Survey on ICT Use and Digital Opportunity in Taiwan: Executive Summary

(November 2012)

Research, Development, and Evaluation Commission,

Executive Yuan, Taiwan

Table of Contents

I. Introduction

The Internet has always been deemed to be a public domain, which is free, open, independent, and without appreciable restraints due to its limitless information capacity. It is expected that social injustice can be minimized and social justice can be maximized through the medium of online communication. The charter of ISOC (Internet Society) provides there shall be “No discrimination in use of the Internet on the basis of race, color, gender, disability, language, religion, political or other opinion, national or social origin, property, birth, or other status.”

The “ideal” cyber world built upon the Internet, however, has quickly fizzled out in the real world. The main reason for this is that enhancement and popularity of information and community technologies are required in order to increase Internet accessibility around the world; however, in the process of spreading such technology, a “lag” is inevitable as the time of appropriate technology introduction to any given social group may differ from another’s place on the learning curve. The result of such a lag is that not only has the Internet failed to eliminate social injustice but also has created a new gap, commonly referred to as the “digital divide.”

As time passed, the global communities including the EU have come to acknowledge the existence of this digital divide due to an imbalance in the availability of information. However, the term “digital divide” has gradually been replaced by more positive terms such as “e-Inclusion” or “digital opportunity,” which stresses the creation of an information society shared by all and re-emphasizes the minimization of different digital opportunities through more effective and beneficial public policies stimulating inclusive digital enabling for all.

Domestic arguments about the digital divide follow the abovementioned trend as well. For example, in 2004, a sub-project of “e-Taiwan” was still named the “Program for Bridging the Digital Divide”. However, in the follow-on projects, “National Information & Communication Initiative for 2007 to 2011 ”, “Third-Term Plan for National Development in the New Century (Four-Year Plan for 2009~2012)”, and “The Digital Outreach Project”, their relevant projects have been all renamed as “Creating Fair Digital Opportunity”. The purpose is to utilize government and civil resources to provide all regions, ethnicities, and industries with fair digital opportunity so as to share the benefits from a quality Internet society.

The Executive Yuan’s Research, Development and Evaluation Commission (RDEC) has been conducting the “Digital Divide in Taiwan” every year since 2001. The research was officially renamed as “ ICT Use and Digital Opportunity in Taiwan” in 2011. Also in 2011, RDEC planned an outsourced research project called the “Construction of the System Structure of National Digital Opportunities Index”, so as to reframe the observation index framework of digital opportunity. This move

corresponds with the above-mentioned argument paradigm shift.

For this year's research, it is the first time that RDEC refers to research results of "Construction of the System Structure of National Digital Opportunities Index" to plan corresponding questionnaires, hoping that with a brand-new field of view, it may be possible to deepen the understanding of digital opportunities and crises in the perspectives of Enabling, Inclusion, and Exclusion. This understanding will lay the policy foundations for cultivating digital care.

Ⅱ.Study Methodology

Continuing its important mission, the "ICT Use and Digital Opportunity in Taiwan 2012" was again entrusted for conduct by the Survey Department of United Daily News (UDN) from July to August 2012. Using their Computer-Assisted Telephone Interviewing System (CATI), members of the public aged 12 or above throughout Taiwan were randomly interviewed over the phone.

The Survey was conducted after 6 p.m. from Monday to Sunday, and 13, 257 valid samples were completed among our populace. The number of expected and valid samples size for each locality is shown in Table 1.

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

Locality	Number of residents aged 12 and above	Sampling Error	Expected Sample Size	Valid Samples Size
Total	20,681,869	±0.9%	13,200	13,257
New Taipei City	3,506,320	±4.0%	600	603
Taipei City	2,372,941	±4.0%	600	600
Taichung City	2,350,640	±4.0%	600	600
Tainan City	1,684,759	±4.0%	600	602
Kaohsiung City	2,488,351	±4.0%	600	601
Yilan County	410,628	±4.0%	600	602
Taoyuan County	1,762,695	±4.0%	600	606
Hsinchu County	447,491	±4.0%	600	603
Miaoli County	498,507	±4.0%	600	601
Changhua County	1,150,104	±4.0%	600	601
Nantou County	468,346	±4.0%	600	604
Yunlin County	636,099	±4.0%	600	606
Chiayi County	483,803	±4.0%	600	605
Pingtung County	777,054	±4.0%	600	604

Locality	Number of residents aged 12 and above	Sampling Error	Expected Sample Size	Valid Samples Size
Taitung County	202,724	±4.0%	600	602
Hualien County	300,837	±4.0%	600	600
Penghu County	88,459	±4.0%	600	606
Keelung City	343,252	±4.0%	600	601
Hsinchu City	361,399	±4.0%	600	602
Chiayi City	239,595	±4.0%	600	604
Kinmen County	98,419	±4.0%	600	603
Lienchiang County	9,446	±4.0%	600	601

Note: The matrix data was provided by the Department of Statistics,Ministry of the Interior in June, 2012.

In order to generalize the data and determine the prevalent opinions among the populace age 12 or above, the sample data has been weighted and rendered consistent with the matrix. The sample of this survey has been weighted by gender and age of the population over the age of 12 of each locality in Taiwan as released by the Ministry of the Interior in July 2012.

Besides the weighting of intra-city/county samples, a second-stage weighting was conducted based on the ratio of each locality's 12-and-older population to our overall 12-and-old population. This is because our random sampling is based on samples in each locality whose SD (standard deviation) is within ±4.0%, in order to ensure enough samples for a proper city/county inference. However, although this practice helps equalize the cities and counties, the samples from certain cities/counties are "over-represented" and cannot be used to determine the "overall" opinion of the 12-and-older population. Therefore, besides simple locality comparisons, the "overall" digital divide comparison of different groups must be weighted based on the locality ratio of the 12-and-older population to the overall 12-and-older population in order to ensure the validity of the results. The pre-weighting and post-weighting distributions of the samples' gender and age are shown in Table 2.

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

Items	Actual Samples Size	Pre-weighting Percentile Weighting	Post-weighted Percentile Weighting
Gender			
Male	5,906	44.6	49.8
Female	7,351	55.4	50.2
Age			
12-14	485	3.7	4.2
15-19	912	6.9	7.8
20-29	1,169	8.8	16.2
30-39	1,802	13.6	18.8
40-49	2,305	17.4	18.0
50-59	2,843	21.4	16.7
60-64	1,227	9.3	6.0
65 and above	2,514	19.0	12.4

III. Research Framework and Survey Items

The “2012 Digital Opportunity Survey” includes these three sections: “Enabling”, “Inclusion”, and “Exclusion”. The first section aims to investigate Taiwanese information device access and usage (information access) and general basic language proficiency as well as basic digital literacy (basic skills and capabilities). The second section investigates how Internet users apply information to learning, social life involvement, economy, civic duties, and fostering health. The third section, through the perspective of personal crisis and interest infringement, observes the negative impacts of an information society. Specifically, the questionnaire consists of four sections: “Enabling”, “Inclusion”, “Exclusion”, and personal information. The index structure is as shown in Tables 3, 4, and 5.

Table 3. 2012 Personal/Household Digital Opportunity "Enabling" Research Index Structure

Major Dimension	Sub-Dimension	Index Level	Index Item	Corresponding Question
Enabling	Information Access	Device Ownership	Owning Computer/Internet Devices	1.What devices with Internet access do you have?
			Household Computer Device /Person Ratio	2. How many family members live with you, including you? 3. Do you have any computer at home? 4. Does your computer have Internet access?
		Device Quality	Connection Location	5. In the past one month, where have you been connected to the Internet?
		Situation of Information Device Access	Computer-use Situations	6. Have you ever used a computer?
			Internet-use Situations	7. Have you connected to the Internet with a computer or any other information devices (e.g. cell phone, PDA, Wii, etc.)?
			Wireless-use Situations	8.Have you used wireless Internet connection? 9.What mobile devices have you used to connect to the Internet?
		Information Access Frequency	Years of Internet Used	10.How many years have you been using the Internet?
			Daily Online Hours	11.How many hours on average are you online each day?
	Basic Skills and Capabilities	Contact Level of International Information	Frequency of Visiting International Websites	12.Do you frequently visit overseas websites?
		Language Proficiency	Chinese Input Skill	13.Do you know any Chinese input methods?
			Reading/Writing Capability of Foreign Languages	14.Besides Chinese, what languages can you read?
		Digital literacy	Computer / Internet Operating Skills	15.When you are using a computer or the Internet, do you need others to assist you?
			Word Software Skills	16.Can you use any kind of word software (e.g. Word, Notepad, and Writer) to edit documents?
			Information Search Skills	17.Very often, we receive incomplete information in daily life (e.g. food news usually does not show a store name or address). Can you use limited information and key words to search for correct information online?

