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Digital Convergence Survey

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I. Purpose

The rapid development in information and communications technologies has driven the overall digital economy to flourish. Under the trend of convergence, the communications industry is vital to the national economy and development. Particularly, how consumers use the communications services in the communications market is not only closely related to the business operations and technological development in the overall communications industry, but its impact is also expanding to numerous other industries.

A survey on the communications provides an overview of the national development and consumer behaviors. A mechanism of surveys and investigations on the market and consumer behaviors has been established for a long time in many developed countries worldwide, such as Ofcom, the communications regulator in the UK, Ministry of Internal Affairs and Communications in Japan, KCC in Korea and IMDA in Singapore. In these countries, related information is regularly collected and documented to provide important statistics about the communications industry. The above mechanism of regular survey can serve as a key indicator of the overall national development on one hand and offer an understanding of the consumer behaviors and the market on the other.

Taiwan's survey on the communications market was first conducted by NCC last year, and is performed again this year. The survey aims to obtain first-hand objective and detailed data on consumer behaviors and the status of the innovative applications through a comprehensive and in-depth investigation on the demand side. In addition, the obtained information will serve as an indicator of the development of Taiwan's digital economy, as well as the basis for the development of future policies and regulations.

II. Survey Methods

A. Questionnaire Design

The questionnaires used in this survey are designed with reference to the way Ofcom, the British communications regulator, has surveyed consumer behaviors and trends in the communications market, and modified based on the latest development of Taiwan's convergence.

B. Population and Sampling Strategy

1. Survey population

The survey was conducted in Taiwan proper (exclusive of Kinmen County and Lianjiang County) with people aged 16 and above (those who were born on and before December 31, 2002) being approached.

2. Sampling method

Under the principle of PPS (probabilities proportional to size) ¹sampling, the sampling was performed in three stages. In the first and second stages, samples were allocated based on the proportion of the population in the area; while in the third stage, samples were selected using convenience sampling.

The stratified sampling used in this research is based on the classifications established by Peichun Hou et al. (2008), where villages, towns, cities and districts are grouped into seven levels based on the development. Thus, Taiwan's 358 townships and districts are divided into seven levels. They are city cores, commercial and industrial areas, emerging cities and townships, traditional industry townships, less-developed townships, aged townships and remote townships. The primary sampling units were townships, the secondary sampling units were villages, and the third sampling units were gathering places in the townships where an interview point was set up.

Table 1 Levels of Townships and Districts

Level Code	Names of Districts and Townships
1	Songshan District of Taipei City, Xinyi District of Taipei City, Da'an District of Taipei City, Zhongzheng District of Taipei City, Datong District of Taipei City, Wanhua District of Taipei City, Yonghe District of New Taipei City, Central District of Taichung City, West District of Taichung City, North District of Taichung City, East District of Tainan City, West Central District of Tainan City, Yancheng District of Kaohsiung City, Sanmin District of Kaohsiung City, Xinxing District of Kaohsiung City, Qianjin District of Kaohsiung City, Lingya District of Kaohsiung City
2	Zhongshan District of Taipei City, Wenshan District of Taipei City, Nangang District of Taipei City, Neihu District of Taipei City, Shilin District of Taipei City,

¹probabilities proportional to size, PPS

Level Code	Names of Districts and Townships
	Beitou District of Taipei City, Banqiao District of New Taipei City, Sanchong District of New Taipei City, Zhonghe District of New Taipei City, Xinzhuang District of New Taipei City, Tamsui District of New Taipei City, Luzhou District of New Taipei City, Linkou District of New Taipei City, Taoyuan City of Taoyuan County, Zhongli City of Taoyuan County, Zhubei City of Hsinchu County, East District of Hsinchu City, North District of Hsinchu City, South District of Taichung City, Xitun District of Taichung City, Nantun District of Taichung City, Beitun District of Taichung City, North District of Tainan City, Gushan District of Kaohsiung City, Zuoying District of Kaohsiung City, Fengshan District of Kaohsiung City
3	Xindian District of New Taipei City, Shulin District of New Taipei City, Yingge District of New Taipei City, Sanxia District of New Taipei City, Xizhi District of New Taipei City, Tucheng District of New Taipei City, Taishan District of New Taipei City, Yangmei City of Taoyuan County, Luzhu Township of Taoyuan County, Dayuan Township of Taoyuan County, Guishan Township of Taoyuan County, Bade City of Taoyuan County, Longtan Township of Taoyuan County, Pingzhen City of Taoyuan County, Zhudong Township of Hsinchu County, Hukou Township of Hsinchu County, Xinfeng Township of Hsinchu County, Qionglin Township of Hsinchu County, Baoshan Township of Hsinchu County, Xiangshan District of Hsinchu City, Zhunan Township of Miaoli County, Toufen Township of Miaoli County, Fengyuan District of Taichung City, Shalu District of Taichung City, Wuqi District of Taichung City, Tanzi District of Taichung City, Daya District of Taichung City, Wuri District of Taichung City , Longjing District of Taichung City, Taiping District of Taichung City, Dali District of Taichung City, Shanhua District of Tainan City, Rende District of Tainan City, Guiren District of Tainan City, Yongkang District of Tainan City, Annan District of Tainan City, Anping District of Tainan City, Nanzi District of Kaohsiung City, Xiaogang District of Kaohsiung City, Daliao District of Kaohsiung City, Dashe District of Kaohsiung City , Renwu District of Kaohsiung City, Niaosong District of Kaohsiung City, Gangshan District of Kaohsiung City
4	Zhongzheng District of Keelung City, Qidu District of Keelung City, Nuannuan District of Keelung City, Renai District of Keelung City, Zhongshan District of Keelung City, Anle District of Keelung City, Xinyi District of Keelung City, Wugu District of New Taipei City, Shenkeng District of New Taipei City, Bali District of New Taipei City, Miaoli City of Miaoli County, East District of Taichung City, Changhua City of Changhua County, Yuanlin Township of Changhua County,

Level Code	Names of Districts and Townships
	Douliu City of Yunlin County, East District of Chiayi City, West District of Chiayi City, Xinying District of Tainan City, South District of Tainan City, Qianzhen District of Kaohsiung City, Qijin District of Kaohsiung City, Pingtung City of Pingtung County, Yilan City of Yilan County, Luodong Township of Yilan County, Hualien City of Hualien County, Ji'an Township of Hualien County
5	Ruifang District of New Taipei City, Sanzhi District of New Taipei City, Shimen District of New Taipei City, Jinshan District of New Taipei City, Wanli District of New Taipei City, Daxi Township of Taoyuan County, Xinwu Township of Taoyuan County, Guanyin Township of Taoyuan County, Xinpu Township of Hsinchu County, Guanxi Township of Hsinchu County, Hengshan Township of Hsinchu County, Beipu Township of Hsinchu County, Yuanli Township of Miaoli County, Tongxiao Township of Miaoli County, Houlong Township of Miaoli County, Gongguan Township of Miaoli County, Tongluo Township of Miaoli County, Touwu Township of Miaoli County, Sanyi Township of Miaoli County, Zaoqiao Township of Miaoli County, Sanwan Township of Miaoli County, Dajia District of Taichung City, Qingshui District of Taichung City, Houli District of Taichung City, Shengang District of Taichung City, Shigang District of Taichung City, Waipu District of Taichung City, Da'an District of Taichung City, Dadu District of Taichung City, Wufeng District of Taichung City, Lugang Township of Changhua County, Hemei Township of Changhua County, Xianxi Township of Changhua County, Shengang Township of Changhua County, Fuxing Township of Changhua County, Xiushui Township of Changhua County, Huatan Township of Changhua County, Fenyuan Township of Changhua County, Xihu Township of Changhua County, Tianzhong Township of Changhua County, Datsuen Township of Changhua County, Puyan Township of Changhua County, Puxin Township of Changhua County, Yongjing Township of Changhua County, Shetou Township of Changhua County, Beidou Township of Changhua County, Pitou Township of Changhua County, Nantou City of Nantou County, Puli Township of Nantou County, Caotun Township of Nantou County, Dounan Township of Yunlin County, Huwei Township of Yunlin County, Linnei Township of Yunlin County, Taibao City of Chiayi County, Minxiong Township of Chiayi County, Shuishang Township of Chiayi County, Zhongpu Township of Chiayi County, Yanshui District of Tainan City, Liuying District of Tainan City, Madou District of Tainan City, Xiaying District of Tainan City, Liujia District of Tainan City, Guantian District of Tainan City, Jiali District of Tainan City, Xuejia District of Tainan City, Xigang District of Tainan City, Qigu District of Tainan City, Jiangjun District of Tainan City, Beimen District of

Level Code	Names of Districts and Townships
	<p>Tainan City, Xinhua District of Tainan City, Xinshi District of Tainan City, Anding District of Tainan City, Shanshang District of Tainan City, Guanmiao District of Tainan City, Linyuan District of Kaohsiung City, Dashu District of Kaohsiung City, Qiaotou District of Kaohsiung City, Yanchao District of Kaohsiung City, Alian District of Kaohsiung City, Luzhu District of Kaohsiung City, Hune District of Kaohsiung City, Jiading District of Kaohsiung City, Yongan District of Kaohsiung City, Mituo District of Kaohsiung City, Ziguan District of Kaohsiung City, Chaozhou Township of Pingtung County, Donggang Township of Pingtung County, Hengchun Township of Pingtung County, Wandan Township of Pingtung County, Changzhi Township of Pingtung County, Linluo Township of Pingtung County, Jiuru Township of Pingtung County, Neipu Township of Pingtung County, Xinyuan Township of Pingtung County, Su'ao Township of Yilan County, Toucheng Township of Yilan County, Jiaoxi Township of Yilan County, Zhuangwei Township of Yilan County, Yuanshan Township of Yilan County, Dongshan Township of Yilan County, Wujie Township of Yilan County, Taitung City of Taitung County</p>
6	<p>Shiding District of New Taipei City, Pinglin District of New Taipei City, Pingxi District of New Taipei City, Shuangxi District of New Taipei City, Gongliao District of New Taipei City, Emei Township of Hsinch County, Zhuolan Township of Miaoli County, Dahu Township of Miaoli County, Nanzhuang Township of Miaoli County, Xihu Township of Miaoli County, Shitan Township of Miaoli County, Tai'an Township of Miaoli County, Dongshi District of Taichung City, Xinshe District of Taichung City, Heping District of Taichung City, Ershui Township of Changhua County, Erlin Township of Changhua County, Tianwei Township of Changhua County, Fangyuan Township of Changhua County, Dacheng Township of Changhua County, Zhutang Township of Changhua County, Xizhou Township of Changhua County, Zhushan Township of Nantou County, Jiji Town of Nantou County, Mingjian Township of Nantou County, Lugu Township of Nantou County, Zhongliao Township of Nantou County, Yuchi Township of Nantou County, Guoshing Township of Nantou County, Shuili Township of Nantou County, Xinyi Township of Nantou County, Xiluo Township of Yunlin County, Tuku Township of Yunlin County, Beigang Township of Yunlin County, Gukeng Township of Yunlin County, Dapi Township of Yunlin County, Citong Township of Yunlin County, Erlun Township of Yunlin County, Lunbei Township of Yunlin County, Dongshi Township of Yunlin County, Baozhong Township of Yunlin County, Taixi Township of Yunlin County, Yuanchang Township of Yunlin County, Sihou Township of Yunlin County,</p>

