degree: 86.5% of people employed in government sectors need to use computers at work and 74.1% need to use the Internet at work.

03. Among Internet users over the age of 12 in Taiwan, although more than 80 percent (80.4%) used the Internet to hunt for jobs or to search for study information frequently or occasionally, the percentage of users engaging in online learning is not very high and the percentage of users who have ever engaged in online learning or video & audio courses is only 25.9% in total.

04. The rate of using the Internet to hunt for jobs or to search for study information by Internet users in towns/villages with relatively low urbanization or remote towns/villages is still obviously lower than that of regions with better urbanization degree like Taipei and Kaohsiung municipalities directly under the Government of Taiwan and the gap is about 5%. With regard to the differentiation of the extent of Internet usage among various sectors, government sectors have the highest electronization degree: 89.9% of people employed in government sectors will access Internet to hunt for jobs or to search for study information and 49.5% have experience in engaging in video & audio courses or online learning through the Internet.

05. With regard to the usage of electronized government, 80.4% of Internet users knew that there were websites established by government agencies; 35.0% had used the Internet to access government policies or public notices in the past year, 25.9% had filed online applications through government websites. It is found from further analysis that: people in Kinmen and Matsu depend more on the Internet as living in remote places and therefore, not only the rate of knowing that there are websites established by government agencies of them is higher than that of Taiwan (with a proportion between them as 86.2% : 79.4%), but also the rates of using the Internet to access government policies or public notices (45.0%) and filing online applications through government websites (27.2%) in the past one year are higher than that of the people of Taiwan by about 10%.

06. In respect of citizen participation in issues, the power of influence of the Internet as a place for spreading citizen's issues is gradually taking shape. Based on calculation, there are 43.9% Internet users who will browse the comments on politics, social events or public policies issued by other netizens; however, the sources of comments and opinions of such netizens are quite limited since only 6.1% of Internet users have ever expressed their personal opinions. It is shown from analysis that the rate of expressing personal opinions against citizen issues of well-educated people, public representatives and high-level managers and professionals through the Internet is obviously relatively high.

Figure4 Intermet Users' Understanding about government agencies' websites

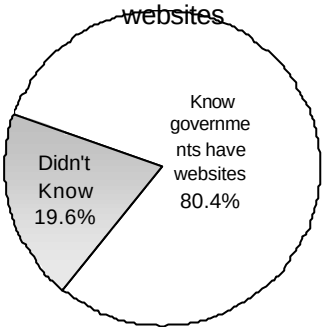
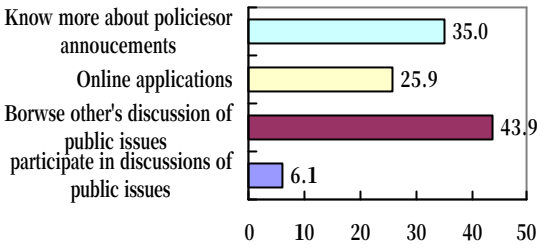


Figure5 Internet Citizen Participation of Internet Users above the Age of 12 in Taiwan

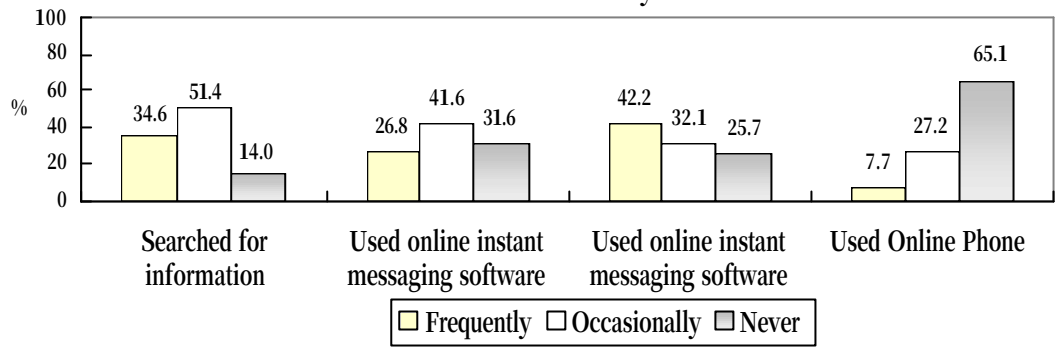


07. Among Internet users in Taiwan, 86.0% may search for information on Internet, 74.3% have used Internet instant messaging software and 68.4% have engaged in recreational activities online. All of these indicate that the application of the Internet by people in daily life has become quite common.

08. As regards to online recreational activities, Lienchiang County (75.2%), and Hualien County (75.1%) have the highest participation rates. In contrast, the participation rate of online recreational activities in people of Taipei City, however, is the lowest among all counties/cities, lower than that of the above-mentioned counties/cities for at least 12 percentage points since the recreational industry in Taipei is relatively developed. Among varied employees, the rate of soldiers in active service and economically inactive population for killing time and using online instant messaging software through the Internet is obviously higher than that of other groups. Besides, the rate of participating in community activities of people with physical-mental disabilities is low with only 50.0% using online instant messaging software and 20.7% having used web phones, which is at least 15 percentage points lower than that of non-handicapped citizens.

09. Among Internet users in Taiwan, there are a total of 34.9% of people who have used web phones, among whom 21.6% have accepted to pay for buying points to dial overseas calls, local calls or sending brief news through web phones although most of the users (75.8%) prefer to use free web phones, thus a commercial mode is gradually taking shape.

Figure6 The application of the Internet by Internet users in Taiwan in daily life



10. There is still quite some room for the development of e-business activities in Taiwan: only 26.1% of the Internet users have used the Internet to handle their personal banking issues; however, the percentage of people who sell or purchase goods and services through the Internet has increased to 49.5%, among whom, however, most are buyers (37.5%). The rate and amount of Internet users engaging in e-business activities increase along with their education degree.

11. To analyze the reasons why Internet users participate or not in shopping on the Internet, it is shown from investigation that being convenient and cheap (71.2%) are the most common reason for shopping on the Internet, however, transaction safety (28.3%) will be the main challenge to be faced with in future.

12. By observing the shopping behaviors of Internet users in Taiwan in the recent year, the results show that "clothing accessories, cosmetics and care products" (60.6%) are the most popular commodities and every six of ten Internet users have bought such commodities on the Internet; the second popular commodities are "books and magazines" (49.7%) and "hotels, plane tickets, train or bus tickets, etc." (48.5%); with regard to the amount, the rate of NTD 1,001-5,000 ranks no. 1 (35.4%), the second is NTD 5,001-10,000 (16.7%) and those of less than NTD 1,000 and between NTD 10,001-20,000 take up about 1%. In addition, a total of 16.6% spent over NTD 20,000 in shopping on the Internet in the past year. In average, the average consumption amount of Internet users who have bought things on Internet in the past year is NTD 13,565.

Chart 7 Types of Commodities Purchased on Internet by Internet Users in Taiwan

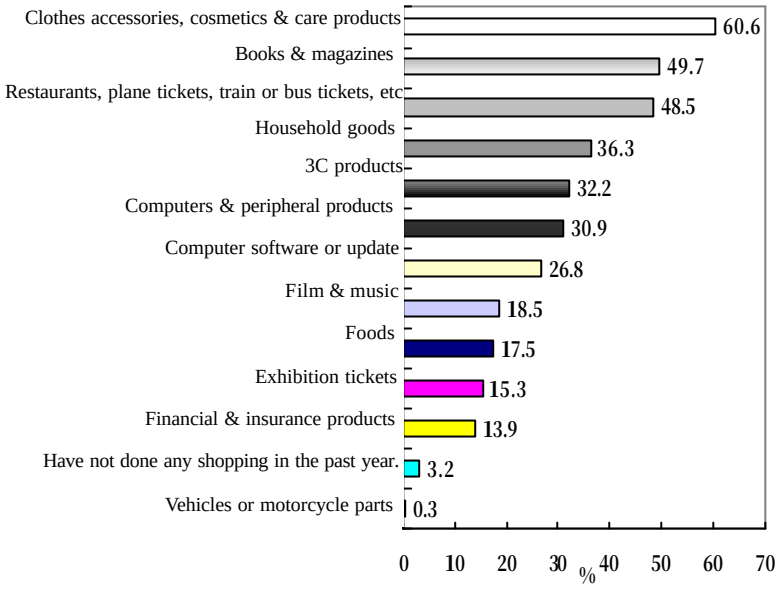
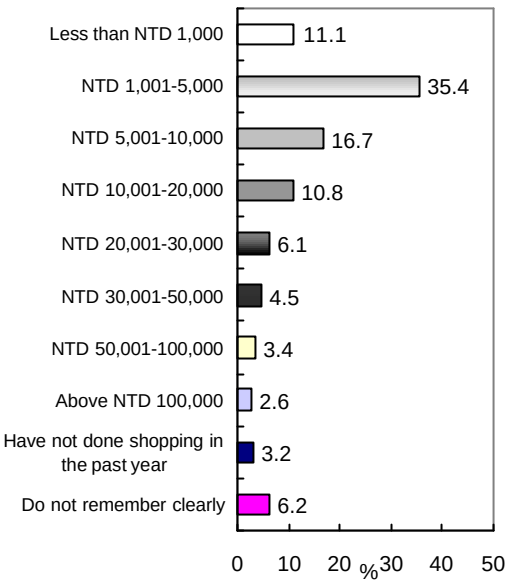