Table 4. 2012 Personal/Household Digital Opportunity "Inclusion" Research Index Structure

Major Dimension	Sub-Dimension	Index Level	Index Item	Corresponding Question
Inclusion	Involvement of Learning Activities	Two-way Learning Behaviors	Distance Interactive Learning	1. In the recent year, have you used the Internet to take online courses?
		One-way Learning Activities	Usage of Online Video Courses	2. In the recent year, have you used the Internet to take online courses?
			Frequency of Internet Information Search	3. In the recent year, how many days on average do you use the Internet to search for information that you are interested in or you need for work or school?
	Involvement of Social Life	Web2.0 Interaction and Sharing	Use of Instant Messengers	4. In the recent year, have you used any instant messengers such as MSN, Skype, or Line?
			Use of Social Networking Websites	5. In the recent year, have you used social networking websites such as Facebook, Google+ or Twitter? 6. In the recent year, have you joined any kind of Internet forums (such as food or photography) or study groups?
		Arts and Cultural Activity Applications	Involvement and Search of Arts and Cultural Information	7. In the recent year, have you used the Internet to search for arts and cultural information or activities?
		Daily Life Applications	Lifestyle Information Search	8. In the recent year, have you used the Internet to search for lifestyle information or news? 9. In the recent year, have you joined any entertainment activities such as online videos or online games through the Internet?
	Economic Development	E-commerce	Online Price Search	10. In the recent year, have you used the Internet to search for product information or compare prices?
			Online Finance Service	11. In the recent year, have you used the Internet to handle personal finances (e.g. e-bank deposits and remittances, transfers, bill payments, and stock trading, etc.)?
			Frequency of Online Shopping	12. In the recent year, have you used the Internet to buy products, order tickets/air tickets, or book hotels? 13. In the recent year, how many times have you done online shopping?
			Dollar Amount of Online Shopping	14. In the recent year, how much money have you spent on online shopping?
		Employment / Entrepreneurship	Online Experiences of Employment Information Search	15.In the recent year, have you used the Internet to search for job information or send your resume? 16. Do you have to use the Internet at work?
			Internet Entrepreneurship	17. Have you sold or auctioned any products online?

Table 4. 2012 Personal/Household Digital Opportunity "Inclusion" (Continued) Research Index Structure

Major Dimension	Sub-Dimension	Index Level	Index Item	Corresponding Question
Inclusion	Civic Participation	Online Citizenship	Policy-related Information Search	18. In the recent year, have you joined any political, social, or public policy-related mobility activities conducted through the Internet?
			Political-related Online Forums	19. In the recent year, have you posted on online forums about your opinions of current politics, society, or public policies?
		Use of E-governance Resources	Search for Government Public Information	20. In the recent year, have you searched for information, policies, or official announcements through government websites?
			Online Application Service	21. In the recent year, have you used "online applications", including forms or transcript applications or online tax filing, through government websites?
	Health Fostering	Searching for Health Education Knowledge	Online Searching for Health Education Knowledge	22. In the recent year, have you used the Internet to search for health education information?
		Seeking a Doctor	Seeking Doctor Information Online	23. In the recent year, have you used the Internet to explore the reputation of a specific doctor?

Table 5. 2012 Personal/Household Digital Opportunity "Exclusion" Research Index Structure

Major Dimension	Sub-Dimension	Index Level	Index Item	Corresponding Question
Exclusion	Personal Crisis	Degradation of Basic Capabilities	Level of Memory Loss	1. Do you think using the Internet causes you memory loss? If 0 means no effect, 5 means severely, what score will you give?
			Degradation of Writing Capability	2. Do you think using the Internet caused degradation of writing capability compared to the past?
			Degradation of Social Skills	3. Do you think using the Internet caused degradation of face-to-face interaction skills compared to the past?
			Degradation of Health	4. Do you think using the Internet caused degradation of health (such as eye, waist, and back pain) compared to the past?
		Mental Damage	Level of Internet Addiction	5. How long is it before will you start to feel anxious that someone may not be able to contact you or you may miss some information?
			Values Deviation	6. Do you think people on the Internet are becoming more or less trustworthy?
	Interest Infringement	Device Damage	Computer Virus	7. Has your computer been infected with a virus because of you using the Internet?
			Frequency of Usi Incorrect Information	8. In the recent year, have you made wrong decisions because you trust incorrect Intern information?
		Online Crime	Internet Fraud	9. In the recent year, have you fallen into any Internet fraud?
		Online Bullying	Online Verbal Abuse or Affront	10. In the recent year, have you been verbally abused by others on the Internet?

Ⅳ. Categorizing Digital Development Regions

To elucidate digital divides for different geographical regions, besides using each administrative region in Taiwan as categorizing standards for the statistical data, this year, RDEC also uses its 2011 research results from the "Research Report on Classification of Township Digital Development". The areas are categorized in five categories, by six dimensions with 25 indexes of each township. The six dimensions are: human resource structure, social economics, development of education and culture, development of transportation efficiency, development of living environment, and information infrastructure. Of all townships, there are 32 townships in the level 1 region

for digital development, 93 in level 2, 127 in level 3, 49 in level 4, and 67 in level 5.

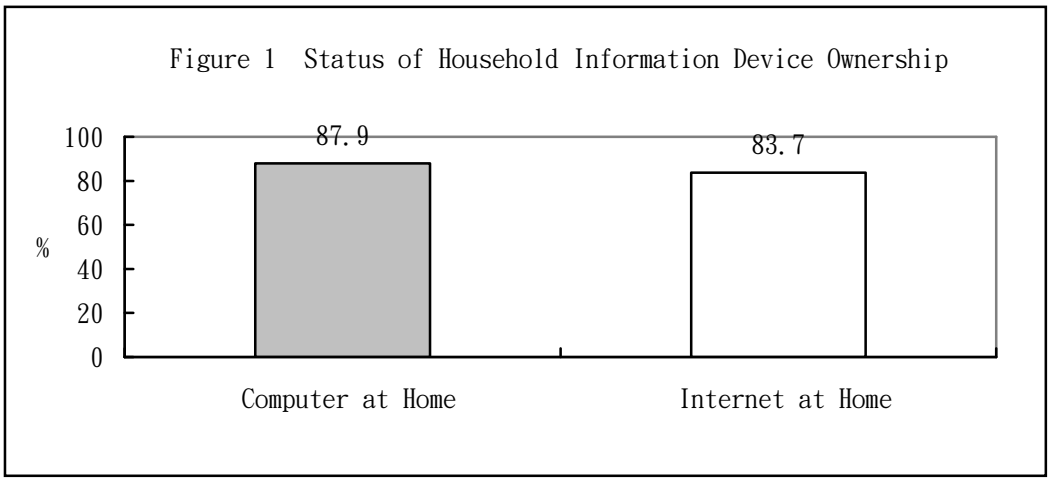
VI. Summary of Research Results

i. Overview

1. Enabling

"Enabling" is in the first level of our index structure of digital opportunity. The public first need information access and device access to join the information society, and only then are there issues about further opportunity creation and risk bearing.

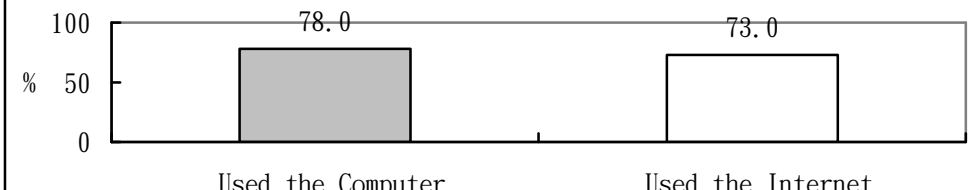
Let's see the first phase of enabling: "information access". This survey shows, for citizens in Taiwan 12 years old or older, 87.9% of them have a computer at home, 83.7% of households can connect to the Internet, showing that the opportunity for information device access and Internet access is very high. Although there are only around 30% of the public who think their Internet connect speed is very fast or fast, almost all the households in Taiwan use broadband to connect to the Internet (76.9%), or they use 3G or Wi-Fi for wireless connection, so actual connection speed is satisfactory.