Level Code	Names of Districts and Townships
	<p>Kouhu Township of Yunlin County, Shuilin Township of Yunlin County, Puzi City of Jiayi County, Budai Township of Jiayi County, Dalin Township of Chiayi County, Xikou Township of Chiayi County, Xingang Township of Chiayi County, Liujiao Township of Chiayi County, Dongshi Township of Chiayi County, Yizhu Township of Chiayi County, Lucao Township of Chiayi County, Zhuqi Township of Chiayi County, Meishan Township of Chiayi County, Fanlu Township of Chiayi County, Baihe District of Tainan City, Houbi District of Tainan City, Dongshan District of Tainan City, Danei District of Tainan City, Yujing District of Tainan City, Nanxi District of Tainan City, Nanhua District of Tainan City, Zuozen District of Tainan City, Longqi District of Tainan City, Tianliao District of Kaohsiung City, Qishan District of Kaohsiung City, Meinong District of Kaohsiung City, Liugui District of Kaohsiung City, Jiaxian District of Kaohsiung City, Shanlin District of Kaohsiung City, Neimen District of Kaohsiung City, Ligang Township of Pingtung County, Yanpu Township of Pingtung County, Gaoshu Township of Pingtung County, Wanluan Township of Pingtung County, Zhutian Township of Pingtung County, Xinpi Township of Pingtung County, Fangliao Township of Pingtung County, Kanding Township of Pingding Township, Linbian Township of Pingtung County, Nanzhou Township of Pingtung County, Jiadong Township of Pingtung County, Checheng Township of Pingtung County, Manzhou Township of Pingtung County, Fangshan Township of Pingtung County, Huxi Township of Penghu County, Baisha Township of Penghu County, Xiyu Township of Penghu County, Wangan Township of Penghu County, Qimei Township of Penghu County, Sanxing Township of Yilan County, Fenglin Township of Hualien County, Yuli Township of Hualien County, Shoufeng Township of Hualien County, Guangfu Township of Hualien County, Fengbin Township of Hualien County, Ruisui Township of Hualien County, Fuli Township of Hualien County, Chenggung Township of Taitung County, Guanshan Township of Taitung County, Beinan Township of Taitung County, Luye Township of Taitung County, Chishang Township of Taitung County, Donghe Township of Taitung County, Changbin Township of Taitung County, Taimaili Township of Taitung County</p>
7	<p>Wulai District of New Taipei City, Fuxing Township of Taoyuan County, Jianshi Township of Hsinchu County, Wufeng Township of Hsinchu County, Renai Township of Nantou County, Mailiao Township of Yunlin County, Dapu Township of Chiayi County, Alishan Township of Chiayi County, Maolin District of Kaohsiung City, Taoyuan District of Kaohsiung City, Namaxia District of Kaohsiung City, Liuqiu Township of Pingtung County, Sandimen Township of</p>

Level Code	Names of Districts and Townships
	Pingtung County, Wutai Township of Pingtung County, Majia Township of Pingtung County, Taiwu Township of Pingtung County, Laiyi Township of Pingtung County, Chunri Township of Pingtung County, Shizi Township of Pingtung County, Mudan Township of Pingtung County, Magong City of Penghu County, Datong Township of Yilan County, Nan'ao Township of Yilan County, Xincheng Township of Hualien County, Xiulin Township of Hualien County, Wanrong Township of Hualien County, Zhuoxi Township of Hualien County, Dawu Township of Taitung County, Ludao Township of Taitung County, Haiduan Township of Taitung County, Yanping Township of Taitung County, Jinfeng Township of Taitung County, Daren Township of Taitung County, Lanyu Township of Taitung County

Table 2 Geographic Stratifications

Geographic Area	Level Code	Combined Level Code
Taipei City, New Taipei City, Keelung, Yilan	1	1
	2	2
	3, 4	3
	5, 6, 7	4
Taoyuan, Hsinchu, Miaoli	1, 2	1
	3, 4	2
	5, 6, 7	3
Taichung, Changhua, Nantou	1, 2	1
	3, 4	2
	5	3
	6, 7	4
Yunlin, Chiayi, Tainan	1, 2, 3	1
	4, 5	2
	6, 7	3
Kaohsiung, Pingtung, Penghu	1, 2	1
	3, 4	2
	5, 6, 7	3
Hualien, Taitung	4, 5	1
	6, 7	2

(1) Pilot Test

A stratified three-stage probability proportional to size sampling was adopted for the pre-test interviews. Since not many completed samples were expected during the pretest, the stratification system used in this project's formal survey was adjusted in order to meet the project deadline and save survey costs. With the Hualien and Taitung area excluded, only one geographic stratum was sampled within each of the five "geographic areas" -- "Taipei City, New Taipei City, Keelung, Yilan," "Taoyuan, Hsinchu, Miaoli," "Taichung, Changhua, Nantou," "Yunlin, Chiayi, Tainan," and "Kaohsiung, Pingtung, Penghu." Once the proportions of population in the geographic areas were calculated based on the demographic data provided by the Ministry of the Interior at the end of December 2017, the numbers of samples for all geographic areas were determined based on the proportions, with the numbers of townships and the expected number of completed samples within every township adjusted. The actual number of successful samples is 30.

(2) Formal survey

Prior to conducting the formal survey, the proportions of population in the geographic areas were calculated based on the demographic data provided by the Ministry of the Interior at the end of December 2017, and the numbers of samples for all geographic areas were determined based on the proportions, with the numbers of townships and the expected number of completed samples within every township adjusted. Consequently, a total of 1,068 samples were expected to be completed in each of the four investigations. In view of the small population and extremely uneven distribution of population in the Hualien and Taitung area, the stratified two-stage PPS (probabilities proportional to size) sampling was actually used, while the stratified three-stage PPS sampling was used in other areas. During the third stage, a survey point was set up at gathering places (such as village office, activity center, and market) in the townships selected to conduct the survey with local residents.

The sampling units in each stage are explained as below.

- During a two-stage sampling, the primary sampling units were "township" and then "people." All of the "districts and townships" in the geographic stratum were included.
- During a three-stage sampling, the primary sampling units were "townships," and the second sampling units were "villages." The last sampling units were "people."

During the implementation of the survey, the gender and age structures of all communities were strictly controlled with view to ensuring that the structure of the survey results could be similar to that of the target population. In case of any inconsistency between obtained samples and the population, the results were weighted based on variables like gender, age, and community. The weighted sample number in every age group must not exceed the original sample number by 60%.

(3) Allocation of samples

To meet the request of the agency that commissioned this project, at least 1,068 valid samples were investigated in each questionnaire with a sampling error of within $\pm 3\%$ at a 95% confidence level.

Table 3 Plan for Allocation of Samples at Survey Sites in All Communities

Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	Planned Allocation of Samples	No. of Townships and Districts Selected	No. of Villages Selected	Total Samples of Villages
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	66	2	2	4
	Level 2	3,180,892	49.22%	169	5	2	10
	Level 3	1,642,127	25.41%	87	3	2	6
	Level 4	404,626	6.26%	22	1	2	2
	Subtotal	6,462,572	32.15%	343	11		22
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	60	2	2	4
	Level 2	1,460,970	46.83%	78	3	2	6
	Level 3	522,787	16.76%	28	1	2	2
	Subtotal	3,119,915	15.52%	166	6		12
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	48	2	2	4
	Level 2	1,266,346	32.59%	67	2	2	4
	Level 3	1,276,334	32.85%	68	2	2	4
	Level 4	438,815	11.29%	23	1	2	2
	Subtotal	3,885,352	19.33%	206	7		14
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	49	2	2	4
	Level 2	1,216,056	41.65%	65	2	2	4
	Level 3	781,563	26.77%	42	1	2	2
	Subtotal	2,919,805	14.53%	155	5		10
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	60	2	2	4
	Level 2	986,400	30.49%	52	2	2	4
	Level 3	1,115,990	34.50%	59	2	2	4
	Subtotal	3,234,715	16.09%	172	6		12
Hualien, Taitung	Level 1	252,400	52.97%	13	0	1	1
	Level 2	224,091	47.03%	12	0	1	1
	Subtotal	476,491	2.37%	25			2
Total		20,098,850	100.00%	1,068			72

Since the original allocation of the survey site sampling is based on proportions of the entire population, these calculated decimal numbers had to be rounded to the nearest integers when the survey was actually performed. Moreover, to meet a specific requirement this year that the number of weighted samples in every age group must not exceed the original number of samples by 60%, the samples were allocated and adjusted accordingly in this project. The adjusted allocation of survey site sampling has been shown in the table below.