Chart 8 Amount Spent on Shopping on the Internet in the Past One Year by Internet Users



13. 11.1% of Internet purchasers in Taiwan have purchased intangible products like e-books or software on the Internet and it is shown that the logistics about shopping on the Internet is mainly tangible objects; in respect of cash flow, where options are available, “transferring through post offices or banks” (54.0%) takes first place, which is followed by “payment by credit cards” (36.5%). In addition, “cash on delivery” (26.3%), “payment based on fetching goods from convenience stores” (13.9%) and “payment based on face-to-face delivery of goods” (4.4%) take up certain percentage respectively, which reflects the worry of transaction security and protective mechanisms against transaction security of Internet purchasers.

14. The application of Web 2.0 among Internet users in Taiwan has been analyzed from their experiences in contacting blogs and the Internet. The survey indicated that 77.8% of Internet users frequently or occasionally use the Internet to browse others’ blogs. Among those Internet users who have used the Internet to browse blogs, nearly half of them (50.3%) do interact with others and express their opinions through the Internet. Besides, 36.7% of the Internet users have their own Internet blogs, 49.0% of them will ask questions or take the opinions of netizens as reference and 24.6% of them will share their experiences or “answer questions” online.

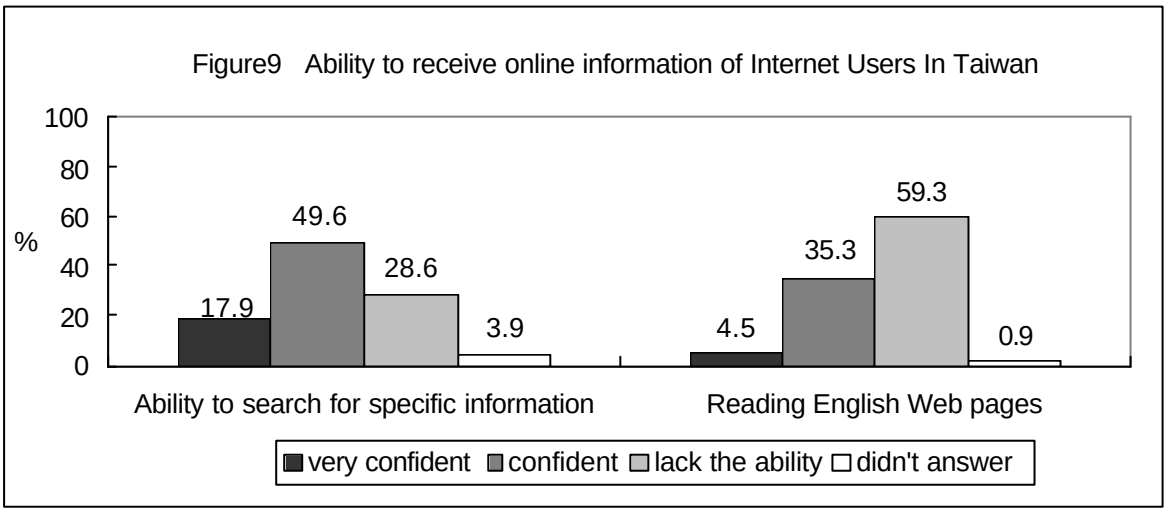
15. Among Internet users below the age of 30, more than 40% of them have their personal blogs, more than 60% will express their own opinions or respond to

others' opinions and participating in the construction of the Internet has presented the characteristics of their generation. The percentage of well-educated people recording events in life and expressing their opinions is obviously higher than that of Internet users with other different education backgrounds.

16. Video & audio trend is a new wave of Internet trend. 59.0% have browsed video & audio archives on the Internet and 15.1% of Internet users will forward or upload video & audio archives taken by themselves on to the Internet to be appreciated by others. In addition, archive share and capture between Internet users are quite common and 15.1% of Internet users have installed point-to-point archive transmission software (P2P), consequently, archive privacy and information security may become new issues that may generate in the future.

17. Despite that 67.5% of the Internet users are confident on their ability to search for information; only 39.8% of them are sure that they can read English web pages.

Figure9 Ability to receive online information of Internet Users In Taiwan



(IV) Miscellaneous

01. Judging from the possibility that Internet users may use public computers, 9.1% of them said that they would use computers at public places frequently, 50.6% said they would use them occasionally, namely, the highest rate of possibility in using computers provided at public places is 59.7%.

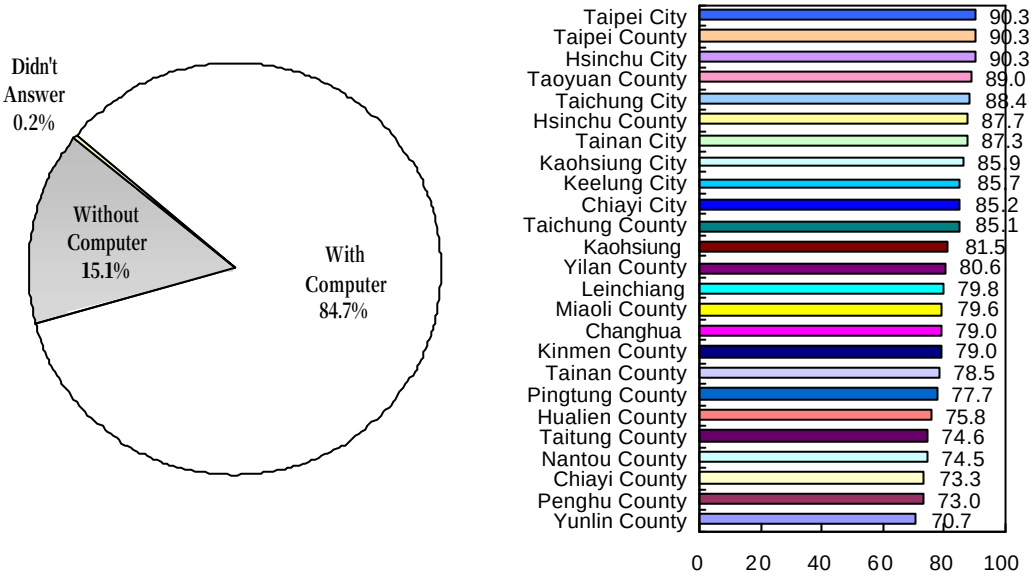
02. People have been asked to poll for places to set up free computer and Internet access in this survey, the most preferred place is convenience stores (36.6%), the second is railway stations, Metro stations or airports (27.9%) and the third is libraries (17.5%),

V. Current Status of the Household Digital Divide

(I) Household information environment

01. It is shown from investigation that as high as 84.6% of households in Taiwan have computers, wherein, Taipei City, Taipei County and Hsinchu City are tied at the present with the highest computer ownership rate at 90.3%. Cities and counties with household computer ownership rates exceeding 85% also include eight counties and cities like Taoyuan County, Taichung City, Hsinchu County, Tainan City, Kaohsiung City, Keelung City, Chiayi City and Taichung County. In contrast, Yunlin County (70.7%), Penghu County (73.0%), Chiayi County (73.3%), Nantou County (74.5%) and Taitung County (74.6%) are relatively poor in the digitalization level, and the computer ownership rates of them are lower than 75%.