However, compared to the complete household information environment, the populace's access to personal information devices is not as complete.

For individual members of the public in Taiwan 12 years old or older, the computer usage rate is 78.0%, and the Internet usage rate is 73.0%. These two rates are both around 10% lower than the rate for household computer status.

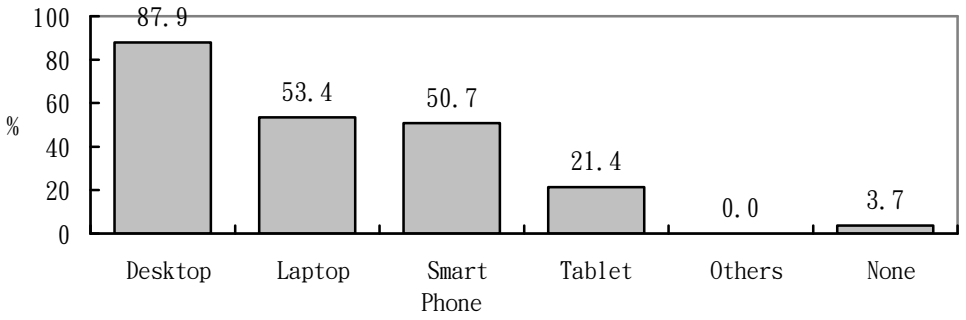
Figure 2 Status of Access to Perosonal Information Device



Furthermore, among Internet users, average Internet age is 10.1 years, with daily average connection time of 191 minutes. However, 4.7% claim that they did not go online in the past one month. If we view this as information disuse, then the regular Internet population in Taiwan is around 69.6%.

As for the types of personal information devices that Internet users have access to, the survey shows, for those in Taiwan 12 years old or above that have used the Internet, 87.0% of them own desktops, 53.4% own laptops, 50.7% own smart phones, 21.4% own tablets, and only 3.7% do not own any usable information device.

Figure 3 Information Device Ownership of Internet Users



As for the connection location, in the past one month, Internet users in Taiwan had the highest rate of using the Internet at home (92.1%), followed by 48.2% at their office, 20.6% in outdoor public areas, 18.2% while walking, and 16.9% at government offices. This result shows that the mobility of Taiwan Internet users is ever expanding, and that the information services offered by the government have become quite important sources of Internet connectivity.

On the other hand, diversified locations of Internet connectivity also reflect how

mobile Internet connection has become a most important trend for Internet development in recent years. Under multiple-choices options, 62.1% of Internet users indicated they have used a laptop to go online, 52.8% have used a cell phone, and 26.2% have tried a tablet PC. Altogether these account for 77.3% of Internet users having used mobile Internet connections. If we use all the population 12 years old and above as the calculation denominator, then the usage rate of mobile Internet connection has risen from 37.5% in 2010, to 50.7% in 2011, and to this year's 56.7%. The rate steadily rising over time.

The second phase of "enabling" is to assess the basic skills and capabilities of Internet users. The survey shows, although 98.8% of the Internet users can use Chinese input method, only 71.8% are skilled at word software, while 73.9% believe most of the time they can use limited information to search for correct information online, but only 63.4% think they can use a computer to go online independently without others' assistance.

Besides, although more than 60% of Internet users claim that they can read foreign languages like English or Japanese, only 43.9% actually browse foreign websites, showing that Internet users in Taiwan still mainly absorb domestic knowledge and information.

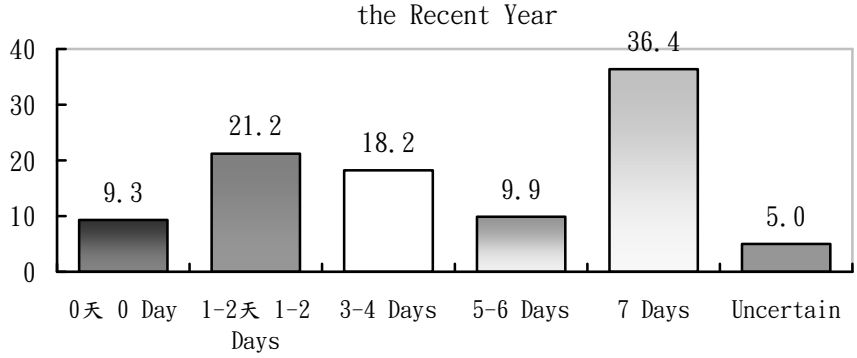
2. Inclusion

"Inclusion" is in the second level of our index structure of digital opportunity. This category aims to observe possible impacts that access to ICT can have on improving or enhancing lifestyle welfare by five application dimensions which Internet users have been involved with in the recent year. The five dimensions are: learning, social life, economy, civic participation, and fostering health.

First, the result of the dimension of involvement of learning activities shows that learning activities for Taiwan Internet users are mainly one-way information searches. 85.7% of Internet users will, at least one day a week, use the Internet to search for the information they need and absorb knowledge. On average, the days per month they use the Internet to search for information is 4.2 days, which is not a low frequency.

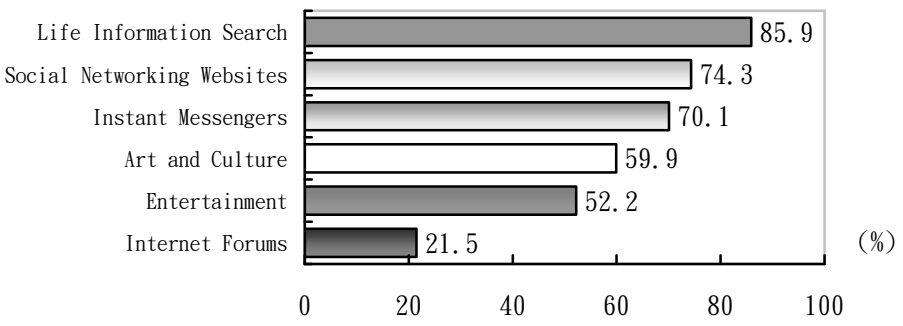
However, Internet users less often take online courses. In the past year, only 16.9% have taken one-way online courses, and the rate of those who have used the Internet for discussion and interaction for distance courses has decreased to 2.2%.

Figure 4 Days Weekly Online Search for Internet Users in the Recent Year



For the dimension of social life involvement, the survey result shows, Internet users are active with involvement of one-way or two-way social life. The highest rate is online lifestyle information search (85.9%), followed by social networking websites (74.3%) and instant messengers (70.1%). 59.9% of Internet users use the Internet to search for information about arts and cultural information or activities. 52.2% of them use the Internet for entertainment and video activities. Internet users are relatively less active on open online forums with which only 21.5% have been involved in the past year.

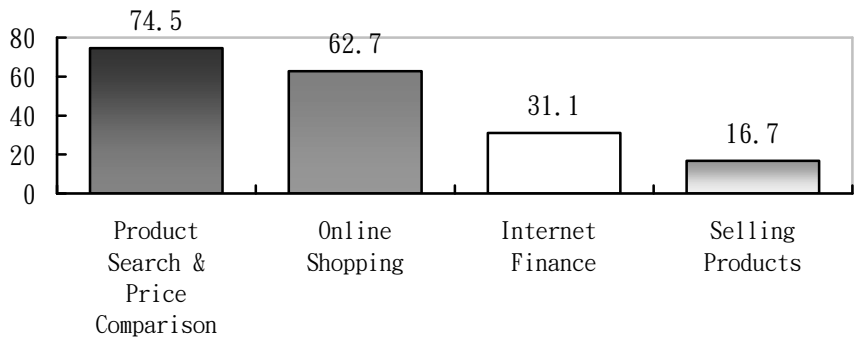
Figure 5 Social Involvement of the Internet Users in the Past One Year



For the dimension of economic development involvement, in the aspect of e-commerce and employment/entrepreneurship applications, the highest percent of Internet users have used the Internet to search for product information and prices (74.5%), 62.7% of them have shopped online in the past year, and 16.7% have sold products online in the past year. On the other hand, the applications for employment/entrepreneurship are not as commonly used as are e-commerce. In the past year, only less than a half of Internet users have used the Internet at work (48.6%) and 22.1% of them have used the Internet to send their resumes or find job vacancies.