Table 4 Plan for Allocation of Samples at Survey Sites in All Communities after Adjustment by Age

Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	Originally Planned Allocation of Samples at Survey Sites						First Adjustment	
				Planned Allocation of Samples	No. of Townships and Districts Selected	No. of Villages Selected	Total Samples of Villages	Expected No. of Samples by Village	Expected No. of Samples by Level	Expected No. of Samples by Village	Expected No. of Samples by Level
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	66	2	2	4	16	64	16	64
	Level 2	3,180,892	49.22%	169	5	2	10	17	170	17	170
	Level 3	1,642,127	25.41%	87	3	2	6	15	90	15	90
	Level 4	404,626	6.26%	22	1	2	2	11	22	11	22
	Subtotal	6,462,572	32.15%	343	11	-	22	-	346	-	346
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	60	2	2	4	15	60	15	60
	Level 2	1,460,970	46.83%	78	3	2	6	13	78	13	78
	Level 3	522,787	16.76%	28	1	2	2	14	28	14	28
	Subtotal	3,119,915	15.52%	166	6	-	12	-	166	-	166
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	48	2	2	4	12	48	12	48
	Level 2	1,266,346	32.59%	67	2	2	4	17	68	17	68
	Level 3	1,276,334	32.85%	68	2	2	4	17	68	17	68
	Level 4	438,815	11.29%	23	1	2	2	12	24	12	24
	Subtotal	3,885,352	19.33%	206	7	-	14	-	208	-	208
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	49	2	2	4	12	48	12	48
	Level 2	1,216,056	41.65%	65	2	2	4	16	64	16	64
	Level 3	781,563	26.77%	42	1	2	2	21	42	21	42
	Subtotal	2,919,805	14.53%	155	5	-	10	-	154	-	154
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	60	2	2	4	15	60	12	48
	Level 2	986,400	30.49%	52	2	2	4	13	52	14	56
	Level 3	1,115,990	34.50%	59	2	2	4	15	60	16	64
	Subtotal	3,234,715	16.09%	172	6	-	12	-	172	-	168
Hualien, Taitung	Level 1	252,400	52.97%	13	-	1	1	13	13	14	14
	Level 2	224,091	47.03%	12	-	1	1	12	12	12	12
	Subtotal	476,491	2.37%	25	-	-	2	-	25	-	26
Total		20,098,850	100.00%	1,068	35	-	72	-	1071	-	1068

Table 4 Plan for Allocation of Samples at Survey Sites in All Communities after Adjustment by Age

Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	First Adjustment		Second Adjustment of Site Allocation Based on Age Distribution in the Population (Expected No. by Site)							
				Expected No. of Samples by Village	Expected No. of Samples by Level	Expected No. of Samples with Ages 16-25	Expected No. of Samples with Ages 26-35	Expected No. of Samples with Ages 36-45	Expected No. of Samples with Ages 46-55	Expected No. of Samples with Ages 56-65	Expected No. of Samples with Ages 66 and Above	Expected No. of Samples by Level	Expected No. of Completed Samples in Each Level by Age Group
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	16	64	2	4	3	3	2	2	16	64
	Level 2	3,180,892	49.22%	17	170	3	3	3	3	2	2	16	160
	Level 3	1,642,127	25.41%	15	90	3	3	3	3	2	1	15	90
	Level 4	404,626	6.26%	11	22	3	3	2	3	2	1	14	28
	Subtotal	6,462,572	32.15%	-	346	-	-	-	-	-	-	-	-
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	15	60	3	3	3	3	2	1	15	60
	Level 2	1,460,970	46.83%	13	78	3	3	2	3	2	1	14	84
	Level 3	522,787	16.76%	14	28	3	3	2	3	2	1	14	28
	Subtotal	3,119,915	15.52%	-	166	-	-	-	-	-	-	-	-
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	12	48	3	3	2	3	2	1	14	56
	Level 2	1,266,346	32.59%	17	68	3	3	4	2	2	2	16	64
	Level 3	1,276,334	32.85%	17	68	3	3	4	3	2	2	17	68
	Level 4	438,815	11.29%	12	24	3	3	2	2	2	1	13	26
	Subtotal	3,885,352	19.33%	-	208	-	-	-	-	-	-	-	-
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	12	48	3	3	2	2	2	1	13	52
	Level 2	1,216,056	41.65%	16	64	3	3	3	2	2	1	14	56
	Level 3	781,563	26.77%	21	42	3	3	4	3	2	2	17	34
	Subtotal	2,919,805	14.53%	-	154	-	-	-	-	-	-	-	-
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	12	48	3	3	2	3	2	1	14	56
	Level 2	986,400	30.49%	14	56	3	3	3	2	2	1	14	56
	Level 3	1,115,990	34.50%	16	64	3	3	3	2	2	2	15	60
	Subtotal	3,234,715	16.09%	-	168	-	-	-	-	-	-	-	-
Hualien, Taitung	Level 1	252,400	52.97%	14	14	2	3	3	3	2	1	14	14
	Level 2	224,091	47.03%	12	12	2	3	2	3	2	1	13	12
	Subtotal	476,491	2.37%	-	26	-	-	-	-	-	-	-	-
Total		20,098,850	100.00%	-	1068	-	-	-	-	-	-	-	1068

3. Survey period

The interviews took place in the selected areas between May 6 and July 13, 2018.

Table 5 Implementation of Formal Sampling

Area	Level	Townships and Districts	Expected No. of Samples (1,068 samples in total)	No. of Completed Samples (1,069 samples in total)
Taipei City, New Taipei City, Keelung, Yilan	Level 1	Xinyi District of Taipei City	32	32
		Wanhua District of Taipei City	32	33
	Level 2	Banqiao District of New Taipei City	32	32
		Zhonghe District of New Taipei City	32	28
		Zhongshan District of Taipei City	32	42
		Wenshan District of Taipei City	32	32
	Level 3	Shilin District of Taipei City	32	35
		Xindian District of New Taipei City	30	30
		Xizhi District of New Taipei City	30	30
	Level 4	Tucheng District of New Taipei City	30	25
Sanxing Township of Yilan County		28	28	
Subtotal			342	347
Taoyuan, Hsinchu, Miaoli	Level 1	Zhongli City of Taoyuan County	30	29
		Zhubei City of Hsinchu County	30	30
	Level 2	Miaoli City of Miaoli County	28	27
		Bade City of Taoyuan County	28	29
		Zhudong Township of Hsinchu County	28	29
	Level 3	Houlong Township of Miaoli County	28	30
Subtotal			172	174
Taichung, Changhua, Nantou	Level 1	North District of Taichung City	28	30
		Beitun District of Taichung City	28	28
	Level 2	West District of Taichung City	32	33
		Changhua City of Changhua County	32	30
	Level 3	Caotun Township of Nantou County	34	33
		Puli Township of Nantou County	34	32
	Level 4	Zhushan Township of Nantou County	26	26
Subtotal			214	212
Yunlin, Chiayi, Tainan	Level 1	Yongkang District of Tainan City	26	27
		Annan District of Tainan City	26	26
	Level 2	Huwei Township of Yunlin County	28	28
		Zhuqi Township of Chiayi County	28	30
	Level 3	Baihe District of Tainan City	34	34
Subtotal			142	145
Kaohsiung, Pingtung, Penghu	Level 1	Fengshan District of Kaohsiung City	28	29
		Sanmin District of Kaohsiung City	28	21
	Level 2	Qianzhen District of Kaohsiung City	28	27
		Nanzi District of Kaohsiung City	28	29
	Level 3	Magong City of Penghu County	30	30
		Pingtung City of Pingtung County	30	28
Subtotal			172	164
Hualien, Taitung	Level 1	Hualien City of Hualien County	14	13
	Level 2	Taitung City of Taitung County	12	14
	Subtotal			26
Total			1068	1069

Differences between the actual numbers of samples and the planned numbers of samples are explained as below:

- (1) This survey was completely implemented as planned in terms of sites and allocation of samples. However, due to reasons like age control and the people's willingness to be interviewed at different sites, fewer samples were completed than expected at several sites.
- (2) Although samples were not performed as planned at some sites, samples of all areas were verified to represent the population in terms of distribution, through a test prior to weighting (See Table 6 below).

Table 6 Contingency Table for Digital Convergence Survey Site before Weighting

Allocation of Survey Site No.	Allocation of Samples		No. of Samples before		Chi-Square Test before Weighting
	No. of People	Percentage	No. of People	Percentage	
Total	1,068	100.0%	1,069	100.0%	
Survey Site					The Chi-square value is 0.58, and p-value (= 0.98) is below the accepted significance level of 5%, meaning no significant difference between the distribution of samples and the original allocation of samples.
Taipei City, New Taipei City, Keelung, Yilan	342	32.0%	347	32.5%	
Taoyuan, Hsinchu, Miaoli	172	16.1%	174	16.3%	
Taichung, Changhua, Nantou	214	20.0%	212	19.8%	
Yunlin, Chiayi, Tainan	142	13.3%	145	13.6%	
Kaohsiung, Pingtung, Penghu	172	16.1%	164	15.3%	
Hualien, Taitung	26	2.4%	27	2.5%	

C. Implementation of Survey

1. Timeline

Before the survey was formally launched, preparations for questionnaires and related affairs were undertaken from April 22 to April 26, 2018. After the questionnaires were modified based on the conclusions from the meeting with the agency that commissioned this study, the survey formally began on May 6, 2018. The timeline is explained as below.

- (1) Preparation period: April 1 to April 27, 2018
- (2) Survey period:
 - Phase 1: April 22 to April 26, 2018
 - Phase 2: May 6 to July 13, 2018
- (3) Review period: July 14 to July 18, 2018

2. Survey method

Face-to-face interviews were employed for this survey; a computer-assisted interview survey system was used during the interview, and was complemented with printed questionnaires.

3. Statistical analysis method

(1) Sample representativeness and weighting

After the survey results were reviewed, the NPAR Chi-square test was used to examine the difference between the allocation of samples and the structure of the population in terms of age, gender, and population percentage, to enhance the representativeness and reliability of the survey so that these samples could reflect the population structure. In case a significant difference in structure was identified between the samples and the population, weighting was used to make the sample structure identical to that of the population.

About weighting, the raking method was used to adjust the sampling weights based on variables in the order of gender, age and area of household registered until no significant difference existed between the allocation of samples and the population in every variable.

All the data in the results were multiplied by the adjustment weight. $\frac{N_i}{N} / \frac{n'_i}{n}$,

N_i and n_i' represent the number of the population and the number of sample population weighted in the Cross Group i , while N and n represent the number of the total population and the number of the total sample population weighted. This way, the sampling distribution was completely the same as the population distribution after weighting. The last weight was gained by multiplying all the adjustment weights.

(2) Reliability analysis

Reliability refers to trustworthiness or consistency of a survey. Namely, when the survey is performed under the same or similar conditions, consistent or stable results can be obtained. Cronbach's (1951) α reliability coefficient is currently the most used reliability indicator. Nunnally (1967) suggested that a reliability of 0.7 or higher, also known as high reliability, is acceptable.

(3) Frequency

How people understand and rate each of the aspects can be realized through the data presented in allocation of frequencies and percentages in all questions.

(4) Cross analysis and Chi-square test

A cross analysis table was established with the basic data in "all the issues" to realize whether a difference existed between the respondents with different backgrounds in all the issues. Pearson's Chi-square test was used in the cross table. The Chi-square test value (W) is defined as below:

$$W = \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \sim \chi^2((r-1)(c-1)), \text{ wherein}$$

O_{ij} is the observed frequency from Row j , Column i , and

E_{ij} is the expected frequency from Row j , Column i .