Figure10 The household ownership of information equipments in Taiwan



02. In terms of the relationship between the household computer ownership rate and the urbanization of where the household resides, the computer ownership rate in highly-remote towns and villages is 63.5%, the computer ownership rate in moderate-remote towns and villages increased to 70.9%; however, there is still a wide divide between this figure and that of the non-remote towns and villages, which is 87.1%.

03. Judging from the monthly family income, for those households with a monthly income less than NTD 20,000, the computer ownership rate is only 28.7%; for those households with a monthly income of NTD 20,000-30,000, the computer ownership rate increases substantially to 68.7%, which, however, is still far lower

than the average level of Taiwan being 85%. By this token, the monthly income of NTD 20,000 seems to be a threshold for whether to purchase computers. The computer ownership rate of households with a monthly income of more than NTD 40,000 is almost above 90%.

04. The Internet access rate in households with foreign spouse(s) is much lower than that of households without foreign spouse(s) (with a proportion between them as 75.9% : 85.0%). As for households with people with physical-mental disabilities and households without such people, the difference in household information environment is quite limited (with a proportion between them as 83.1% : 85.4%).

05. As for Internet access in households, about 78 of 100 households (77.5%) can access the Internet. The Internet access rate of households in non-remote towns and villages is 80.3%; however, the Internet access rate of households in highly-remote towns and villages is only 51.5% and in moderate-remote towns and villages, the Internet access rate is also only 61.9%. The indigenous towns and villages present a model that is similar to that of remote towns and villages: Internet equipments are least popular in indigenous towns and mountainous regions, with the Internet access rate only 56.6%, followed by indigenous towns and villages in plain regions (67.3%); whereas 78.3% of households in non-indigenous towns and villages can access the Internet.

06. With regard to the employment status of the breadwinner of the household, if the breadwinner of a household is a manager or a professional, he/she can significantly increase the opportunity for the family to obtain Internet equipment (more than 93%); if the breadwinner of a household is a white collar, such as a technician, or other affair handling worker, about 90% of such households have access to the Internet. In contrast, that a breadwinner of a household being a breadwinner who may access Internet is a breadwinner of an economically inactive household is least common and only 47.2% of such households have computers and the popularity of computers in labor class households in agriculture, forestry, fishery and husbandry sectors (51.2%) and non-technical labor class (56.3%) are relatively low.

07. In households with a monthly income less than NTD 20,000, the Internet access rate is only 19.7%. The Internet access rate of households with a monthly income of NTD 20,000-30,000 increases to 58.3% and more than 80% of the households whose monthly income exceeds NTD 40,000 access the Internet through broadband.

08. Among households that can access the Internet in Taiwan, 83.3% access the Internet through broadband, only 1.8% still access the Internet by dial up and 2.6% access the Internet mainly through wireless transmission like 3G. Furthermore, another 12.4% of respondents do not know the bandwidth for Internet access in their homes.

09. Households which have not applied for Internet services are mainly for the reason of having no need to access the Internet (44.1%), followed by worry of Internet Addiction of their families or kids (17.1%), and then being able to access to the Internet at other places (8.7%), being unable to bear the expenses (5.6%) and having no time to access the Internet (5.5%).

10. Among households without computers in Taiwan, if NTD 20,000 should be spent in purchasing computers, 36.1% will feel great pressure, 15.5% have a little pressure and only 29.1% say they would have no pressure. With regard to households with computers but having no Internet access, 40.3% in total may be under pressure.

(II) Literacy of family members

01. In households in Taiwan area, an average of more than 64.3% family members in the household have the ability to use computers; in other words, there are about three family members who know how to operate computers in a household with five family members; and about 60% of family members within a household having the ability to use the Internet.

02. With regard to the degree of urbanization, the whole degree of electronization of the family members of remote villages/ towns and villages/towns in mountainous regions is relatively weak and the percentage of family members who know how to use computers and Internet is lower than 50%.

03. Households with enrolled students are most likely to have computer equipment: as high as 94.1% of households with enrolled students have computer equipment and the Internet access rate of these households also reach 87.6%. However, difference between counties/cities is quite obvious. In terms of the percentage of Internet access rate in households with students, Taipei City, Taipei County, Taoyuan County, Tainan City, Hsinchu City and Taichung City rank highest with a percentage over 90%; in contrast, the Internet access rate in households with students is relatively low in Yunlin County, Changhua County and Taitung County, which is lower than 80%.

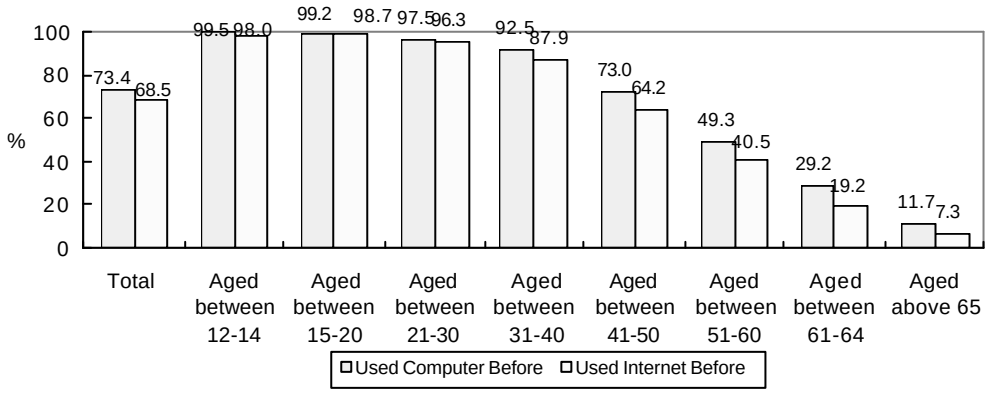
In addition, 95.1% of households with enrolled students in non-remote towns/villages have computers, among which 89.0% can access the Internet; however, the computer ownership rate of households with enrolled students in highly remote towns/villages decreases to 84.1% and the Internet access rate even decreases to 71.8%; if making a distinction between indigenous villages and towns and non-indigenous villages and towns, the computer ownership rate of students in indigenous villages and towns of mountainous regions is as low as that of students in highly remote towns and villages, only 78.7% of households with enrolled students having computers and 72.4% accessing the Internet at home.

The information environment of kids enrolled of households with foreign spouse(s) is much lower and the computer ownership rate of such households decreases to 80.9% and the Internet access rate is only 68.1%, which are much lower than that of kids enrolled of households without foreign spouse(s).

VI. Current Status of the Generation Digital Divide

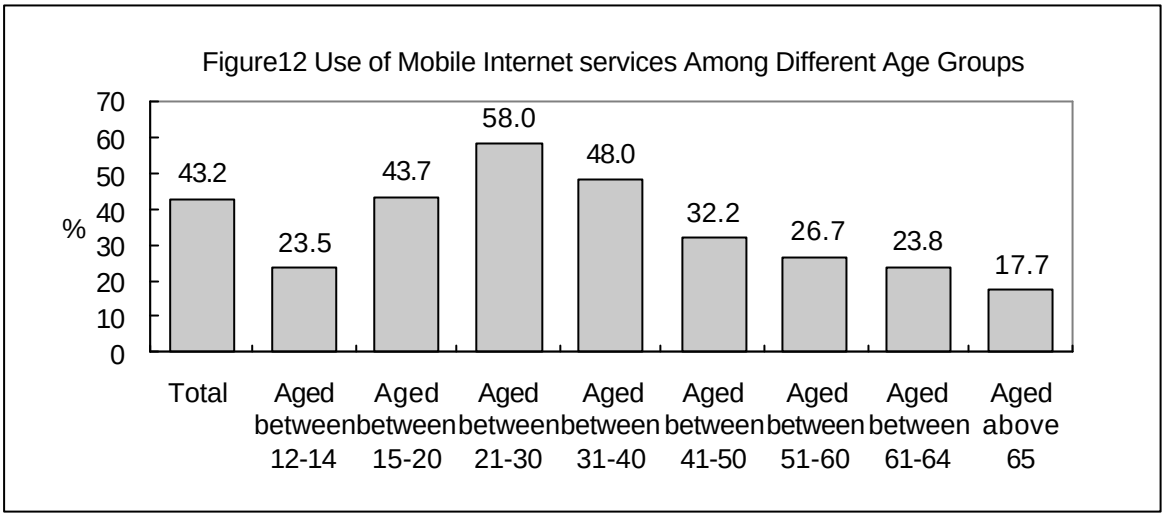
01. In respect of either information application or digital capability, it generally presents the mode that the older people use computers less frequently and their Internet capability is weaker. In regard to the ratio, the ratio of people younger than 40 using computers exceeds 92%, people between 41 and 50 are the transitional generation of information society and 73% of them once used computers, and the ratio of people older than 50 using computers decreases below 50%, thus forming an interfluve of age digital wall.