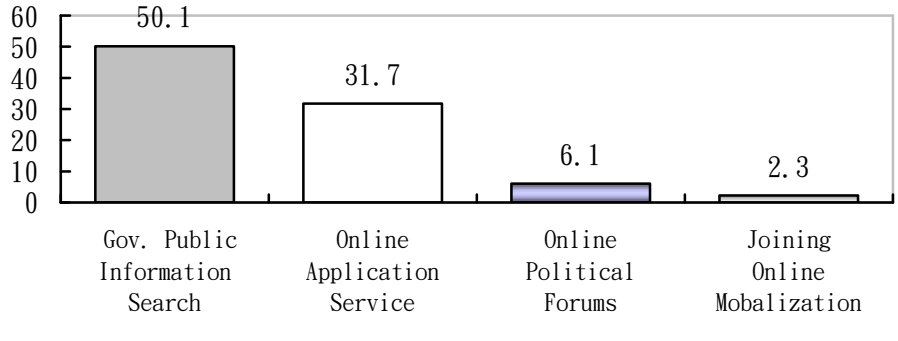
For the frequency of online shopping, people who shop online have done so 12 times on average in the past year, with the amount increased from NT$13,864 in 2010 to NT$16,586.

Figure 6 E-commerce Involvement of the Internet Users in the Past One Year



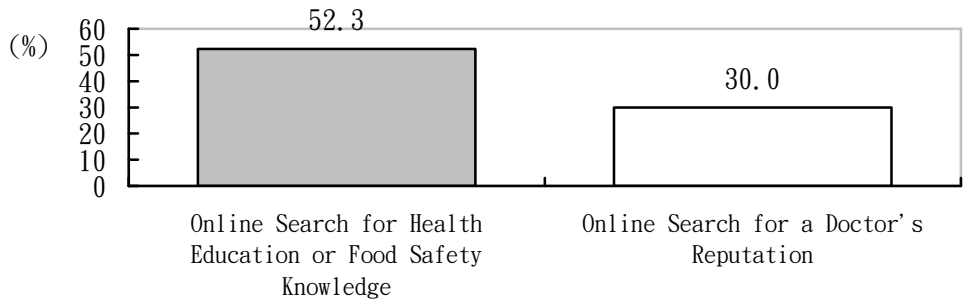
For the dimension of civic participation, in the past year, 50.1% of Internet users have searched government public information online. 31.7% of them have used online application services such as online tax filing. The usage rate for e-government resources is also not low. However, only 6.1% have posted their opinions about current politics, society, or public policies on the Internet. Also, only 2.3% have joined political, social, or public policy mobilization activities that were commenced through the Internet. This involvement rate is rather low.

Figure 7 Citizenship of Internet Users in the Past One Year



For the dimension of fostering health, the survey shows, in the past year, 52.3% of Internet users have used the Internet to search for health education or food safety knowledge, and 30% of them have used the Internet to search for the reputation of a specific doctor as their reference for seeking a doctor.

Figure 8 Health Fostering of the Internet Users in the Past One Year

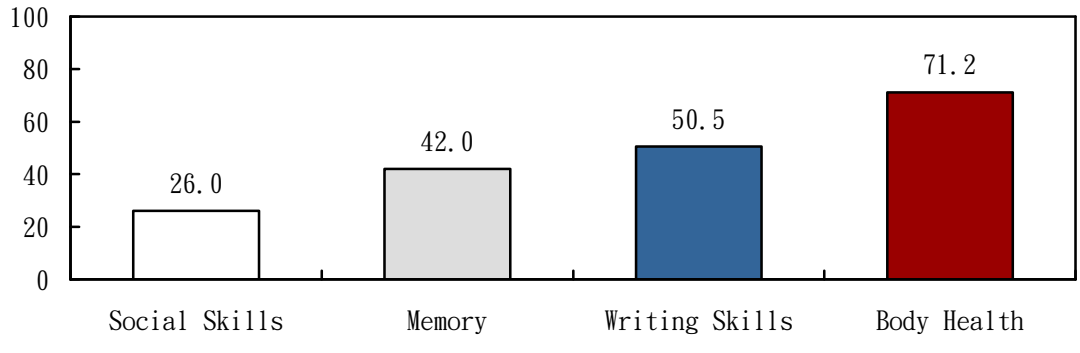


3. Exclusion

"Exclusion" is in the third level of our index structure of digital opportunity, and investigates if using ICT can cause an individual personal crisis or interest infringement.

As for ergonomics, the survey shows, 71.2% of Internet users experience symptoms such as eyestrain, waist pain, or back pain because of using the Internet. 50.5% of them admit that using the Internet causes their writing skills to degrade. 42.0% think relying on the Internet makes their memory not as good as before. Only 26.0% believe that using the Internet makes them less skilled in social interaction; which is the lowest rate.

Figure 9 Capability Degration of Internet Users because of Using the Internet



As for mental damage, 44.2% of the Internet users admit that they will feel anxious about not being able to connect with the external world if they do not go online

for more than some days. Among them, 13.4% of those who are “heavily addicted” cannot stand life without the Internet more than a day. That is, one out of eight Internet users is heavily addicted to the Internet, showing the symptoms of Internet addiction.

In regard to online rights infringement, 31.3% of the Internet users say that they have had a computer infected with a virus because of using the Internet. 11.9% of them have made wrong decisions because of their trust in incorrect online information. 4.1% have fallen into Internet fraud.

Of course, using the Internet may cause the users to have personal crises and experience rights infringement, but still 45.3% of Internet users believe that the Internet has a positive impact on enlarging their cycle of friends. However, development of the Internet may not always cause positive effects on interpersonal trust. 75.6% of Internet users think strangers on the Internet are becoming less and less trustworthy. Only 4.8% of them have more trust than in the past.

ii. Overview of Digital Opportunity by Categories

1. Gender Differences in Digital Opportunity

(1) Enabling

“Gender” has been an important variable for scholars in explaining digital opportunity gap. This year’s survey shows, the percentage of females in Taiwan using Internet information is still lower than that of males. 80.8% of males 12 years old and above have used the computer, and 76.5% have used the Internet, respectively 5.6% and 7.0% higher than that for female respondents.

In regard to device access, people of the two genders were slightly different in their information device preferences. Fewer female Internet users owned desktops and smart phones than male users, but a higher percentage of women owned a laptop (55.3%) or a tablet PC (22.1%).

The features of the devices that people of different genders have also reflect their user experiences with all kinds of mobile devices. 54.8% of male Internet users have used a smart phone to go online, higher than the percentage of female users (50.5%). Female users (27.5%) are higher in the percentage of using a laptop to go online than male users (25.0%). In summary, 74.3% of male Internet users have experienced wireless connection environments, while the percentage of female users is slightly lower (72.3%).

Besides, in other aspect of information access, Internet users of the two genders are also different while having some similar areas. For example, even though they all go online in similar places, 9.2% of the male users have been to an Internet café in the recent month, while the percentage of female users going to an Internet café to get

online has decreased to 2.7%. Female users spend 17 minutes less daily on the Internet than the male users, and they also browse foreign websites less.

As for basic skills and capabilities, male Internet users are 12.7% higher in using a computer to go online independently than female Internet users, but female users have higher percentages in their foreign language proficiency, word software skills, and information search capabilities.

Table 6. Gender Differences and Similarities in "Enabling"

Sub-dimension	Index	Male	Female
Information Access	Computer Usage Rate	80.8	75.2
	Internet Usage Rate	76.5	69.5
	Usage Rate of Wireless Connection	74.3	72.3
	Years of Internet Used	10.2	10.0
	Daily Online Hours	200	182
	Usage Rate of International Websites	46.5	40.9
Basic Skill Capabilities	Foreign Language Proficiency	59.1	62.6
	Computer Internet Operation Skills	69.5	56.8
	Word Software Skills	69.4	74.4
	Information Search Capabilities	72.9	74.9

(2) Inclusion

As Table 11-2 shows, from Inclusion in the five aspects –learning, social life, economy, civic participation and fostering health – people of the two genders are similar in their involvement in online learning activities.

In the aspect of social life, people of the two genders are different as male users (58.4%) are higher in using the Internet for entertainment activities than are female users (45.4%), while female users (63.2%) are higher in using the Internet for arts and cultural activities (56.9%). For the other four indexes, people of the two genders are similar in their involvement.