When p -value in the Chi-square test is less than 0.05, it means the two variables are not independent at a 95% confidence level. That is, a significant statistic difference exists between the respondents with different backgrounds in the issue.

(5) Analysis of variance (ANOVA)

The total variation can be divided into the variation between groups and the variation within groups. Analysis of variance is used to calculate the ratio of variation between groups to variation within groups. If the variation between groups is significantly greater than the variation within groups, significant differences among group means exist between two or more groups. If the variation between groups is not

highly different from the variation within groups, few differences exist among groups. The ANOVA F-test calculations are as below.

$$F = \frac{MS_b}{MS_w} = \frac{SS_b / k - 1}{SS_w / n - k}$$

, where n represents the number of samples and k represents the number of groups,

$$SS_b = n \sum_{i=1}^k (\bar{X}_i - \bar{X})^2$$

is the total sum of squared deviations of group means from grand mean, and

$$SS_w = \sum_{i=1}^k \sum_{j=1}^{n_i} (X_{ij} - \bar{X}_i)^2$$

is the total sum of the squared deviations within groups.

4. Sample structure

As of July 18, 2018, the survey for this research has been implemented and reviewed by the research team, with 1,068 questionnaires completed as valid samples. The sample structure is shown in Table 7.

Table 7 Contingency Table for Digital Convergence Survey Samples

Population variables	Population		No. of Samples before Weighting		No. of Samples after Weighting		Chi-Square Test before Weighting	Chi-Square Test after Weighting
	No. of People	Percentage	No. of People	Percentage	No. of People	Percentage		
Total	20,098,850	100.0%	1,069	100.0%	1,069	100.0%		
Gender							The Chi-square value is 0.43, and p-value (= 0.513) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of gender.	The Chi-square value is 0.000, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of gender.
Male	9,914,303	49.3%	538	50.3%	527	49.3%		
Female	10,184,547	50.7%	531	49.7%	542	50.7%		
Age							The Chi-square value is 38.743, and p-value (= 0.000) is below the accepted significance level of 5%, meaning significant difference between samples and the target population in distribution of age.	The Chi-square value is 0.034, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of age.
Age 16-25	3,019,238	15.0%	203	19.0%	161	15.1%		
Age 26-35	3,365,892	16.7%	217	20.3%	178	16.7%		
Age 36-45	3,830,729	19.1%	205	19.2%	205	16.7%		
Age 46-55	3,652,178	18.2%	187	17.5%	195	18.2%		
Age 56-65	3,263,731	16.2%	149	13.9%	173	16.1%		
Age 66 and above	2,967,082	14.8%	108	10.1%	157	14.7%		
City or County							The Chi-square value is 348.58, and p-value (= 0.000) is below the accepted significance level of 5%, meaning significant difference between samples and the target population in distribution of city and county.	The Chi-square value is 1.242, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of city and county.
New Taipei City	3,448,947	17.2%	137	12.8%	185	17.3%		
Taipei City	2,289,192	11.4%	148	13.8%	131	12.2%		
Taoyuan City	1,830,616	9.1%	79	7.4%	94	8.8%		
Taichung City	2,347,963	11.7%	86	8.0%	125	11.7%		
Tainan City	1,634,429	8.1%	90	8.4%	87	8.1%		
Kaohsiung City	2,412,066	12.0%	111	10.4%	123	11.5%		
Yilan County	396,203	2.0%	47	4.4%	21	2.0%		
Hsinch County	454,239	2.3%	60	5.6%	24	2.2%		
Miaoli County	475,420	2.4%	44	4.1%	25	2.3%		
Changhua County	1,097,511	5.5%	30	2.8%	58	5.4%		
Nantou County	439,878	2.2%	74	6.9%	24	2.2%		
Yilan County	601,273	3.0%	26	2.4%	33	3.1%		
Chiayi County	455,600	2.3%	29	2.7%	24	2.3%		
Pingtung County	730,817	3.6%	23	2.2%	38	3.6%		
Taitung County	190,752	0.9%	12	1.1%	10	1.0%		
Hualien County	285,739	1.4%	14	1.3%	16	1.5%		
Penghu County	91,832	0.5%	23	2.2%	5	0.5%		
Keelung City	328,230	1.6%	6	0.6%	16	1.5%		
Hsinch City	359,640	1.8%	11	1.0%	18	1.7%		
Chiayi City	228,503	1.1%	19	1.8%	11	1.1%		

Note: The source of the population data is the 2017 December Demographic Data of Households in Each Village provided on the Open Data platform by the Ministry of the Interior.

D. Research Limitations

To keep on top of how Taiwanese people use communications in the digital economic era, a survey on the Broadband Usage trend in the communications industry was implemented by means of interviews with people aged 16 and above (those who were born on and before December 31, 2002) in Taiwan proper (exclusive of Kinmen County and Lianjiang County), at the request of NCC. However, the following study limitations exist when actually performing the survey:

1. Sample frame limitations

Based on the requirements of the NCC, at least 1,068 successful samples were to be completed with the allocation of samples proportional to the population of every county or city.

In order to undertake rigorous sampling, research was conducted with reference to the sample structure used in Taiwan Social Change Survey by Academia Sinica. Nonetheless, it may be worth noting that this research differed from Taiwan Social Change Survey, where household registrations were used as a sampling frame. With no access to Taiwan's household registration database, a household survey seemed impossible. Instead, interviews were carried out at gathering places in townships or cities.

2. Sample recovery restrictions

The survey questionnaires contained 90 questions. In order to meet the requirement of at least 1,068 successful sample responses, groups of two interviewers were arranged at bustling locations, such as parks and busy crossroads, to perform interviews.

During this survey, the average number of those who did not comply was 3.52. Among the aged 55 and over groups, the average number of refusals was 7.33, making it much harder to achieve the planned number of interviews when compared with young people. Even so, the interviewers were urged to obtain the required number of samples by gender and age, so the weighted number of all age groups would not exceed the original number of samples by 60%.

3. Sample inference restrictions

After weighting, the sample number of young people, such as ages 16-25, was 0.79 times greater; the sample number of ages 26-35 was 0.82 times greater; the sample number of ages 36-45 was 1 time greater; the sample number of middle-aged

people such as ages 46-55 was 1.04 times greater; the sample number of ages 56-65 was 1.16 times greater; and the sample number of ages 66 and above was 1.45 times greater.

III. Results

A. The Owning and Use of Home Equipment

The Owning and Use of Home Equipment

1. Overall Analysis

According to the results, 92.4% of people in Taiwan aged 16 and over own a smart phone while 74.9% of them have a television set (not connected to internet), and 63.8% have desktop computers. 48.7% of the interviewees own laptops and 39.5% own tablets (Refer to Figure 1).

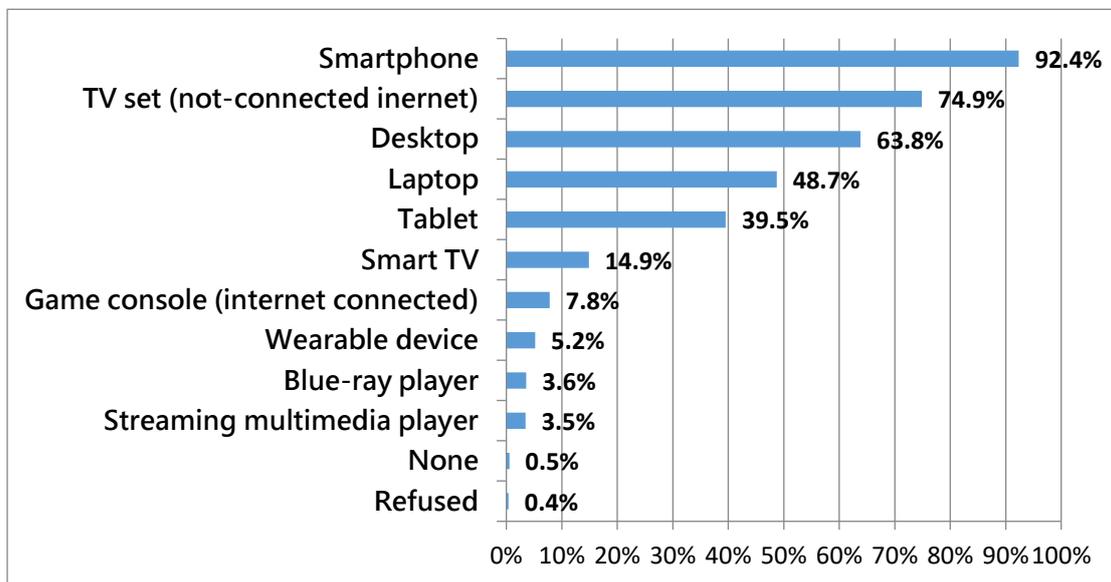


Figure 1 Which Equipment Having at Home

Base: N= 1,069, multiple-choice

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis finds that the proportion of owning smart phones in the areas of Taipei City, New Taipei City and Keelung, Taoyuan, Hsinchu and Miaoli, Kaohsiung, Pingtung and Penghu and Ilan, Hualien and Taitung are all above 90%; the rest of the areas are 80%. In terms of the ratio of owning TV (not connected to internet), the areas of Taoyuan, Hsinchu and Miaoli (85.5%) together with Ilan, Hualien and Taitung (80.8%) are much higher. Nevertheless, the rest of the areas are also above 70%. The area of Taoyuan, Hsinchu and Miaoli has the highest ratio of owning desktop computers (86.6%). As to the area of Ilan, Hualien and Taitung has the lowest ratio of having desktop computers, reaching 45.4%.

(2) Analysis of basic differences

When analyzing by gender, in terms of owning smartphones, male is 92.4% and female is 92.3%.

According to the age groups, all the age groups owning smartphones are the highest compared with other equipment. The proportion of owning laptops and tablets at the age group of 66 and above is much lower than other age groups.

According to marital status, the proportion of married status is the highest with smart phones, but the proportion of unmarried people who have TV sets(non-networked) is lower.

B. On-Line Streaming Video Watching

Online Streaming Video Watching

1. Overall analysis

According to the survey, 37.6% of the people have watched online streaming video (including paid and free video services) (Refer to Figure 2). The main reasons for viewing are flexibility of viewing time (60.8%), viewing online streaming videos without paying (40.2%), and recommendation made by family and friends (30.1%) (Refer to Figure 3).