Figure11 Use of Computers/ Internet Equipment Among Different Age Groups



02. The ratio of people at middle and old ages using the Internet is quite low. Even if they use the Internet, the time they spend on the Internet is usually less than the young Internet users. Among all ages, the time the Internet users between 21 and 30 spend on the Internet is the longest, with an average of 3.6 hours everyday.

03. Nearly 60% (i.e., 58.0%) of Internet users between 21 and 30 used the Internet at least once, presenting the highest ratio. People between 31 and 40 follow such a group of users, with a ratio of 48.0%. Comparatively, the ratio of Internet users older than 50 using the Internet declines to less than 30%.



04. The conception of people of middle and old ages on computer protection is rather poor. There are less than 70% Internet users older than 60 taking anti-virus measures and the ratio of people backing up documents is less then 40% as well.

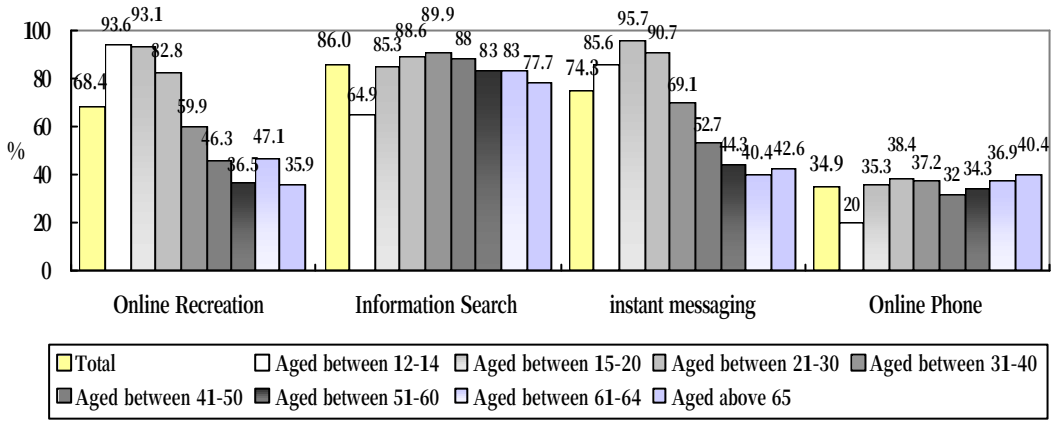
05. The people applying computer equipment in work, hunting for jobs and searching for study information on the Internet is inversely proportional to the age.

06. Internet users between 31 and 60 are the most active group for participating in the registration of netizens. The ratio of them searching for the government announcements is between 35.5% and 44.9% and that of them engaging in online application is between 25.7% and 38.9%. In addition, the people between 21 and 30 are relatively active in expressing opinions on political and social policies initiatively.

07. The ratio of young Internet users younger than 20 engaging in recreational activities exceeds 90%, twice of that of the middle and old aged Internet users; in light of living information, people between 21 and 40 search for living information through the Internet most frequently, with a ratio of about 90%; and the ratio of people younger than 15 using the Internet is the lowest (64.9%). Furthermore, the application of online communication software is quite common for Internet users between 15 and 30, with a total application ratio above 90%; comparatively, only less than 50% Internet users older than 50 apply online instant communication software, far less than that of the young generation.

08. With regard to the application of web phones, the ratio of people older than 15 who once used web phones is between 32.0% and 40.4%, with a small variance between generations on the application ratio. However, web phone users older than 31 of a high proportion purchase points to use paid web phones (with a proportion of 25.6% -38.4%), which is quite different from the application mode that more than 80% of the Internet users younger than 30 use free online communication.

Figure13 The application of the Internet in Daily Life among different age groups



09. Among netizens of all ages, those between 31 and 40 use the Internet to handle personal banking most of the time (37.6%), and those between 21 and 30 are in a highest proportion for using the Internet to sell or buy goods (66.5%). The proportion of the Internet users at middle and old ages who once used online banking is between 20.6% and 26.7% and the proportion of them who had the experience of online trading is between 19.0% and 41.7%.

10. The Internet purchasing targets of Internet users of different generations are quite different. Clothes and skin-care products are the key purchasing items for the Internet users younger than 30. Comparatively, the Internet purchasers older than 30 of a quite high proportion is to meet the practical requirements for books, magazines, hotel and ticket reservations, household articles, etc. through the Internet.

11. In light of the age, the new web participating mode of web 2.0 is quite popular in the Internet users younger than 30 and is most prevalent among people between 15 and 20. There are 57.7% of people usually using the Internet to browse blogs of others or themselves and there are 35.1% of people occasionally using the Internet to browse, with a total ratio reaching 92.8%; in addition, there are more than 60%

of people younger than 20 setting up individual blogs. Moreover, the opinions of net friends have become the important reference for the Internet users between 15 and 30, among which people of more than 60% may ask questions on the Internet or take the suggestion of net friends as reference. Comparatively, it is the Internet users younger than 30 who are mostly willing to provide personal experience or knowledge for other net friends as reference, thus forming a significant discrepancy with middle and old aged Internet users.

12. More than 70% of the Internet users between 15 and 30 would browse video & audio archives online, much higher than other generations; in addition, among all generations, the Internet users between 15 and 20 are mostly willing to upload video & audio archives (32.9%) and nearly 20% Internet users between 12 and 14 and between 21 and 30 would upload video & audio archives for others to enjoy. In the light of documents sharing on the Internet, the people between 21 and 30 have tthe highest proportion (29.2%) on installing P2P software and the proportion of middle and old aged generation installing such software is less than 10%.

13. The need of the Internet users older than 50 for using free computers at public places is lower than that of young users and more than 40% of them have no such need. According to further analysis, it is best to provide Internet surfing services in convenience stores or libraries as to the Internet users younger than 20 and the people between 21 and 60 have higher requirement for those services in convenience stores and railway stations, Metro stations or airports.

VII. Current Status of the Gender Digital Divide

01. The gender divide on the application of computer and the Internet still exists. Fortunately the gender digital divide is only outstanding in the female group older than 50, 7-10 percentage points less than the male group at the same age. As to young females younger than 40, their using rate of either computers or the Internet is close to or even exceeds that of males at the same age.

Table4 Gender differences in the computer/Internet usage rate among different age groups

Age Groups	Used Computer Before			Used Internet Before		
	Male (A)	Female (B)	Difference (A-B)	Male (A)	Female (B)	Difference (A-B)
12-14	99.1	100.0	-0.9	97.7	98.4	-0.7
15-20	98.9	99.6	-0.7	98.4	99.1	-0.7
21-30	97.8	97.2	0.6	97.3	95.2	2.0
31-40	91.2	93.7	-2.4	88.4	87.5	1.0
41-50	73.9	72.2	1.7	66.4	62.4	4.1
51-60	52.8	45.7	7.1	44.9	36.0	8.9
Above 61	20.0	10.5	9.5	13.2	6.2	7.0

02. According to the result from the comparison of the information literacy between the genders, the e-mail application capability, the conception and behavior on information security protection of both genders is equivalent, but males are 2-6 percentage points higher than females on the ability of reading English webpages and searching for information.

03. In light of electronization in work applications, due to the isolation of gender occupations, most female employees are white collar or assume office work. The rate of their work via computers and the Internet is obviously 8-10 percentage points higher than that of males.