In the aspect of economic development, the percentages are both around 74% for Internet users of the two genders who use the Internet to search for product information and prices, 31% to use online finance services, and 16% to sell products online. The differences are not significant.

However, 67.1% of female Internet users have done online shopping, 8.4% higher than male Internet users, while male users spend on average NT$19,000, much higher than female users' NT$14,100. Also, the percentage of females who use the Internet at work is significantly higher than that of male users. In the past year, there were slightly

higher female users than male users who used the Internet to send their resumes or search for job vacancies.

In civic participation, in the past year, 51.9% of female Internet users have searched for government public information online, 3.5% higher than that of male Internet users. Male users (7.5%) are slightly more active on online politics forums than female users (4.6%). For online application services of the e-governance and politics-related activities through online mobilization, the percentages of the two genders participation are similar.

Table 7. Gender Differences and Similarities in "Inclusion"

Sub-dimension	Index	Male	Female
Learning	Usage rate of two-way courses in the recent year	2.2	2.2
	Usage rate of one-way courses in the recent year	16.1	17.7
	Average days of searching per week	4.3	4.1
Social Life	Usage rate of instant messengers in the recent year	70.1	70.0
	Usage rate of social networking websites in the recent year	73.7	75.0
	Usage rate of online forums in the recent year	22.8	20.0
	Usage rate of arts and cultural information or activities in the recent year	56.9	63.2
	Using the Internet to search for lifestyle or news information in the recent year	85.6	86.2
	Using the Internet to join entertainment activities in the recent year	58.4	45.4
Economic Development	Using the internet to search for product information or compare prices in the recent year	74.3	74.6
	Usage rate of online finance services in the recent year	31.5	30.6
	Usage rate of online shopping in the recent year	58.7	67.1
	Using the Internet to search for job information or send resumes in the recent year	20.9	23.4
	Using the Internet at Work	45.0	53.2
	Selling or auctioning products online in the recent year	17.5	15.8
Civic participation	Joining online mobilizations in the recent year	2.1	2.5
	Participating in online political forums in the recent year	7.5	4.6
	Using e-government to search for information in the recent year	48.5	51.9
	Using e-government systems for "online applications" in the recent year	31.4	31.9
Health Fostering	Using the Internet to search for health education information in the recent year	49.5	55.4
	Using the Internet to find a doctor in the recent year	25.7	34.7

(3) Exclusion

This part of the survey seeks to assess the differences in the risk from using the Internet for users of the two genders. The results show that users of the two genders are similar in their self-assessed loss in memory and face-to-face interaction skills because of using the Internet. Users of the two genders are also similar in the percentages of not being able to bear life without the Internet more than a day. However, 51.3% of male users claim that they are losing their writing skills because of using the Internet, 1.8% higher than the female users, while the female users are higher in the percentage than the male users in saying that their health conditions are not as good as before because of using the Internet, and that Internet strangers are becoming less and less trustworthy.

In the aspect of rights' infringement, male Internet users responded 3.4% higher than female users regarding getting their computer infected with a virus, and also higher regarding being verbally abused online. Relatively speaking, female users fall into an Internet fraud more often than the male users.

Table 8. Gender Differences and Similarities in "Exclusion"

Sub-dimension	Index	Male	Female
Personal Affects	Percentage of lowering memory capacity because of using the Internet	41.8	42.3
	Percentage of poorer writing skills because of using the Internet	51.3	49.5
	Percentage of poorer face-to-face interaction skills because of using the Internet	25.6	26.6
	Percentage of worse health conditions because of using the Internet	68.7	73.9
	Percentage of not being able to bear life without the Internet more than one day	13.7	13.1
	Percentage of believing that Internet strangers are not trustworthy	72.9	78.6
Rights' Infringement	Percentage of getting the computer infected with a virus	32.9	29.5
	Percentage of making wrong decisions because of trusting incorrect online information in the recent year	12.2	11.6
	Percentage of falling into an Internet fraud in the recent year	3.4	4.8
	Percentage of being verbally abused on the Internet in the recent year	4.4	2.2

2. Generation Differences in Digital Opportunity

(1) Enabling

The 2011 survey shows, that Internet access across different generations remains subject to significant differences. For citizens under 40 years old, the percentage of them having Internet access is over 99%, it slightly decreases 84.2% for citizens 40-49 years old, 49.3% for citizens 50-59 years old, 28.0% for citizens 60-64 years old, and

10.6% for citizens above or equal to 65 years old.

The analysis also finds that the information access differences for different generations are not just about whether they know how to go online. For middle and higher aged citizens in an information society, they have disadvantages in device access, usage frequency, and basic skill capabilities. Within all generations, the Internet users of age 20-29 enjoy the best "Enabling" opportunity.

We can see the results by items. For the differences in device access, even though there are more than 80% of each generation who have an accessible desktop, but still citizens 60 years and older are lower in their ownership percentage. For smart phones, Internet users of 20-39 years old have the highest ownership percentage, and percentages are less than 35% for citizens of 12-14 years old and above or those 60 years old and above. In particular, the ownership percentage of the tablet is lower for citizens 30 years old or less, while the highest percentage goes to citizens 65 years or older, with a percentage of 27.2%.

For the differences in mobile connection experiences, all citizens aged 15-39 years old had more than 60% using a smart phone to go online, and the percentage is close to using a laptop to go online. In particular, there are 25% of citizens 65 years or older who have used a tablet to go online, a percentage that is not only higher than that of the smart phone (22.3%), but also close to the percentage of citizens 30 years old or less that use a tablet to go online.

As to differences in Internet connection locations, even though the percentage of getting online at home are highest among all generations, for citizens 65 years old and above, the percentage is only about 80%. They are also lower in the percentage of getting online out of home, and nearly 20% of them do not use the Internet.

For the differences in information usage frequencies, citizens of 20-29 years old spend the highest amount of time on the Internet (240 minutes), while those aged 12-14 years old and above or 50 years and older are relatively low, at less than 140 minutes.

Additionally, even though most generations of Internet users have more than 50% with foreign language capabilities, only those aged 20-29 years old browse foreign websites more frequently, with a percentage of 57.8%.

As for the differences in basic skill capabilities, those aged 20-29 years old are more skilled at operating a computer independently (75.8%), smoothly using word-processing software (88.9%), and information search capabilities (79.3%). Relatively speaking, those who 50 years and older are less skilled in information skill capabilities. Especially for those who are 65 years and above, only 41.2% of them can operate the computer independently, 39.9% can smoothly use word-processing software, and less than a half believe they can find the needed information on their own.

Table9 Generation Differences and Similarities in “Enabling”

Sub-dimension	Index	Age 12-14	Age 15-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-64	Age 65+
Information Access	Computer Usage Rate	99.8	100.0	99.7	98.7	90.5	61.6	37.9	20.3
	Internet Usage Rate	99.7	100.0	99.7	98.6	84.2	49.3	28.0	10.6
	Usage Rate of Wireless Connection	62.3	78.1	84.3	78.6	69.7	56.7	53.0	42.6
	Years of Internet Used	4.7	6.9	10.3	11.9	11.3	9.6	10.3	8.6
	Daily Online Hours	138	198	240	211	162	135	138	112
	Usage Rate of International Websites	26.1	47.1	57.8	45.4	39.0	32.4	31.2	32.6
Basic Skill Capabilities	Foreign Language Proficiency	69.1	77.3	75.2	54.7	51.7	46.0	52.0	54.4
	Computer Internet Operation Skills	50.7	67.3	75.8	69.8	58.4	45.5	39.1	41.2
	Word Software Skills	66.0	79.0	88.9	74.3	65.4	48.9	54.4	39.9
	Information Search Capabilities	57.6	73.8	79.3	80.8	74.4	61.8	59.9	48.0

(2) Inclusion

As Table 11-5 shows, from Inclusion in the five aspects –learning, social life, economy, civic participation and fostering health – people of different generations are different in their involvement in online activities.

Relatively speaking, the involvement levels for all generations are close in the area of learning. Even for Internet users 65 years old and above, they still search for information through the Internet on average three days a week.

In the aspect of social life involvement, different generations are less different in two one-way applications: lifestyle or news information search, and involvement with arts and cultural activities. However, for two-way interaction – such as instant messengers, social networking websites, and online forums – and online involvement of entertainment activities, those 30 years old or less are more active.