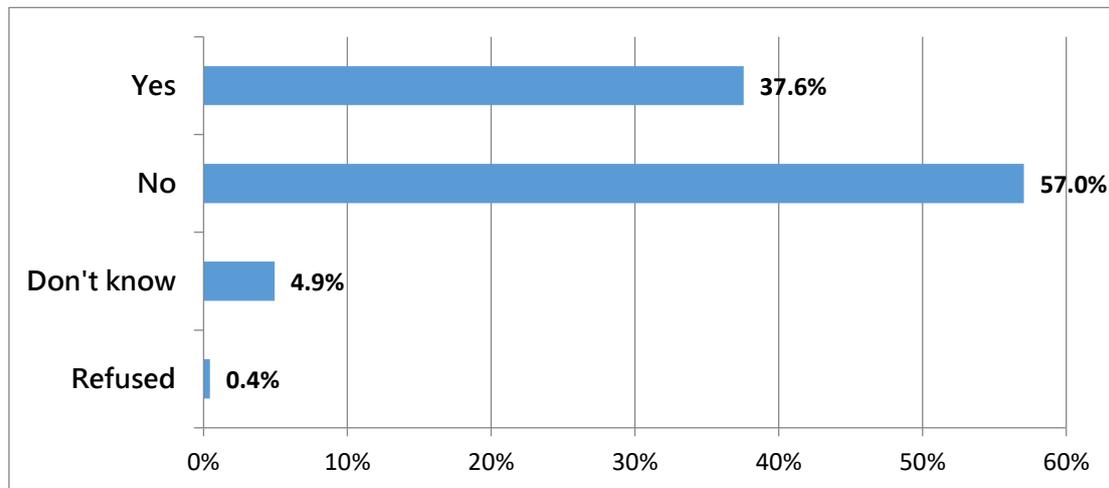


Figure 2 Online Streaming Video Viewing Experience

Base: N=1,069

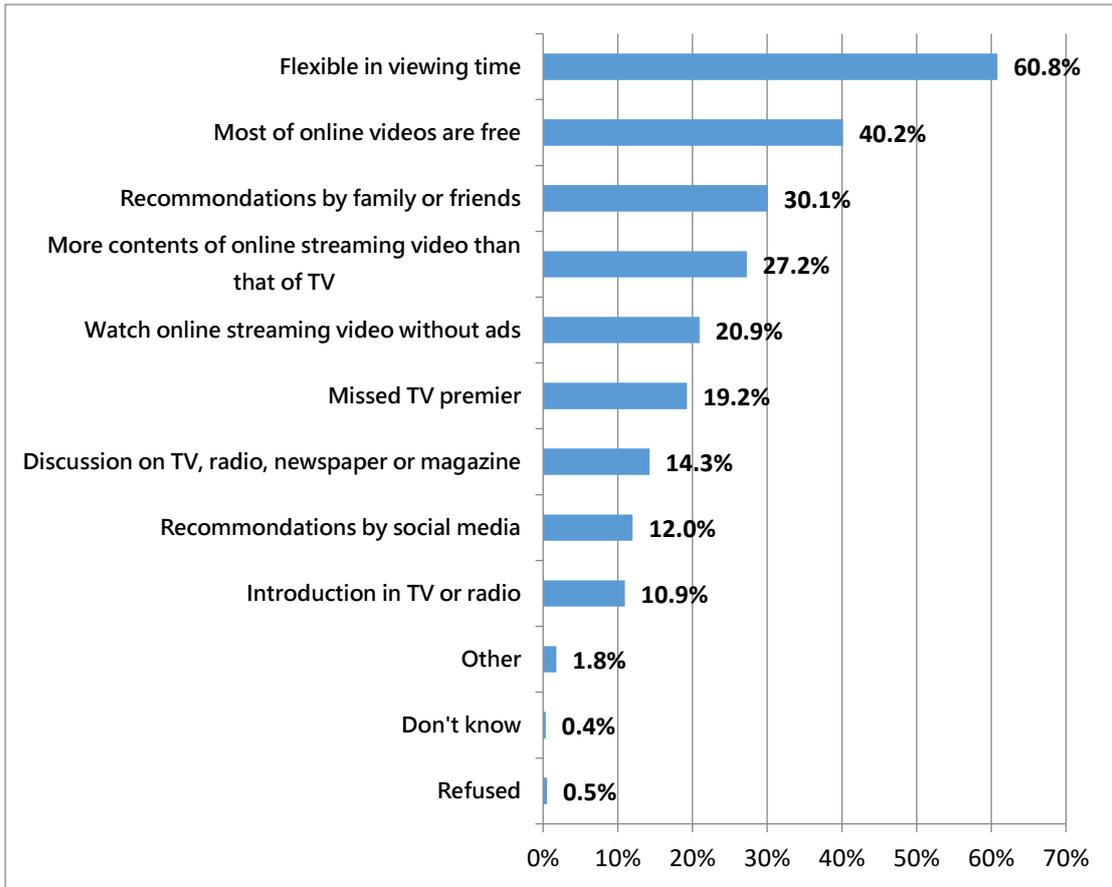


Figure 3 Reasons for Viewing Online Streaming Videos

Base: N=402, multiple-choice (who has viewed online streaming videos)

On average, the interviewees spend 13.35 hours per week viewing online streaming videos. (N=402, who has viewed online streaming videos), and 21.1% adopt SVoD services (Refer to Figure 4).

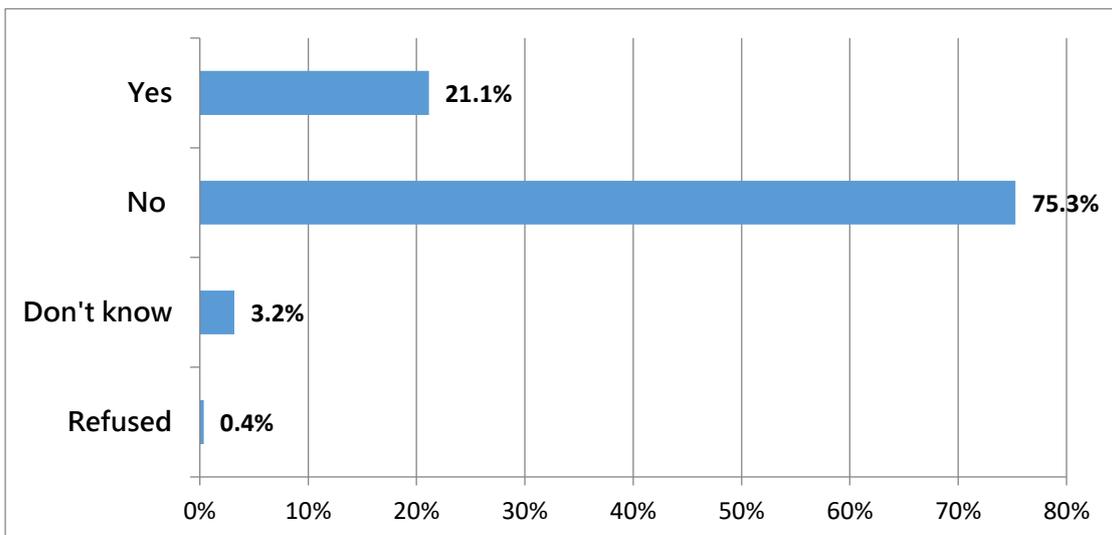


Figure 4 Paid Online Streaming Video Subscription

Base: N=402 (who has viewed online streaming videos)

2. Comparative Analysis

(1) Analysis of regional differences

The result of the chi-square test shows that people who have viewed online streaming videos show significant differences in the residential areas.

A cross-analysis finds that the highest rate of viewing online streaming is in the region of Kaohsiung, Pingtung and Penghu (51.5%). The rate is the lowest in Taipei City, New Taipei City and Keelung. Amongst all regions, the flexibility of viewing time is the main reason for choosing online streaming videos. Taipei City, New Taipei City and Keelung is higher than other areas, reaching 68.4%.

In terms of the length of viewing time, the longest is the region of Yunlin, Chiayi and Tainan (14.96 hours). On the other hand, the area of Taoyuan, Hsinchu and Miaoli is relatively short (10.43 hours). Amongst all areas, the area of Kaohsiung, Pingtung and Penghu has the highest rate of SVoD, reaching 29.2%; the area of Ilan, Hualien and Taitung has the lowest rate of SVoD (14.8%).

(2) Analysis of basic differences

According to the result of the Chi-square test, in terms of the experience of viewing online streaming videos, statistic differences are shown in gender and ages.

According to gender, females (41.2%) have a higher proportion of viewing online streaming videos compared with males (33.8%). The main reason for viewing online streaming videos for females and males is the flexibility of viewing time. The average time for males to watch online streaming video is 13.84 hours per week, which is longer than females 12.94 hours.

The highest rate of viewing online videos is the age group of 16-25 (60.2%), and the lowest rate is the age group of 66 and above, only 4.9%. Among all the age groups, the main reason for viewing online videos is the flexibility of viewing time. The longest average viewing time per week is in the age group of 66 and above (16.59 hours/per week), and the shortest viewing time is the age group of 46-55 (11.17 hours/per week).

According to marital status, unmarried people who have viewed is higher (55.0%). Most of the married people, and widows or separated people have not viewed, and the proportions are 64.3% and 83.5%. The main reason for watching online streaming videos, unmarried people (64.5%) and married people (57.4%) choose more flexibility in viewing time. As for widows or separated people, the recommendation by family or friends has the majority (56.0%).

(3) Analysis of differences in social and economic status

According to the result of the Chi-square test, there are statistically significant differences in residential status, education and occupations.

According to residential status, the people who rent houses/apartments (47.7%) are higher than house owners (33.5%) in terms of viewing online streaming videos.

According to the degree of education, the proportion of people who have seen online streaming video is highest at the university level, reaching 60.0%. The lowest percentage is of people in primary school and below, at only 0.5%.

According to occupation, the publishing, audio-visual production, communication and communication services industries have the highest proportion of viewing online streaming videos (up to 70.2%); professional, scientific and technical services (61.8%), supporting services (61.4%) and students (61.4%), all reaching 60% and above.

Considering Stopping Subscriptions to Paid Online Streaming Video Service in the Next 12 Months

1. Overall Analysis

Regarding whether to stop the subscription of paid online streaming video services in the next 12 months, 63.3% of the people express that they would not consider it, and those who do consider the suspension are 19.8% (Refer to Figure 5).