04. The degree of understanding and applying of electronized government by female netizens is not different or even higher than that of male netizens. However, female netizens' browsing or participation in commutation of political and social topics is at a relatively low ratio. It is shown that in either realistic or virtual world, the attention on or the participation in the public affairs of females is obviously less.

05. Male netizens are more addicted to Internet recreation than female netizens; but female netizens use web phones more than male netizens.

06. There are more 55.3% female Internet users who once used Internet shopping/auction, with a ratio much higher than that of males. However, females are mainly buyers and the proportion of them beginning an undertaking is equivalent to that of males. In respect of types of commodities for Internet shopping, the ratio of females purchasing "clothes accessories and cosmetics", "books and magazines", "hotel, flight and passenger ticket reservation", etc. is

higher than that of males; but the ratio of males purchasing "3C products", "computer and peripheral commodities" and "computer software or updating" is higher than that of females. With regard to the ways of payment, the ratios of both genders using account transfer and credit card for payment are similar, but the proportion of females taking the method of "cash on delivery" and "fetching goods from convenience stores" is higher than that of males and the proportion of males taking the method of "face-to-face delivery of goods" is higher.

07. Female Internet users are more addicted to browsing blogs of others than male users, with a total of 80.1% of them having the experience of blog browsing. The ratio of female users setting personal blogs is 10.7 percentage points higher than that of male users. In view of the sharing of the Internet knowledge, the difference between genders is not obvious, with nearly 48% of both genders who would ask questions on the Internet. However, males are more enthusiastic about providing "knowledge or answers" on the Internet than females, with an excess of 8.4 percentage points.

08. The ratio of males either enjoying online video & audio or applying P2P software is higher than that of females. However, females are more eager to upload and share video & audio archives than males (with a proportion between females and males as 17.0%:13.4%).

VII. Individual/Household Digital Performance

1. Digital Divide Index Weight

In the 2008 digital divide survey, we used different indexes to find out the usage of computers and Internet among people who are above the age of 12 in Taiwan. After weighing the importance of each index based on the AHP analysis conducted by certain experts, we are able to calculate the scores of individual, household, and overall digital performance in Taiwan and to compare the digital capacity in different groups.

In a 2007 digital divide survey, we integrated the suggestions of 15 representatives from the industrial and governmental circles who have been participating in the policies or research regarding digital divide and gained the relative weighting of each index. The 2008 digital performance score will use the index weighting of 2007, thus guaranteeing a consistent comparison base for the two years.

After weighing the importance of each index based on the AHP analysis on the

results of the 2008 digital divide survey, we are able to calculate the overall digital performance scores of individual and household in Taiwan.

In order to allow clearer expression of the data, the score of a sub-dimension or main dimension is from 0 to 100. After the sub-dimension is converted into the main dimension score or the main dimension is calculated into the total score, the relative weight of each dimension is sumed up. The equation for the calculation is:

$$Y = \left[\sum aiXi\right] * 100$$

ai The weight of each index or dimension.

Xi The index score of each index or dimension.

Table 5. The Weight of Digital Divide Indicators and Framework for Individual/Household in 2008

The weight of digital divide indicators for individual digital score(0.668)						
II	III	IV	Primary Dimension I	Secondary Dimension II	Indicators III	Cross–indicator Weight
Access to Information Technology			0.224			
	Access to information equipment			0.395		
		Use a computer			1.000	0.059
	Access to the Internet			0.605		
		Used the Internet before			0.307	0.028
		Number of Internet usage hours			0.551	0.050
		Access the Internet using mobile phone			0.142	0.013
Information Literacy			0.179			
	Information technology literacy			0.542		
		Ability to use e-mail service			1.000	0.065
	Information security literacy			0.458		
		Ability to install antivirus software			0.308	0.017
		Set PIN			0.353	0.019
		Ability to back up data periodically			0.339	0.019
Information application			0.597			
	Applications at work			0.268		
		Use the Internet to search data for work or study			0.660	0.071
		Online Learning			0.340	0.036
	Citizenship behavior			0.130		
		Know government agencies' websites			0.099	0.005
		Used the Internet to search for public notices			0.342	0.018
		Submitted online applications through			0.378	0.020
		Participate in online discussions			0.182	0.009
	Daily life applications			0.304		
		Sell or buy products on the Internet			0.130	0.016
		E-banking			0.099	0.012
		Information search			0.421	0.051
		Use the Internet for recreational purposes			0.195	0.024
		Use online instant messaging services			0.155	0.019
	Web2.0			0.082		
		Browse blogs			0.337	0.011
		Share knowledge and experiences			0.663	0.022
	Information collection			0.216		
		Ability to read English Web pages			0.356	0.031
		Ability to search for specific information			0.644	0.055
The weight of digital divide indicators for household digital score(0.332)						
II	III	IV	Primary Dimension I	Secondary Dimension II	Indicators III	Cross–indicator Weight
Household information environment			0.345			
	Household information equipments			0.362		
		With or without a computer(s)			1.000	0.041
	Internet environment			0.638		
		Does the household have access to the Internet			0.700	0.051
		Type of Internet connection for computers			0.300	0.022
Household Information Literacy			0.655			
		Percentage of computer users in the household			0.338	0.074
		Percentage of Internet users in the household			0.662	0.144

(II) Individual digital score

01. The overall score of people above the age of 12 in Taiwan is 38.0. By analyzing the composition of the overall scores, we can see that people above age 12 in Taiwan show the highest score in terms of recent information access (56.8), followed by information capacity (50.6) and information application (27.1), indicating that people in Taiwan have many opportunities to access computers and the Internet and have reached a certain level in terms of using computers and knowing about information security. However, there is still room for improvement in terms of information application – especially in terms of e-government and job application which are too low and have not caught up with the Web2.0 trend.

02. The overall score of males is 39.5, which is 3.1 more than that of females.

03. Overall individual digital performance score decreases as the level of education decreases. The overall score in those who have completed graduate schools is 68.8, and the counterpart is only 0.6 in those who are illiterate.

04. As for different age groups, the degree of digitization is about the same between the 15-20 and the 21-30 groups, and their overall scores are respectively 57.0 and 58.4, ranking at the top of the entire distribution. The 31-40 group's overall score is 49.9, the score of the 12-14 group is 46.6, which are quite good. On the other hand, digital divide is quite serious in those above the age of 40. The 41-50 group's score is 32.8, the scores of 51-60 and 61-64 groups are only 19.6 and 9.2, and the score of those above the age of 65 even drops to 3.5.

05. Among different businesses, the degree of digitization is best in the information and communication industry. Their score is 67.1 and is 6.6 points more than the runner-up, the education service industry (60.5 points). Information application is still weakest in the agricultural/forest/fishery/farming industries (8.8) and the retired (10.0). Moreover, digitization is also weak in the water supply and pollution restoration industry (24.7) and construction (27.8). The overall score is less than 30.

06. In terms of work post, the digitization level of professionals is the highest among various practitioners (62.3), followed by soldiers in active service (60.8) and office personnel (56.0%). On the other hand, the digitization situation of varied manual labors and practitioners of agricultural/forest/fishery/farming industries is not ideal, with a score generally less than 30. On top of that, the digital divide among practitioners of agricultural/forest/fishery/farming industries is the most

serious (8.1).

07. The overall digital score in governmental sectors is 57.7, which is far superior to the counterparts in private businesses (45.5), employers (40.0), self-employed (24.1), and unpaid-family workers (14.9).

08. The overall score is 34.6 on average among aboriginals. Although it is less than the performance in Hakkas (39.2) and non-Hakka/aboriginals (37.9).

09. The digital performance score is 17.3 on average among people with physical-mental disabilities, much less than that among non-handicapped people (38.8).

10. In respect of disparity between counties and cities, in a comprehensive view, Hsinchu City (44.9) is once again the area that enjoys the highest level of digitization, followed by Taipei City (44.6) and Taichung City (42.5). Taoyuan County, Taipei County and Leinchiang County all performed well and got more than 40 points. In comparison, digitization in Yunlin County (29.2) is still lagging behind and is the only one less than 30 points.