With regard to economic development, the survey shows those 20-39 years old are more participative in using the Internet to search for consumption information, joining online group purchasing, using the Internet at work, and selling products online. These results differ substantially with the other generations. Besides, the percentage of using online finance services is highest for those 30-49 years old. The percentage of using the Internet to send their resumes or find job vacancies is highest for those 20-29 years old; 47.0% of them have used the Internet to find a job in the recent year, at least 25% higher than other generations.

In the aspect of civic participation, the result is similar to online finance services.

Internet users of 30-49 years old are the most active generation in using e-government resources, with 55.0%- 58.6%of them that check public announcements, 42.9%-43.2% that use e-government online applications. As to involvement in political forums or public policy-related online mobilization, the participation rates are low for each generation. However, relatively speaking, Internet users of 20-29 year old (8.2%) have a higher percentage of posting their political, social, or public policy-related opinions online.

In the aspect of fostering heath, Internet users of 30-49 years old have the highest percentage of using the Internet to search for health education or food safety knowledge, while those of 50-64 years old have a demand that is not low, with a percentage of nearly 55%. For the applications of using the Internet to research or find a proper doctor, the percentage is highest among the generation of 30-39 years old (40.0%).

The above results broadly reflect that the types of social life involvement will differ in the preferences or directions because of their different life stages.

Table 10. Generation Differences and Similarities in "Inclusion"

Sub-dimension	Index	Age 12-14	Age 15-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-64	Age 65+
Learning	Usage rate of two-way courses in the recent year	1.8	3.5	2.7	2.0	1.5	1.9	1.0	2.2
	Usage rate of one-way courses in the recent year	19.2	14.1	18.9	15.4	20.0	14.4	12.4	5.5
	Average days of searching per week	2.7	3.9	4.8	4.5	4.2	3.9	3.8	3.0
Social Life	Usage rate of instant messengers in the recent year	73.7	88.8	87.0	73.9	56.3	46.5	38.9	32.7
	Usage rate of social networking websites in the recent year	90.6	94.4	91.9	80.3	58.7	43.6	35.5	27.6
	Usage rate of online forums in the recent year	18.3	26.8	33.8	23.5	12.8	9.9	9.9	7.3
	Usage rate of arts and cultural information or activities in the recent year	47.7	62.5	66.9	61.4	60.0	52.0	47.3	37.9
	Using the Internet to search for lifestyle or news information in the recent year	67.5	87.5	89.5	89.3	87.5	80.5	82.4	61.5
	Using the Internet to join entertainment activities in the recent year	80.1	74.6	64.8	54.1	37.7	27.7	13.4	18.3
Economic Development	Using the internet to search for product information or compare prices in the recent year	35.9	70.2	83.9	82.2	77.4	66.2	61.2	31.7

	Usage rate of online finance services in the recent year	0.1	4.0	31.0	43.9	38.3	31.4	31.2	24.1
	Usage rate of online shopping in the recent year	21.5	52.0	72.4	71.9	64.7	58.2	47.6	31.9
	Using the Internet to search for job information or send resumes in the recent year	1.0	19.3	47.0	22.3	14.1	8.6	0.7	3.3
	Using the Internet at Work	12.9	13.8	52.6	56.5	54.2	33.9	29.5	12.6
	Selling or auctioning products online in the recent year	7.1	16.3	24.2	23.4	11.2	6.3	6.6	4.9
Civic participation	Joining online mobilizations in the recent year	0.9	2.9	2.1	3.0	1.9	1.9	3.8	0.4
	Participating in online political forums in the recent year	1.6	5.6	8.2	6.5	5.5	4.9	6.1	5.9
	Using e-government to search for information in the recent year	24.3	31.9	53.8	55.0	58.6	50.9	43.8	31.8
	Using e-government systems for “online applications” in the recent year	4.4	3.8	26.0	42.9	43.2	36.6	39.3	20.7
Health Fostering	Using the Internet to search for health education information in the recent year	27.1	36.5	50.8	59.9	60.4	53.1	53.9	37.4
	Using the Internet to find a doctor in the recent year	3.8	11.7	30.0	40.0	34.9	30.4	30.3	21.5

(3) Exclusion

Regarding if using the Internet can cause an individual degradation of basic skills or mental damage, the results show, the generation of 20-29 years old, having best “Enabling” and “Inclusion”, are most exposed to the negative risks. 54.2% of them believe over-relying on the Internet makes their memory capabilities not as good as before. 61.5% of them find degradation of their Chinese writing skills. 36.5% of them admit they become less skilled at face-to-face interaction. 77.1% of them, because of using the Internet, have symptoms such as waist or back pain. 19.0% of them cannot bear life without the Internet for more than one day. All of these percentages are highest among percentages of all generations.

With regard to rights infringement, the generation of 20-39 years old has a slightly higher percentage regarding misbelieving Internet information and thus making wrong decisions or falling into an Internet fraud. As for being verbally abused on the Internet, the generations of 12-29 years old have the highest involvement of social networking websites and instant messengers, with a higher percentage of between 5.9%-6.9%.

As for getting the computer infected with a virus, expect for the Internet users

aged 12-14 years old that have a slightly lower percentage (23.4%), the other generations have around 30% of them who have had their computer infected with a virus because of using the Internet.

Table11 Generation Differences and Similarities in "Exclusion"

Sub-dimension	Index	Age 12-14	Age 15-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-64	Age 65+
Personal Affects	Percentage of lowering memory capacity because of using the Internet	49.1	50.7	54.2	43.8	31.7	29.2	22.5	19.3
	Percentage of poorer writing skills because of using the Internet	35.9	48.3	61.5	57.5	45.0	40.5	32.2	22.9
	Percentage of poorer face-to-face interaction skills because of using the Internet	19.9	30.6	36.5	26.6	19.5	20.1	13.8	13.3
	Percentage of worse health conditions because of using the Internet	66.1	72.6	77.1	72.0	71.9	63.5	62.3	47.8
	Percentage of not being able to bear life without the Internet more than one day	9.0	12.7	19.0	15.6	9.7	9.2	11.2	5.6
	Percentage of believing that Internet strangers are not trustworthy	78.3	75.8	76.2	78.7	76.1	71.1	55.6	64.0
Rights' Infringement	Percentage of getting the computer infected with a virus	23.4	29.2	33.8	29.3	32.8	33.9	32.5	31.3
	Percentage of making wrong decisions because of trusting incorrect online information in the recent year	7.5	10.6	15.6	14.6	9.4	7.7	7.8	11.6
	Percentage of falling into an Internet fraud in the recent year	0.6	4.3	7.0	4.2	3.3	1.7	0.7	1.9
	Percentage of being verbally abused on the Internet in the recent year	6.1	6.9	5.9	2.3	0.9	0.7	2.2	2.5

3. Differences in Digital Opportunity for Native Taiwanese

(1) Enabling

In regard to information access for native Taiwanese, the survey shows, the percentage of each information access item is slightly lower than the overall average for

the overall populace, a fact that makes native Taiwanese remain in a digitally disparate situation.

There are some more special situations about the Internet use among native Taiwanese. First, for those native Taiwanese households those have Internet connection, even though their connection method is the same as the rest in the country, mostly using a broadband connection (75.4%), some 26.4% of these native Taiwanese households use 3G or WiFi for their Internet connection, 4.6% higher than the overall populace overall average.

Similar to Internet users of middle and higher age brackets, the percentage of tablet ownership is also slightly higher for Native Taiwanese.

The most special point is about the location that many native Taiwanese get online. In the recent month, they have 5%-18% higher percentage than the overall average who get online at school, government agencies, and Internet café, but 10% lower than the overall average for getting online at work.

In regard to basic skills and capabilities, native Taiwanese are more skilled at using word-processing software and information search, while less skilled at foreign language proficiency and independently operating the computer. Although the percentage of native Taiwanese with foreign language proficiency is lower than the overall average, some 44.8% of them will browse foreign websites, a percentage similar to the overall average.