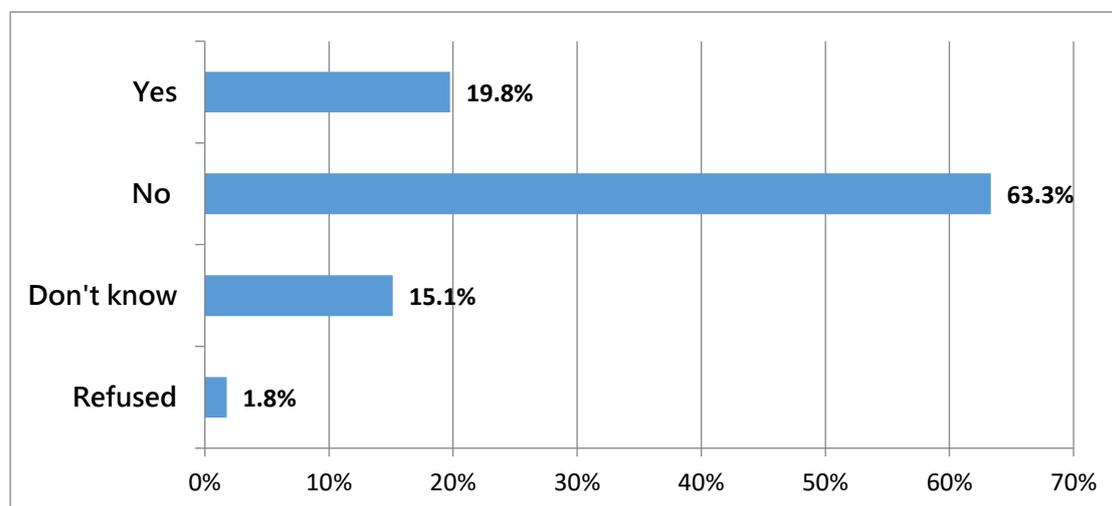


Figure 5 Considering Stopping Subscriptions to Paid Online Streaming Video Service
Base: N=85 (currently paid subscriptions for online streaming video services.)

2. Comparative Analysis

(1) Analysis of regional differences

According to the regions, the highest rate of considering stopping the subscription of paid online video services is Kaohsiung, Pingtung and Penghu (26.5%). The lowest rate is Taipei City, New Taipei City and Keelung (14.7%).

(2) Analysis of basic differences

By gender, more men (27.0%) would consider suspending subscriptions for online streaming video services in the next 12 months than women (12.8%).

According to age, the proportion of 26-35 age group is the highest (27.6%) when asking whether to consider stopping subscription of paid online streaming videos in the next 12 months.

According to marital status, the unmarried group is the highest proportion (21.7%) when asked whether they considered stopping the subscription of paying online streaming videos in the next 12 months.

C. Communicative Behavior

Engaged Communicative Activities

1. Overall analysis

Among all the communicative activities, speaking on the phone is the highest (67.9%), and following that is watching TV (60.8%), and using instant messaging (such as Line, Facebook Messenger, WhatsApp and Skype) (57.5%) (Refer to Figure 6).

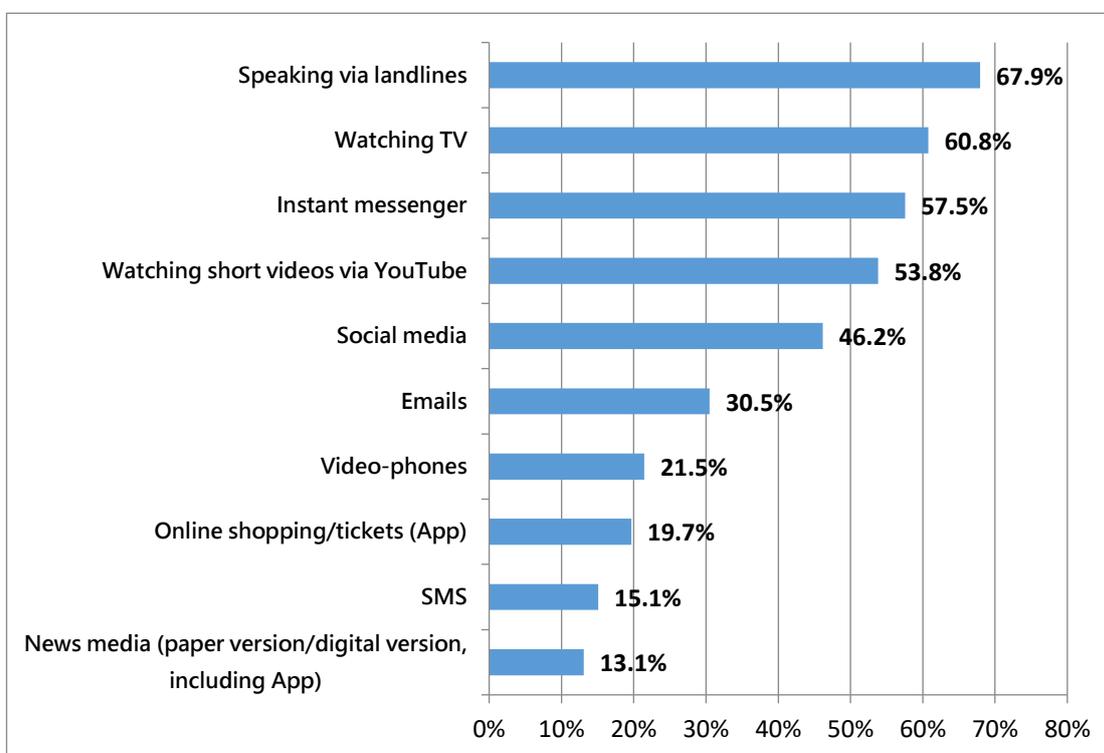


Figure 6 Engaged Communication Activities (Top 10)

Base: N=1,069, multiple-choice

2. Comparative Analysis

(1) Analysis of regional differences

By region, speaking via phones is the highest communicative activity among the regions of Taipei City, New Taipei City and Keelung (77.2%), Taichung, Changhua and Nantou (58.2%), Yunlin, Chiayi and Tainan (58.4%) and Ilan, Hualien and Taitung (76.9%). In the Taoyuan, Hsinchu and Miaoli area, the majority use instant messaging (78.7%). Kaohsiung, Pingtung and Penghu has the highest of viewing short films via YouTube or other platforms (62.2%).

(2) Analysis of basic differences

Male and female both have the highest rates of communicative activities as speaking via phone. Male is 67.3%, and female is 68.5%.

By age, the age group of 16-25 years old (62.6%) and 26-35 years old (67.7%) are engaged most in the activities of viewing short films via YouTube or other platforms. For the age group of 66 and above watching TV, reaches 80.5%. The age group of 66 and above using social media, instant messages, emails, SMSs and viewing short films via YouTube and other platforms is lower than other age groups.

According to marital status, unmarried people (68.0%) engaged most in the communication activities of watching short films on YouTube and other platforms. Married (72.1%), widowed/separated (76.7%) people speak on the phone.

Watching TV While Using Other Device Searching Program Information

1. Overall Analysis

The people who never watch TVs but use other devices (desktops, laptops, tablets or smart phones) is the highest compared with other groups (30.3%). For those people who use once per day is the second, and the rate is 21.7%. (Refer to Figure 7).

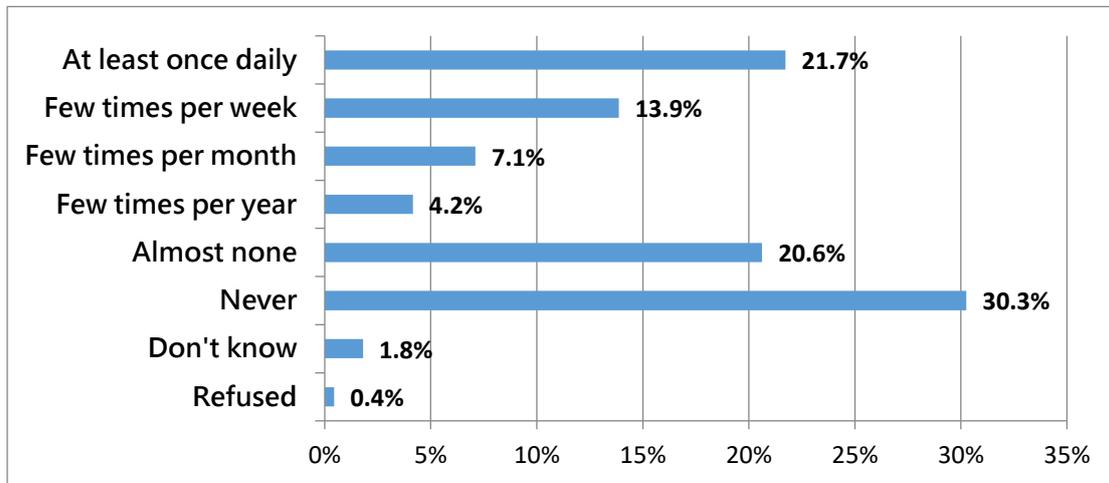


Figure 7 Frequency of Using Other Devices to Watch TV Program Information, While Using a Television Set

Base: N=1,056 (Home TV, desktop, notebook, tablet and smartphone)

The highest rate is at least once per day when asking the question of watching TV on a TV set, and using other devices to access the Internet (32.8%). Ranking second is never using this kind of behavior (22.2%) (Refer to Figure 8).

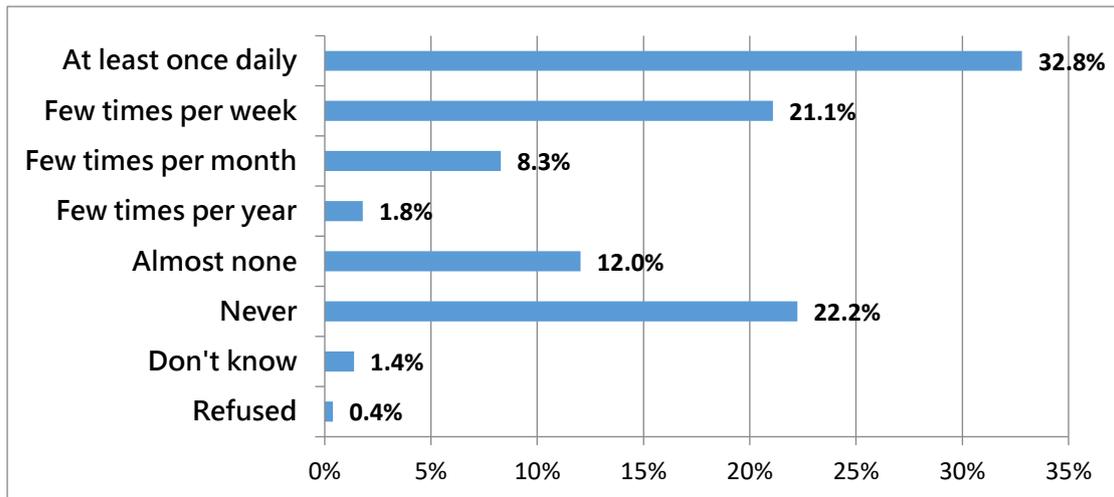


Figure 8 While Watching TV with a Television, Using other Device to Surf the Internet

Base: N=1,056 (Home TV, desktop, notebook, tablet and smartphone)

2. Comparative Analysis

(1) Analysis of regional differences

According to the result of Chi-square test. The people watching TVs and searching program information at the same time, are significantly different in the residential areas. Also, the test shows significant differences in the residential areas when asking the question of watching TVs and using other devices to access the Internet.