11. Regression analysis shows that, on the premise of controlling the influence of other variables, factors such as age, level of education, type of jobs, work place, and the level of urbanization of residence places are all important variables that lead to the differences in digital capacity in people in Taiwan. The interpretation of the model Adjusted R2 is as high as 0.69. In addition, age and education are the most influential factors. What's more interesting is that gender is not an important variable for interpreting the digital divide any more.

(III) Houshold digital scores

01. Taiwan's household digital score is 66.9. Among which, high scores are achieved by family members who are students (86.4), in professional science and technical service industries (84.2), in financial and insurance industries (82.7) and in information communication (82.0). On the other hand, the scores are significantly lower in family members who are in agriculture/forestry/fishery/farming, homemakers, unemployed or retired.

02. In view of the monthly income of households, the overall score of households whose monthly income exceeds NTD 40,000 is near or higher than 70 points, making them the leading households. The first runner-up is households whose

monthly income is between NTD 30,000 and 40,000, and their household digital score is 65.0 points. The household digital score of those households with a monthly income between NTD 20,000 and 30,000 drops to 51.5 points. The degree of digitization is significantly weaker in those whose monthly income is less than NTD 20,000, and their score is only 19.6 points, showing that family economic status does affect family members' overall digital learning and application performance.

03. The score of information environment and members' information capacity is also much lower in families with foreign spouses (53.4), which is 14 points less than counterparts in families without foreign spouses (67.4).

04. In terms of regional differences, the degree of digitization is highest in Taipei City (76.7), Hsinchu City (74.0) and Taichung City (72.7). On the other hand, the family information environment in Changhua County, Nantou County, Tainan County, Pingtung County, Penghu County, Yunlin County, and Chiayi County are in need of serious improvements. Their scores are between 52.4 and 59.2.

05. The household digital development situation is nearly in direct proportion to the level of urbanization. The household digital development score of Taipei City is the highest (76.7), followed by industrial and commercial cities and towns (74.4). The household digital development scores of villages and towns on slope fields, remote villages and towns and villages and towns in mountainous regions are lowest, with only 53.6 points, 52.3 points and 43.8 points respectively.

(IV) Individual/household overall digital performance scores

01. After weighing individual and household digital performance, we see that Taiwan's overall digital performance in 2008 is 47.6 points and the standard deviation is 27.0 points, showing great differences between different groups in terms of digital development.

02. Males' overall digital performance score is 48.3 points, which is 1.5 more than female counterparts.

03. Digital performance score increases along with the level of education. The performance score in those who completed graduate schools is 74.6 points, which is 4.9 times of the counterpart in those receiving education below primary school.

04. Among different age groups, the overall digital performance scores in the 15-20

group and the 21-30 group are 64.5 and 64.7 points respectively, which are tops of all groups. The score is less than 35 in the group with age above 51.

05. In respect of occupations, the degree of digitization is best in the information and communication industry, which is 72.6 points on average and the weakest one on the information application is still the agriculture/forestry/fishery/farming sector (16.3).

06. In terms of work post, professionals have the highest score of digitization (69.4). On the contrary, the degree of digitization is not ideal in physical labors and those who work in agriculture/forestry/fishery/farming since the overall score is less than 40. Digital divide among those working in griculture/forestry/fishery/farming is most serious (15.5).

07. In respect of employment, governmental agencies' overall digital performance score is 66.0 points, which is far superior to the counterparts in private companies (54.6), employers (52.0), self-employed (35.3), and unpaid family workers (25.0).

08. Aborigines' overall digital performance score is 42.3 points on average, which is slightly worse than the counterpart in Hakkas (48.6) and non-Hakka/aboriginal groups (47.6).

09. In terms of regional differences and in a comprehensive view, Taipei City (55.3) is the city that has the best digital development in Taiwan again, followed by Hsinchu City (54.5) and Taichung City (52.5). Yunlin County, Chiayi County and Penghu County have the worst degree of digitization; and their scores are only 36.9, 38.2, and 39.8 on average.

10. In respect of geographic location, the degree of electronization is highest in northern cities and counties (50.5). The development in central, eastern, and off-island counties and cities is similar (from 44.4 to 44.6). Southern counterparts have the worst development (42.7).

11. In terms of digital development in indigenous towns and villages, indigenous towns and villages on flat ground (43.6) perform better than those in mountains (37.8), but their development is still worse than that in non- indigenous towns and villages (48.0).

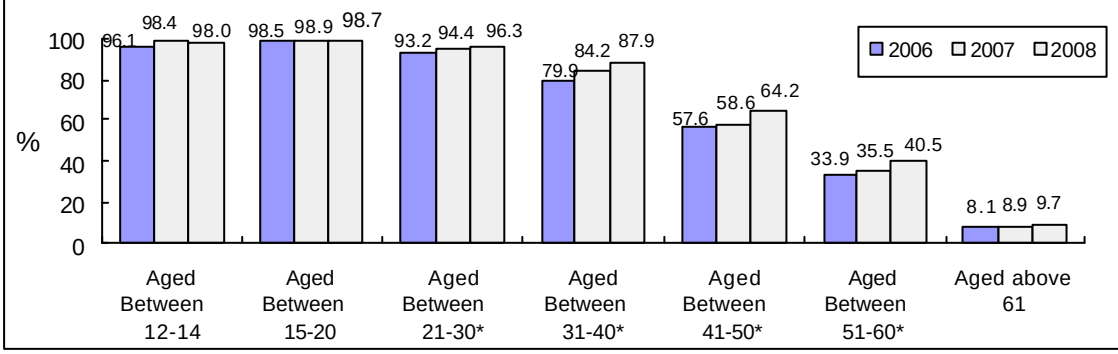
IX. Comparison of the Digital Divide Trends in Taiwan over the Past Years

01. People's application of computer and the Internet in Taiwan obviously improved compared with that in 2007. On top, the proportion of people over the age of 12 who used computers at least once increased from 71.0% in 2007 to 73.4% of this year. The proportion of those who once used the Internet has also increased from 65.6% to 68.5%.

02. In respect of gender, the proportion of either males or females who once used computers and the Internet achieved an obvious increase in the past year. However, the proportion of females using the Internet is still 4 to 5 percentage points less than that of males, showing that the recent information application by females is still in a weak status. The digital divide involving gender has not been reduced obviously.

03. In the past year, the computer and the Internet application situation of the generation between 30 and 60 has improved outstandingly. On top of that, the growth of computer application rate by people 41-50 years old and 51-60 years old is most valuable, with a growth of 6.0 percentage points and 2.9 percentage points respectively. In terms of Internet applications, the increasing of Internet application rate by people 41-50 years old and 51-60 years old is the most significant, with a growth of 5.6 percentage points and 5.0 percentage points respectively.

Figure14 Changes in Internet Usage Rate Among different Age Groups in Past 3 Years



04. Except Keelung City and Tainan County, the computer application rates of all counties and cities have increased compared with that in 2007, wherein, Changhua County, Kaohsiung County, Taipei City, Chiayi City, Chiayi County, Taitung County, Pingtung County and Kaohsiung City have the largest growth, exceeding 3 percentage points. In regard to the improvement of the Internet application rate,

Changhua County, Kaohsiung County, Taoyuan County, Kaohsiung City and Chiayi County have the best performance, with the growth of quantity of the Internet users more than 3 percentage points.