Table 11-7. Differences and Similarities between the Overall Average and Indigenous Taiwanese in “Enabling”

Sub-dimension	Index	National	Native Taiwanese
Information Access	Computer Usage Rate	78.0	73.7
	Internet Usage Rate	73.0	66.1
	Usage Rate of Wireless Connection	73.3	71.5
	Years of Internet Used	10.1	8.0
	Daily Online Hours	191	173.0
	Usage Rate of International Websites	43.9	44.8
Basic Skill Capabilities	Foreign Language Proficiency	60.8	49.3
	Computer Internet Operation Skills	63.4	56.0
	Word Software Skills	71.8	72.2
	Information Search Capabilities	73.9	77.5

(2) Inclusion

Table 11-8 summarizes the involvement levels in each index in the aspect of

individuals aged 12 years old or above including the employed. The result shows, native Taiwanese are similar to overall average in regards to learning involvement, and the difference in online course involvement between the overall average and native Taiwanese are less than 3%. For days of one-way information search, days of overall average and native Taiwanese are between 4.2-4.5 days every week.

With respect to social life involvement, native Taiwanese exhibit ubiquity. Even though the highest application percentage remains lifestyle information search (84.9%), but the percentage of participating social networking websites is approaching the percentage of information search, with the percentage at 84.9% in the past year. Besides, native Taiwanese have a higher percentage than the overall average in regards to using instant messengers (71.8%), arts and cultural applications (66.2%), entertainment activities (57.1%), and online forums (23.4%)

In regard to economic development involvement, native Taiwanese have around 10% higher than the overall average in percentage of online shopping (71.1%) and finding a job through the Internet (31.0%), but they less use online finance services (24.4%), and they less use the Internet at work, with a percentage of 8.4% lower than the overall average.

In regard to civic participation, in the past year, 12.0% of native Taiwanese have posted their political, social, or public policy opinions online, 10.0% of them have joined online political, social, or public policy-related mobilization. All these percentages are higher than the overall average.

In regard to fostering health, even though native Taiwanese have a higher percentage of searching health-related knowledge online (55.0%), but they use the Internet less to seek a doctor (21.5%).

Table 11-8. Differences and Similarities between the Overall average and Native Taiwanese in “Inclusion”

Sub-dimension	Index	National	Native Taiwanese
Learning	Usage rate of two-way courses in the recent year	2.2	4.9
	Usage rate of one-way courses in the recent year	16.9	19.5
	Average days of searching per week	4.2	4.2
Social Life	Usage rate of instant messengers in the recent year	70.1	71.8
	Usage rate of social networking websites in the recent year	74.3	83.4
	Usage rate of online forums in the recent year	21.5	23.4
	Usage rate of arts and cultural information or activities in the recent year	59.9	66.2
	Using the Internet to search for lifestyle or news information in the recent year	85.9	84.9

	Using the Internet to join entertainment activities in the recent year	52.2	57.1
Economic Development	Using the internet to search for product information or compare prices in the recent year	74.5	73.6
	Usage rate of online finance services in the recent year	31.1	24.4
	Usage rate of online shopping in the recent year	62.7	71.1
	Using the Internet to search for job information or send resumes in the recent year	22.1	31.0
	Using the Internet at Work	48.6	40.2
	Selling or auctioning products online in the recent year	16.7	15.1
Civic participation	Joining online mobilizations in the recent year	2.3	10.0
	Participating in online political forums in the recent year	6.1	12.0
	Using e-government to search for information in the recent year	50.1	52.7
	Using e-government systems for "online applications" in the recent year	31.7	28.1
Health Fostering	Using the Internet to search for health education information in the recent year	52.3	55.0
	Using the Internet to find a doctor in the recent year	30.0	21.5

(3) Exclusion

Regarding personal affects, for native Taiwanese Internet users that think they have become less skilled at face-to-face interaction and they have been verbally abused online, the percentages are around 3% higher than the overall averages. The percentage of getting their computer infected with a virus is 9.2% higher than the overall average. On the other hand, the percentage of native Taiwanese that feel their health condition is not as good as before, and the percentage of those who think online strangers are less trustworthy, are both 3%-6% lower than the overall average. For the other aspects, the percentages are close to the overall averages.

Table 11-9. Differences and Similarities between the Overall average and Native Taiwanese in "Exclusion"

Personal Affects	Percentage of lowering memory capacity because of using the Internet	National	Native Taiwanese
Rights' Infringement	Percentage of poorer writing skills because of using the Internet	42.0	43.9
	Percentage of poorer face-to-face interaction skills because of using the Internet	50.5	51.7
	Percentage of worse health conditions because of using the Internet	26.1	29.2
	Percentage of not being able to bear life without the Internet more than one day	71.2	67.8

	Percentage of believing that Internet strangers are not trustworthy	13.4	15.4
	Percentage of getting the computer infected with a virus	75.6	68.9
Personal Affects	Percentage of making wrong decisions because of trusting incorrect online information in the recent year	31.3	40.5
	Percentage of falling into an Internet fraud in the recent year	11.9	13.3
	Percentage of being verbally abused on the Internet in the recent year	4.1	4.4
	Percentage of lowering memory capacity because of using the Internet	3.4	6.4

4. Regional Differences in Digital Opportunity

(1) Enabling

In the perspective of digital development regions, the information environments of domestic households can be categorized in three categories. The first category is regions of digital development level 1 and 2. Around 90% of households have a computer, and around 86% of them can connect to the Internet. The second category is regions of digital development level 3 and 4. Around 82% of households have a computer, and around 77% of them can connect to the Internet. For the households of level 5, the computer ownership percentage and Internet connection percentage decrease to 71.7% and 66.1%. The regional divides are significant.

In the personal perspective, except for the level 4 region that is mainly off-shore islands, the trend is as follows: the higher the digital development level, the higher the information device access. For digital development level 1 region, the computer ownership percentage and Internet connection percentage are respectively 82.5% and 77.8%, while the percentages decrease to respectively 62.7% and 56.9% in level 5. So, the gaps are more than 20%.

This survey further concludes that the differences of information access opportunity for different regions not only reflect on whether people of that region know how to get online. No matter the Internet age (10.6 years), mobile connection experience (77.8%), daily online hours (203 minutes), foreign language proficiency (68.4%), percentage of browsing foreign websites (48.9%), or information skills and capabilities, Internet users in the region of digital development level 1 have higher numbers than Internet users of other less developed regions.

Besides, except for the level 4 region that are mainly off-shore islands, for regions with a higher digital development level, Internet users not only have a higher percentage of owning mobile devices such as laptops, tablets, and smart phones, but also have higher percentages of getting online at home, getting online at work, getting

online outdoors, and getting online while walking. For the region of digital development level 5, the percentage of getting online at school is slightly higher than that of other regions.

Table 15. Regional Differences and Similarities in "Enabling"

Sub-dimension	Index	Digital Level 1 Region	Digital Level 2 Region	Digital Level 3 Region	Digital Level 4 Region	Digital Level 5 Region
Information Access	Computer Usage Rate	90.8	89.6	83.1	82.2	71.7
	Internet Usage Rate	87.2	85.7	77.3	77.8	66.1
	Usage Rate of Wireless Connection	82.5	79.5	70.1	73.8	62.7
	Years of Internet Used	77.8	74.2	65.2	68.7	56.9
	Daily Online Hours	77.6	71.9	68.5	72.1	68.1
	Usage Rate of International Websites	10.6	10.1	9.2	10.0	9.2
	Foreign Language Proficiency	203	188	177	176	175
	Computer Internet Operation Skills	48.9	42.3	37.7	41.1	40.3
Basic Skill Capabilities	Word Software Skills	68.4	59.2	51.4	53.3	47.9
	Information Search Capabilities	66.3	62.8	59.7	63.4	56.7
	Computer Usage Rate	77.2	69.6	65.5	72.3	68.0
	Internet Usage Rate	77.1	72.7	70.0	73.9	70.0

(2) Inclusion

This part is to observe if there are any differences and similarities for Internet users of different digital development regions. The survey finds, there is no certain correlation mode between learning activities and digital development level. No matter one-way or two-way courses, the region of digital development level 4 has a higher percentage. For searching for information through the Internet, regions of digital development level 1, level 2, and level 4 have higher percentages, with averages of over four days.

In respect to social life involvement, the analysis finds, for regions of higher digital development, the Internet users have higher percentages of joining arts and cultural activities and using messengers through the Internet. The usage percentage of region of digital development level 1 is about 10% higher than that of region of digital development level 5. For application percentages of the other indexes, the differences are not very obvious.

In respect of economic development involvement, for region of digital development level 4 that are mainly off-shore islands, citizens have higher demand for

online shopping (75.3%), obviously higher than the other regions. The percentage is lowest for region of digital development level 5 (55.6%). However, in regards to online shopping times and amounts, the numbers are highest among regions of digital development level 1 and level 4 that are mainly off-shore islands, with average online shopping times of 13 and 30% of shopping amounts above NT$20,000. These two regions have higher online shopping times and amounts than other regions of digital development levels.