According to regions, the people who choose “never” is the highest rate in the regions of Taipei City, New Taipei City and Keelung (37.9%), Taichung, Changhua and Nantou (31.8%), Yunlin, Chiayi and Tainan (28.7%) and Ilan, Hualien and Taitung (40.5%) when asking if they watch TVs and use other devices at the same time. As to the question of watching TVs and accessing the Internet, the highest rate is at least once per day among the regions of Taichung, Changhua and Nantou (44.0%), Yunlin, Chiayi and Tainan (36.3%), Kaohsiung, Pingtung and Penghu (41.0%) and Ilan, Hualien and Taitung (50.6%).

(2) Analysis of basic differences

According to the result of the Chi-square test, the people who watch TVs and use other devices at the same time are significantly different in gender and age. The results also show that there is a significant difference in age when asking if they watch TVs and use other devices to access to the Internet.

The highest rate in gender is “never” when asking if they watch TVs and use other devices to search programs information. Male (33.4%) is a bit higher than female (27.1%). As to the question of watching TVs and using other devices to access the Internet, at least once per day is the highest for male (30.5%) and female (35.1%).

According to age groups, the rate of watching TVs and searching programs information by other devices is at least once per day among the age groups of 16-25,

26-35 and 36-45. The highest rate is in the group of 26-35 (31.6%). For the age groups of 46-55, 56-65 and 66 and above, never watching TVs and searching programs information at the same time is the highest, especially for 66 and above (73.0%).

The highest rate among the age groups of 16-25, 26-35 and 36-45 is at least once per day when asking about watching TVs and using other devices to access the Internet at the time. The same question for the age groups of 56-65 and 66 and above is never as the highest rate.

(3) Analysis of differences in social and economic status

According to the result of the Chi-square test, when asking about watching TVs and using other devices for searching programs information, there is a significant difference in education. Primary schools and below, middle schools/junior high schools, high schools and colleges show never as the highest rate. The degree of university shows at least once per day (33.2%); the degree of master's degree is higher with several times per week (31.2%).

When asking about watching TVs and using other devices to access the Internet, the highest rate is never among the primary schools and below, and junior high schools. The proportion reaches 74.3% in the group of primary schools and below. Senior high schools, colleges and universities show at least once per day as the highest. Graduate levels showing at least once per day (33.0%) and few times per week (33.2%) are higher.

D. Choosing Communication Services Suppliers

Service Combinations

1. Overall analysis

Regarding whether use of bundle services provided by the same company, Chunghwa Telecom's MOD + fixed-line broadband is 20.0%, and cable TV + cable Internet is 6.7%. None of the above mentioned services is the highest rate (57.6%) (Refer to Figure 9).

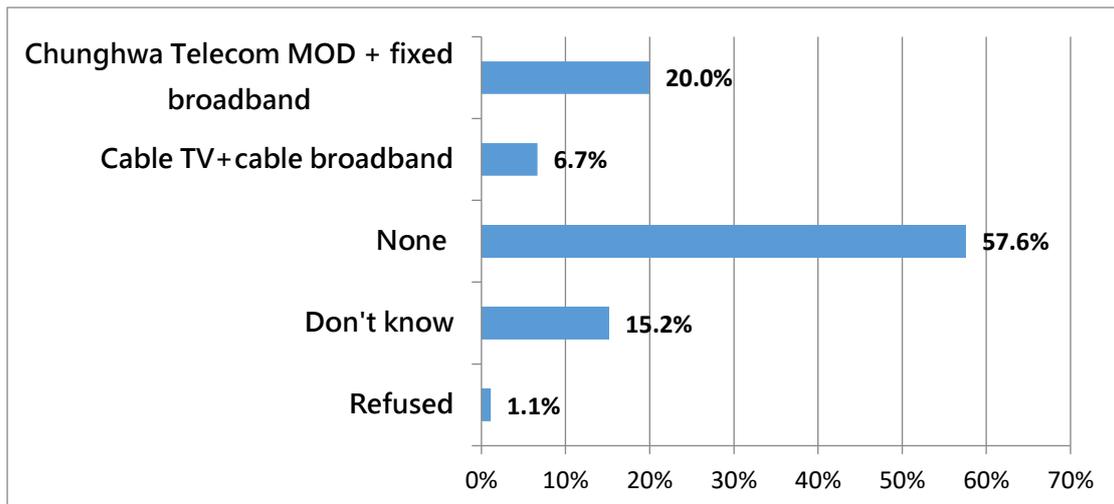


Figure 9 Services Supplied by the Same Company

Base: N=1,069, multiple-choice

Among the service combinations purchased by the people, 52.9% offered discounts, and 15.0% did not offer discounts (Refer to Figure 10).

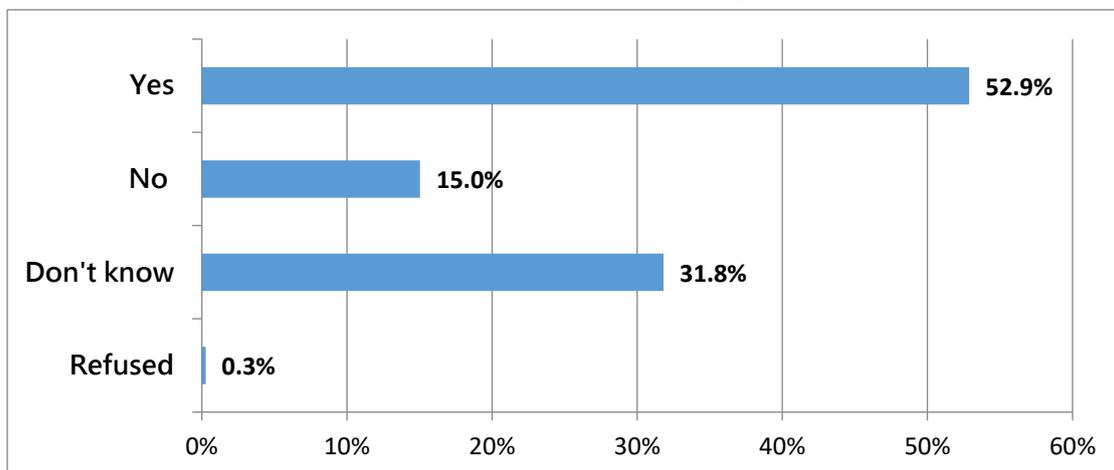


Figure 10 Services with Discounts

Base: N=280 (provided by the same company)

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, the highest rate of using bundle services among all regions is None. As to use of the bundle service provided by Chunghwa Telecom MOD + fixed network (27.1%) and cable TV + cable Internet combination (9.4%), Kaohsiung, Pingtung and Penghu region is higher than other regions. Regarding the question of the bundle services with discount, all the regions choose |Yes as the majority.

(2) Analysis of basic differences

According to gender, males (60.5%) and females (54.7%) have the majority of services provided by the same company; if there is a bundle service provided by the

same company, 55.1% of males and 50.9% of females receive discount on the main services.

All the age groups have No use of bundle services provided by the same company as the highest. Age 26-35 (32.6%) adopt Chunghwa Telecom's MOD + fixed-line broadband is higher than other age groups. The lower rate of adopting Chunghwa Telecom's MOD + fixed-line broadband is 66 and above (4.9%).

According to marital status, all groups have No use of bundle services provided by the same company as the highest; if there is a bundle service provided by the same company, 59.6% of the married group and 73.7% of the widowed/separated group receive discount on the main services.

E. Online Sharing Video/Audio Platforms

Viewing Online Sharing Platforms

1. Overall Analysis

Regarding whether or not people have viewed content of online sharing video platforms, 71.9% of the people responded affirmatively (Refer to Figure 11).

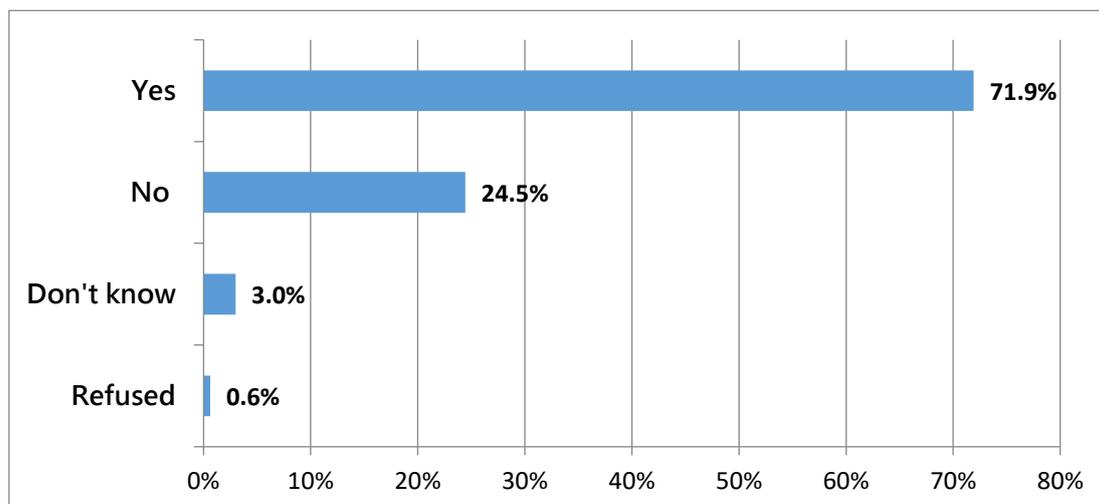


Figure 11 Watching Online Sharing Platforms

Base: N=1,069

The genres are entertainment dramas or movie flips (54.0%), and entertainment dramas or the whole movies (52.3%). Funny short films are 49.7% (Refer to Figure 12).