Table 6. Comparison of Access to Information Technology for Residents in Various Counties/Cities in Taiwan over the Years

	Computer Usage Rate			Internet Usage Rate		
	2007	2008	Change %	2007	2008	Change %
Taipei County	75.9	77.4	+1.5	65.6	68.5	+2.9
Yilan County	68.7	69.5	+0.8	70.9	72.6	+1.7
Taoyuan County	75.3	77.6	+2.3	62.0	64.0	+2.0
Hsinchu County	73.6	74.3	+0.7	69.6	73.7	+4.1
Keelung City	76.6	74.5	-2.1	68.0	69.6	+1.6
Hsinchu City	79.1	80.2	+1.1	71.1	70.8	-0.3
Miaoli County	69.4	69.9	+0.5	75.5	75.9	+0.4
Taichung County	71.9	74.0	+2.1	64.1	63.3	-0.8
Changhua County	63.0	68.1	+5.1	66.8	68.0	+1.2
Nantou County	65.1	67.8	+2.7	56.9	63.1	+6.2
Yunlin County	59.2	61.0	+1.8	58.5	60.9	+2.4
Taichung City	78.6	79.0	+0.4	53.2	56.3	+3.1
Chiayi County	57.6	61.2	+3.6	73.3	75.0	+1.7
Tainan County	64.7	63.6	-1.1	52.2	56.2	+4.0
Kaohsiung County	64.7	69.0	+4.3	58.0	58.6	+0.6
Pingtung County	62.0	65.3	+3.3	58.2	64.3	+6.1
Penghu County	60.2	62.1	+1.9	56.0	59.5	+3.5
Chiayi City	72.2	76.1	+3.9	55.4	58.0	+2.6
Tainan City	72.5	75.3	+2.8	67.2	71.1	+3.9
Taitung County	66.2	69.8	+3.6	67.4	70.1	+2.7
Hualien County	68.5	69.3	+0.8	61.8	64.9	+3.1
Taipei City	75.7	79.9	+4.2	61.8	63.8	+2.0
Kaohsiung City	72.4	75.6	+3.2	71.6	75.5	+3.9
Kinmen County	66.5	68.8	+2.3	66.3	70.4	+4.1
Leinchiang County	70.8	73.1	+2.3	61.3	64.5	+3.2

05. Compared with the survey results of 2007, the time the Internet users with age above 12 spend on Internet surfing slightly increased from 2.72 hours to 2.78 hours. In consideration of the genders, the time the female Internet users with age above 12 spend on Internet surfing slightly increased from 2.5 hours to 2.6 hours, but the time they stick to the Internet is obviously less than that of male users.

06. According to the trend data, the population of the Internet users with age above 12 across Taiwan has increased compared with that of 2007, but the proportion of them using varied Internet functions presents a declining trend rather than an obvious growth. The main reason is that the newly increased Internet users at middle and old ages are not familiar with varied Internet functions.

Table 7. Comparison of the Internet Usage of Internet Population over the age of 12 over the Years

	2004	2005	2006	2007	2008
E-mail	86.9	85.7	88.2	88.9	86.4
Internet Recreation Activities	67.3	67.4	68.0	70.1	68.4
Information Search	85.4	88.1	86.7	89.8	86.0
Instant Messaging Software	56.2	67.6	73.0	76.4	74.3
E-banking	18.1	18.5	22.6	27.8	26.1
Online Shopping	30.4	37.2	44.7	49.6	49.5

07. The proportion of aborigines older than 12 in Taiwan who accessed computers at least once has been increasing year by year, increasing sharply from 43.8% to 71.2%, and the proportion of them who accessed the Internet at least once increased from 37.8% to 65.4%. According to the over-years survey data, the information application proportion of Taiwan aborigines has nearly drew up with that of Hakkas and people from south Fujian or other provinces. The effect of reducing digital divide between groups is significant.

08. The computer possession rate of households in Taiwan has increased from 82.6% in 2007 to 84.6% in 2008 and the Internet connection rate of them has increased from 74.7% to 77.5% as well. Furthermore, the computer possession proportion of households with enrolled student(s) is still at a high position and has increased from 93.1% of last year to 94.1%.

However, the improvement of Internet surfing environment of indigenous households is not evident. The Internet connection rate of indigenous households in mountainous regions has increased slightly from 54.4% in 2007 to 56.6%. The Internet equipment possession proportion of indigenous households in flat ground villages and towns has increased slightly from 66.5% to 67.3%, with a growth less than that of non-indigenous households in villages and towns.

09. In light of the reason that the households with computers didn't access the Internet, according to the survey in 2007, 46.7% of households had no need for Internet access and 14.5% of households worried that their family members or children

were addicted to the Internet; according to the survey in 2008, the proportion of households who didn't apply for Internet due to no need for the Internet access has slightly dropped to 44.1%, but the proportion of households who were unwilling to apply for the Internet due to the worry that their family members or children were addicted to the Internet has slightly increased to 17.1%.

10. There are 80.4% of Internet users knowing that the government has set websites for its various organizations, with the proportion increasing compared with that of 2007. However, the proportion of the Internet users inquiring policies or announcements through e-government has not grown obviously, with the application rate maintaining around 35.0%. The proportion of people using the Internet to take online application has reduced from 28.0% to 25.9%.

Part Ⅱ Summary of Digital Divide and Digital Life Demands among People with Disabilities 2008

I. Introduction

Research, Development and Evaluation Commission of Executive Yuan (RDEC) has started conducting surveys on digital divide annually since 2001 in order to understand the condition of digital divide in Taiwan via scientific research methods and determine how governmental policies can address the issues.

Past surveys indicate that people with disabilities are of a minority group. In order to observe the condition and changes of digital divide among people with disabilities, RDEC this year has conducted the "2008 Survey of Digital Divide and Digital Life Demands among People with Disabilities." Through the complete research designs and a larger number of samples, it is wished that the current status and needs of minority groups with disabilities could be understood in order for the government to come up with appropriate policies.

II. Study Methodology

For the 2008 Survey of Digital Divide and Digital Life Demands among People with Disabilities, 12 categories of people with disabilities were surveyed. Besides the 8 categories of disabilities surveyed in 2005, including vision, hearing, balancing, voice or speech, limbs, facial, stubborn epilepsy and multi disabilities, more categories have been included this year, including those losing function of primary organs, mild mental disabilities, mild autism, and other forms of disabilities in order for us to understand the status of information-access and digital life demands among people with disabilities.

This survey is conducted via mails and phone calls. Mail survey was conducted for those with hearing, voice or speech mechanism disabilities; as for the other 10 categories, the survey was conducted mostly via phone calls and supplemented by mails.

The 2008 Survey was conducted from 2008/9/9 ~ 2008/10/6. A total of 3,385 individuals with disabilities who are 12 years of age or older were interviewed.

III. Digital Divide among People with Disabilities

1. Status of Information Access

a. The survey shows that among the people with 12 categories of disabilities, 30.4% know how to use the computer whereas 69.6% do not. The most common reason of not using the computer is lacking the knowledge of operating one (65.2%).

b. In terms of Internet access, only 26.6% have accessed the Internet; 73.4% have never accessed the Internet.

c. Among different categories of disabilities, those with mild autism showed the highest level of computer usage (97.8%), followed by people with other forms of disabilities (82.0%). By comparison, those with disabilities such as balancing, hearing, and vision show a lower computer usage rate (18.2% ~20.1%).

d. In terms of Internet access, people with mild autism showed the highest level as 95.2% have accessed the Internet, followed by people with other forms of disabilities (69.6%) and those with facial damage (50.0%). By comparison, those with balancing and hearing disabilities showed the lowest computer access rate (14.6% and 13.8% respectively).

e. By comparing access rate among 8 categories of disabilities surveyed in 2005, it is seen that the computer-access rate has been increased by 3.9% compared to 3 years ago; the Internet-access rate has been increased by 5.3%.

2. Information literacy and Information application

a. Among people with disabilities who have used the computer, 75.2% indicated that they do not need help from others when operating a computer, 19.1% would seek help when needed, and 4.6% would require constant help.

b. In terms of the ability to send and receive e-mails, 77% of people with disabilities know how to do so, whereas 23% do not.

c. Among those with disabilities who are currently working or studying, 54.3% have used the computer at work or school, whereas 45.7% have not.

d. Among Internet users with disabilities, 69.6% know that the government has websites. Among these users, 53.2% have used the Internet to inquire into governmental policies or announcements in the past year, 29.2% had made applications through government websites, 16.2% have used the website to express their opinions or complaints. Those who have not used e-government services mainly deem such access as "unnecessary."

e. 80.2% of Internet users with disabilities look for life information online; 61.0% have used online messenger software, 71.5% have engaged in online recreational activities, 27.1% have used Internet phones, and 17.5% have their personal blogs.

f. It is still not common to see Internet users with disabilities access e-commerce. Only 19.0% have handled their personal finance online; 33.1% have sold or purchased products or services online.

g. In terms of receiving information, the survey shows that if their friends or relatives have certain information needs, 61.7% of Internet users with disabilities are confident that they can satisfy such needs; whereas 33.3% are not.

h. 76.1% of Internet users with disabilities who know how to use the computer do not think it is hard to manipulate the hardware. In terms of software operations, 18.9% find it difficult, 27.3% find it not so difficult, and 41.7% find it not difficult at all.

i. In terms of web browsing, 69.7% of Internet users with disabilities do not find it difficult at all, 17.1% do not find it too difficult, and only 9.4% find it difficult.

j. The survey shows that 87.1% of computer users with disabilities acknowledge the benefits of computers, and 85.0% Internet users believe it facilitates their lives. However, among those who do not know how to use the computer, only 25.0% acknowledge the benefits of computers and 26.3% of the net users believe it facilitates their lives.