Besides in respect of applications of online finance services and using the Internet at work, the percentages become higher as the level of regional digital development increase.

In respect of civic participation, regarding using e-government to search for information and participating two-way online social activities, even though there are no significant differences between regions of different digital development levels, for online governance services applications, however, the percentages are different among regions. The usage percentage is the highest for region of digital development level 1(36.2%) and the lowest for region of digital development level 5 (20.2%).

In respect of fostering health, for the percentage of online search for health education or food safety knowledge, region of digital development level 4 that are mainly off-shore islands has a higher percentage (57.3%). However, for the percentage of online searching for a doctor's reputation as a reference for seeking a doctor, the percentage increases as the level of regional digital development increases. 32.8% of the public in the region of digital development level has this experience (online searching for a doctor's reputation as a reference for seeking a doctor), while the percentage decreases to 20.4% for region of digital development level 5.

Table 16. Regional Differences and Similarities in "Inclusion"

Sub-dimension	Index	Digital Level 1 Region	Digital Level 2 Region	Digital Level 3 Region	Digital Level 4 Region	Digital Level 5 Region
Learning	Usage rate of two-way courses in the recent year	2.4	1.9	2.4	3.4	2.2
	Usage rate of one-way courses in the recent year	18.0	16.5	14.1	21.7	18.4
	Average days of searching per week	4.5	4.1	3.9	4.2	3.7
Social Life	Usage rate of instant messengers in the recent year	73.3	67.8	69.5	69.9	63.2
	Usage rate of social networking websites in the recent year	76.3	73.3	72.8	76.3	71.0
	Usage rate of online forums in the recent year	22.0	22.4	17.9	23.7	19.4
	Usage rate of arts and cultural information or activities in the recent year	63.2	60.0	53.4	59.9	53.4
	Using the Internet to search for lifestyle or news information in the recent year	88.0	84.8	83.7	87.1	85.9

	Using the Internet to join entertainment activities in the recent year	51.4	51.7	54.4	54.6	52.1
Economic Development	Using the internet to search for product information or compare prices in the recent year	75.6	74.4	73.1	73.3	68.3
	Usage rate of online finance services in the recent year	35.5	29.9	26.1	28.0	21.6
	Usage rate of online shopping in the recent year	65.5	61.3	58.4	75.3	55.6
	Using the Internet to search for job information or send resumes in the recent year	21.4	22.3	23.3	22.7	21.4
	Using the Internet at Work	59.3	46.9	36.3	45.0	31.2
	Selling or auctioning products online in the recent year	17.4	15.9	16.7	18.3	17.1
Civic participation	Joining online mobilizations in the recent year	2.4	2.1	2.5	3.9	1.2
	Participating in online political forums in the recent year	6.7	5.8	5.0	8.2	5.9
	Using e-government to search for information in the recent year	51.7	49.7	48.0	54.1	43.0
	Using e-government systems for “online applications” in the recent year	36.2	30.9	25.8	28.2	20.2
Health Fostering	Using the Internet to search for health education information in the recent year	55.0	50.9	49.7	57.3	46.7
	Using the Internet to find a doctor in the recent year	32.8	28.9	28.3	27.9	20.4

(3) Exclusion

Compared to “Enabling” and “Inclusion” that have significant regional differences or features, the regional differences in regards to “Exclusion” are not very obvious.

Let’s first explore the negative impacts such as degradation of personal basic capabilities or mental damage. There are no significant differences in degradation of memory and Internet addiction among different regions of digital development levels. As for writing skills and face-to-face interaction, however, higher percentage of the public in region of digital development level 5 believe they have the degradation issue than do the public in region of digital development level 5, with a percentage of 5% higher. As for physiological impact, those in region of digital development level 1 instead have a higher percentage.

In respect of rights’ infringement, except for Internet users in region of digital development level 1with a lower percentage, below 30%, of getting their computers infected with a virus, the rest of the infringement indexes do not show significant differences.

Table 17. Regional Differences and Similarities in "Exclusion"

Sub-dimension	Index	Digital Level 1 Region	Digital Level 2 Region	Digital Level 3 Region	Digital Level 4 Region	Digital Level 5 Region
Rights' Infringement	Percentage of poorer writing skills because of using the Internet	41.0	42.4	43.0	42.4	43.6
	Percentage of poorer face-to-face interaction skills because of using the Internet	50.0	50.9	49.7	51.1	55.6
	Percentage of worse health conditions because of using the Internet	23.8	27.5	27.4	25.6	28.6
	Percentage of not being able to bear life without the Internet more than one day	73.5	70.3	69.0	71.6	65.5
	Percentage of believing that Internet strangers are not trustworthy	14.3	12.7	13.1	14.8	13.6
	Percentage of getting the computer infected with a virus	76.5	74.2	77.5	75.2	71.4
Personal Affects	Percentage of making wrong decisions because of trusting incorrect online information in the recent year	28.4	31.7	35.9	34.3	32.9
	Percentage of falling into an Internet fraud in the recent year	12.9	11.6	11.1	10.0	9.9
	Percentage of being verbally abused on the Internet in the recent year	4.6	3.5	4.5	3.6	3.7
	Percentage of lowering memory capacity because of using the Internet	3.5	3.3	3.2	4.6	2.1

iii.. Comparison of Trends of Cross-year Research Results

The survey in 2012 shows, the percentage of the public in Taiwan aged 12 years old and above that have used the computer has slightly increased from 77.4% in 2011 to 78.0%, but the variation is still within the range of sampling error, showing that the population that can use the computer has no significant growth in the past year. For cities and counties in Taiwan in the recent two years, since the variations of percentages of residents that can use the computer are also within the range of sampling error, there are no significant differences for the population that can use the computer in each city and county.

In respect of Internet usage percentage, the percentage of citizens in Taiwan aged 12 years old or older that have used the Internet is 73.0%, 1% higher than that in 2011. The growth rate is small. Among counties, the Internet usages in Yunlin County and Pingtung County have had a significant growth rate, with respectively 4.2% and 4.4% growth compared to the last year. As for Nantou, Ilan, Chiayi, Penghu and Changhua County, even though the growth rates are over 3% as well, but the rate is still within the range of sampling error.

The survey also finds, compared to the slight growth of the percentage of information access, the prevalence of mobile devices and mobile Internet connection have no doubt become the vigorous information trend in Taiwan in the recent three years.

Among those aged 12 years old and above in Taiwan, the percentage of those who have a laptop has increased by year, from 28.1% in 2010, to 32.4%, and to 39.0% in 2012. The growth rate of smart phones is even more rapid, from 16.6% in 2010 to 37.0% in 2012, with a percentage approaching that of the laptop. Besides, the 2011 survey finds, 15.1% of the public had a tablet. This year, the percentage remains roughly the same as last year, with an ownership percentage of 15.6%.

In regards to mobile connection experiences, the percentage of the Internet users that have used any kind of mobile devices to get online has increased from 53.0% in 2010, to 70.4% in 2011, and to 77.3% in 2012. If we use all population above or equal to 12 years old as the calculation denominator, every 56 out of 100 residents in Taiwan have used mobile connections to get online.

In respect of online civic participation, for the last year, 50.1% of Internet users have used e-government systems to search for policies or public announcements, 2.5% lower than that in 2011. 31.7% of Internet users have used online application services, with a usage percentage similar to that of the last year.

In the perspective by counties, in the last year, the growth rates for residents in Pingtung County, Kaohsiung City and Yilan County are highest among all counties as for searching information or policies through e-government systems, with a 4% growth of usage percentage. The growth rates for those in Keelung, Taichung City, Hualien County and Pingtung County are highest among all counties as for using online applications through e-government systems, with a 3% growth of usage percentage.

In respect of changes in household information environment, comparing to results in 2011 and 2012 survey, we find no significant change in the ownership percentage of household computer (from 87.4% to 87.9%), but the Internet connection percentage has slightly risen from 82.5% to 83.7%. In the past year, the percentage changes in household Internet connections are within the range of sampling error. The percentage changes are more obvious in Pingtung County, Lienchiang County, Changhua County, Chiayi County, Yilan County and Taitung County, with percentage increases between 4.6% and 6.9%.