3. Information Equipment and Training Needs among People with Disabilities

a. In this survey, most of the users who are computer literate do not have their dedicated computers. 97.8% use ordinary computers and only 1.2% have their dedicated computers. Among those who are computer illiterate, 88.5% do not know that there are dedicated computers for people with disabilities, and 55.8% are not sure

what kinds of computers they should use.

b. Among those with dedicated computers, most of them are vision disabled (16.6%). Among the vision disabled who are also computer illiterate, 26.1% believe they need dedicated computers, making them the group with the highest demand for adaptive equipments.

c. 17.1% of computers users with disabilities have participated in computer hardware/software-related vocational training; 82.4% have not. 42.6% stated that they need IT training right now or in the future, whereas 51.6% did not think they need it. Those who need IT training showed more interest in learning about webpage design (25.4%).

d. Among those with disabilities who are computer illiterate or have never accessed the Internet, about 1 in 3 has an "information agent" at home who helps them with gathering information online, shopping, making appointments, or filing complaints (32.4% and 33.6% respectively).

IV. Digital Environment in the Households of People with Disabilities

1. Among the 12 categories of disabilities surveyed, the household Internet connection rate was 65.7%. The top three reasons why some families do not have Internet access are: the family members have no such need (60.2%), not being able to afford computers (19.4%), and not being able to pay for Internet service fees (10.9%).

Part? Summary of the New Inhabitants Digital Divide Report

Summary of the New Inhabitants Digital Divide Report

? . Introduction

Previous Individual and Household Digital Divide Surveys reveal that new inhabitants are always in a disadvantageous position in terms of their household information environments and the information literacy of their family members; it is, therefore, an issue which calls for attention from the government.

In consideration of that the total number of new inhabitant spouses in Taiwan had exceeded 400 thousands by the end of February 2008, the Research, Development, and Evaluation Commission under Executive Yuan specially planned a preliminary study for new inhabitant spouses. The survey aimed to find out the recent information accesses and demands of new immigrant individuals and attached much attention to the heterogeneity of information environment in new immigrant households, trying to offer reference information to the government to bridge the digital divide in new inhabitants.

? . Study Methodology

The 2008 New inhabitant spouses Digital Divide Survey was carried out in the form of telephone interview on (1) spouses from Mainland China, Hong Kong, and Macau who applied for entry permits, sojourn permits, or settlement permits; and (2) foreign spouses who held valid Alien Resident Certificates or Alien Permanent Resident Certificates (hereinafter referred to as foreign spouses) in the interviewees' mother languages from September 4, 2008 to October 4, 2008.

? . Sampling Design and Number of Valid Samples

Spouses from Mainland China, Hong Kong, and Macau take up a large proportion of new inhabitant spouses in Taiwan. Considering that spouses from Mainland China, Hong Kong, and Macau share the same language with Taiwanese, the number of sampled foreign spouses was therefore increased and their proportion in the survey was more than twice of the proportion of their population in the total population.

The survey was carried out on a total of 2,012 new inhabitant spouses, of which 611 are spouses from Mainland China, Hong Kong, or Macau, and 1,401 are spouses

from South-east Asia or other countries. The success rate of the interview was 83.4%.

？. Data Processing

As the survey was of disproportionate stratified sampling design in which the number of foreign spouses sampled was inflated and therefore disproportionate with the proportion of their population, weighted restoration of the sampled data was therefore implemented according to the nationality and area distribution of the new inhabitant spouses in September 2008 published by Ministry of the Interior, so as to make sure that the nationality distribution of the sampled immigrant spouses is consistent with that of the population they are from.

？. Main Results

1. The information access rate in new inhabitant spouses is at least 20% lower than the country's average

The study reveals that 53.9% of the new inhabitant spouses in Taiwan have used the computer, and 43.6% have used the internet before. Compared with the Percentage of Computer Users (73.4%) and the Internet Access Rate (68.5%) in the population over 12 years of age in Taiwan, these figures are significantly lower.

Of these foreign spouses, spouses from Vietnam (33.6%), Indonesia (40.9%), and Thailand (45.4%) are of relatively low computerization levels, all below 50%. In contrast, foreign spouses from countries other than South-east Asia have the highest Percentage of Computer Users (92.8%), followed by spouses from the Philippines (75.5%), spouses from Mainland China, Hong Kong, and Macau (60.2%), and spouses from other South-east Asian countries such as Burma (58.7%).

In respect of the use of the internet, spouses from Vietnam (23.6%), Thailand (27.6%) and Indonesia (30.3%) are also in the most disadvantageous position.

2. More than 60% of the new inhabitant spouses internet users are netizens before they came to Taiwan, 39% use the internet after they came to Taiwan

60.7% of the new inhabitant netizens accessed the internet before they came to Taiwan, 39.3% use the internet only after they came to Taiwan.

3. The most common access point to the internet for new inhabitant spouses is at home. Vietnam spouse, on the other hand, choose a most special place, the net café, to access the internet

The most common access point to the internet for these foreign spouses is at home. Vietnam spouses, on the other hand, are a special group—only 46.4% of them access the internet at home, whereas 33.0% of them pay for the internet access at a net café, 17.4% of them access the internet at schools.

4. IM and Internet Telephony are the most frequently used functions by new inhabitant netizens

IM and Internet Telephony are functions most frequently used by new inhabitant spouses, followed by web pages browsing (41.0%), information searching (40.3%), and e-mails (16.0%).

5. Despite only one out of four of these new inhabitants have attended activities organized by governments or NGOs since they arrived at Taiwan, more than 60% of them want to take free computer training.

The new inhabitant spouses in this survey have arrived at Taiwan for an average of 6.3 years. Only one fourth of these new inhabitant spouses have attended activities organized by governments or NGOs, however, they have strong motivation to take information courses—63.7% of them are willing to take such courses, 30.7% say it's impossible for them to take such courses, 5.6% say it depends.

Of these foreign spouses, spouses from Indonesia (70.8%) and Vietnam (67.1%) have the strongest motivation to take digital courses, followed by spouses from Mainland China, Hong Kong, and Macau (62.8%), and the Philippines (60.8%).

6. The most favorite courses are Basic Computer Operation, Chinese Input Methods, and Internet Usage

As more than 40% of the new inhabitant spouses who want to take courses are completely without computer fundamentals, the most wanted course is therefore Basic Computer Operation (39.9%), followed by Chinese Input Methods (30.5%), and Internet Usage (25.3%).

7. The biggest problems facing new inhabitants who want to study digital courses are computer interface language and class language

For spouses from Mainland China, Hong Kong, and Macau who have the willingness to take information courses, only 32.3% of them think they have the ability to use computers with traditional Chinese interface even though

communication in Chinese is not a problem for them. Similarly, despite nearly or more than 80% of spouses from Vietnam, Indonesia, and other South-east Asian Countries can take courses teaching in Chinese, less than 40% of them have the ability to use computers with traditional Chinese interface.

8. Information environment of households with new inhabitants is far inferior to the average standard of the country

Of the households with new inhabitants, only 61.4% have computers at home, 50.5% have internet access. Compared to the Computer Ownership Rate (84.6%) and the Internet Access Rate (77.5%) of Households in Taiwan in 2008, these figures are significantly lower.

9. The use of the internet in spouses from Mainland China and the Philippines is extensive and well-supported, as the Internet Access Rate in relatives of these spouses is relatively high.

Of these foreign spouses, relatives of less than half of the spouses from Vietnam (43.6%), Indonesia (42.9%), and Thailand (46.4%) have internet access; in contrast, relatives or friends of more than 70% of the spouses from Mainland China, the Philippines, and other countries have access to the internet, thus become a strong social network support.