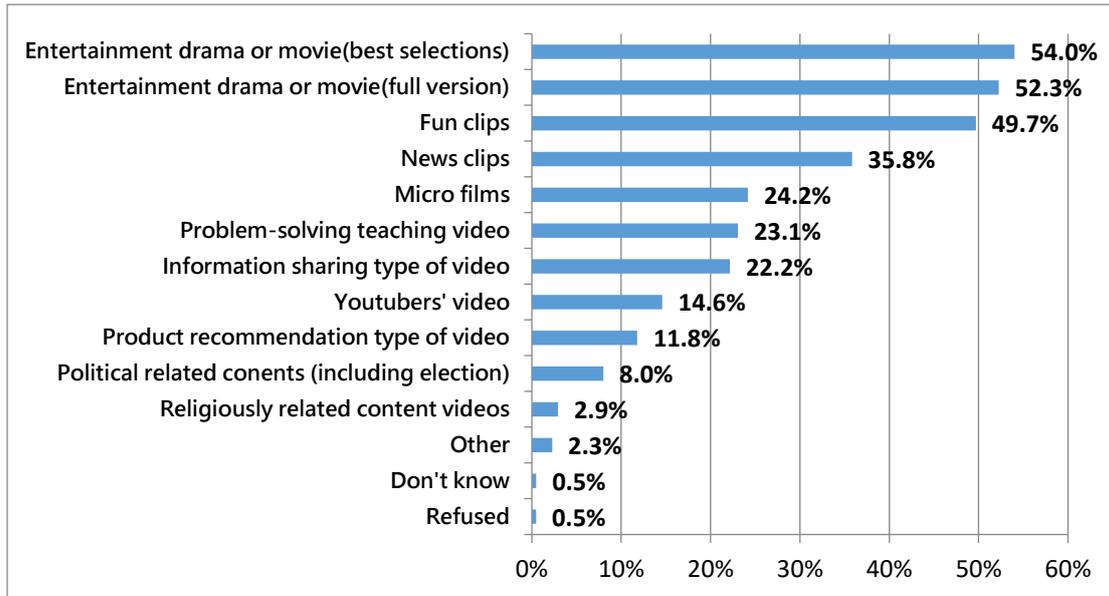


Figure 12 The Genres of Online Sharing Platforms (Top 10)

Base: N=769, multiple-choice (for those who watch online sharing platforms)

2. Comparative Analysis

(1) Analysis of regional differences

According to the result of the Chi-square, there is a significant difference among the residential areas.

According to region, the proportion of Taoyuan, Hsinchu and Miaoli and Kaohsiung, Pingtung and Penghu areas are higher than other regions. The former is 86.5%, and the latter is 86.0%. The people who live in Taipei City, New Taipei City and Keelung, Taoyuan, Hsinchu and Miaoli, Yunlin, Chiayi and Tainan prefer to watch entertainment dramas and movies (full versions). The rate of viewing for people who live Taoyuan, Hsinchu and Miaoli watching micro films is higher than other regions with 46.8%.

(2) Analysis of basic differences

There is a significant difference in age according to the Chi-square result when asking whether people view online sharing platforms.

According to gender, the proportion of men who have watched online sharing platforms is 72.4%, which is slightly higher than that of women, 71.4%. Men prefer to watch funny short films (53.2%) and women prefer to watch entertainment dramas or movies clips (56.0%).

According to age, the highest rate of viewing online sharing platforms is in the group of 26-35 (88.9%), and the lowest rate is 66 and above (27.4%). According to marital status, except for widows or the separated, the unmarried and married people have a higher proportion of viewing online sharing platforms, with 88.7% and 64.8% respectively.

(3) Analysis of differences in social and economic status

According to the result of the Chi-square test, there are significant differences in residential areas, education and occupations.

According to residential status, renters (79.1%) view online sharing platforms more than the homeowners (69.7%).

According to the degree of education, the highest proportion of people who have watched online sharing platforms content is master and above (98.5%). The university degree is 91.6%. The lowest ratio is 13.5% for primary and below.

According to occupation, professional/scientific and technical services, mining and earth-rock industry, finance and insurance, health care and social work services, electricity and gas supply are higher (more than 90%). The proportion of household management (42.0%) and retirement (30.9%) are lower.

Online Advertisement

1. Overall analysis

As to the attitude towards online advertisements, "As long as I am interested, I don't mind viewing" (37.9%) is the majority. The people who chose "I don't like online advertisements" showed 31.9%.

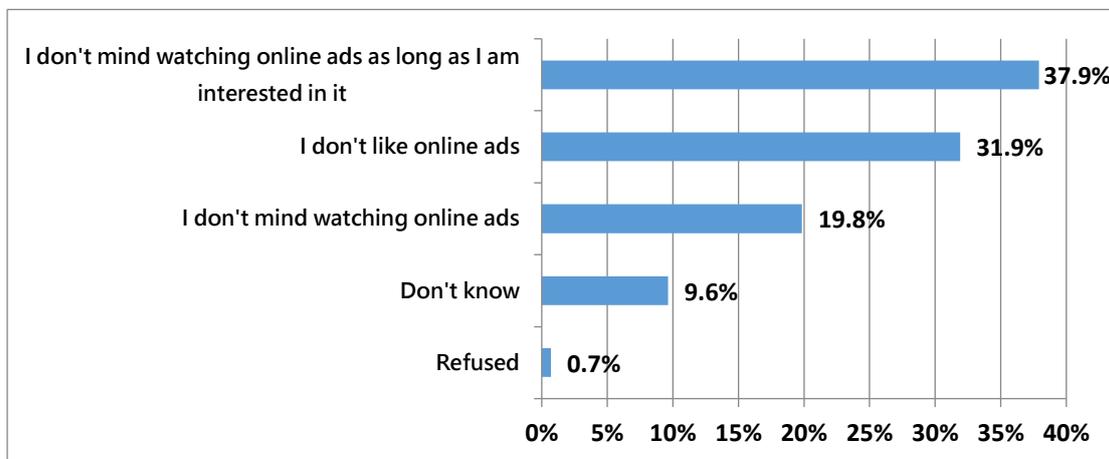


Figure 13 The Attitudes Towards Online Advertisements

Base: N=1,069

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, Kaohsiung, Pingtung and Penghu (53.2%) and Ilan, Hualien and Taitung (40.0%) chose "As long as I am interested, I don't mind viewing online advertisements". Taoyuan, Hsinchu and Miaoli choose "I don't mind viewing any kinds of online advertisements" as the highest (42.8%).

(2) Analysis of basic differences

By gender, men (34.8%) and women (40.9%) think of online advertising as "As

long as I am interested, I don't mind watching online advertising."

According to age, the group of 56-65 years old shows "I don't like online advertising" (37.3%), 66 years old and above say do not know (35.5%), and other age groups are "As long as I am interested, I don't mind to view online advertisements".

According to marital status, the majority of all marital status is "As long as I am interested, I do not mind watching online advertising."

Avoiding viewing online advertisements

1. Overall analysis

Regarding the approach to avoiding online advertisements, the highest rate is no approach taken (49.0%), and the second is not viewing or not allowed to transmit the information (36.9%) (Refer to Figure 14).

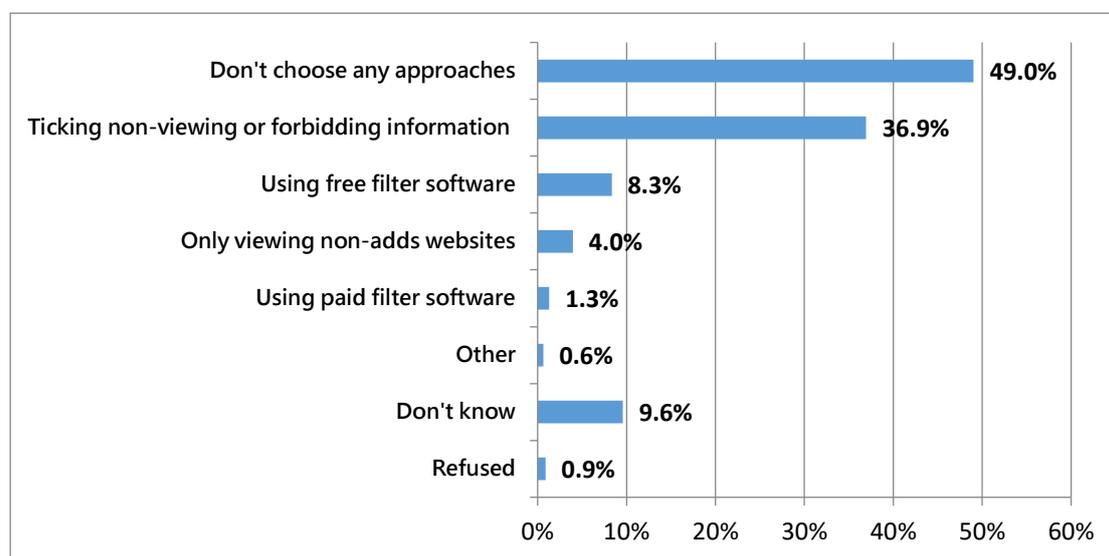


Figure 14 The Approach to Avoid Online Advertisements

Base: N=1,069, multiple-choice

2. Comparative Analysis

(1) Analysis of regional differences

The people who live in Taipei City, New Taipei City and Keelung, and in Taoyuan, Hsinchu and Miaoli not taking any approach to prevent online advertisements shows the highest. The rate of Taoyuan, Hsinchu and Miaoli is 71.1%. Taichung, Changhua and Nantou (45.9%), Yunlin, Chiayi and Tainan (40.9%) and Ilan, Hualien and Taitung (44.7%) choose no viewing or not allowed to transmit the information to avoid online advertisements.

(2) Analysis of basic differences

By gender, both men (51.4%) and women (46.7%) choose not to take any approach to prevent online advertising.

By age, 16-25 years old (43.4%), 26-35 years old (44.7%), and 36-45 years old

(52.2%) mainly selected to not watch or allow the information to be transmitted to avoid seeing online advertisements. People aged 46-55 (50.4%), 56-65 (60.4%), and 66 years old (59.1%) do not take any approach to prevent online advertisements as the majority.

According to the marital status, most unmarried people (48.7%) choose not to watch or allow the information to be transmitted to avoid online advertising. Married (54.7%), widowed or separated (52.0%) do not take any approach to prevent online advertisement.

F. Radio

Instant Broadcasts

1. Overall Analysis

The most well-known channel for listening to instant broadcast is via mobiles (55.9%). And the second is via computers with access to the Internet (24.9%).

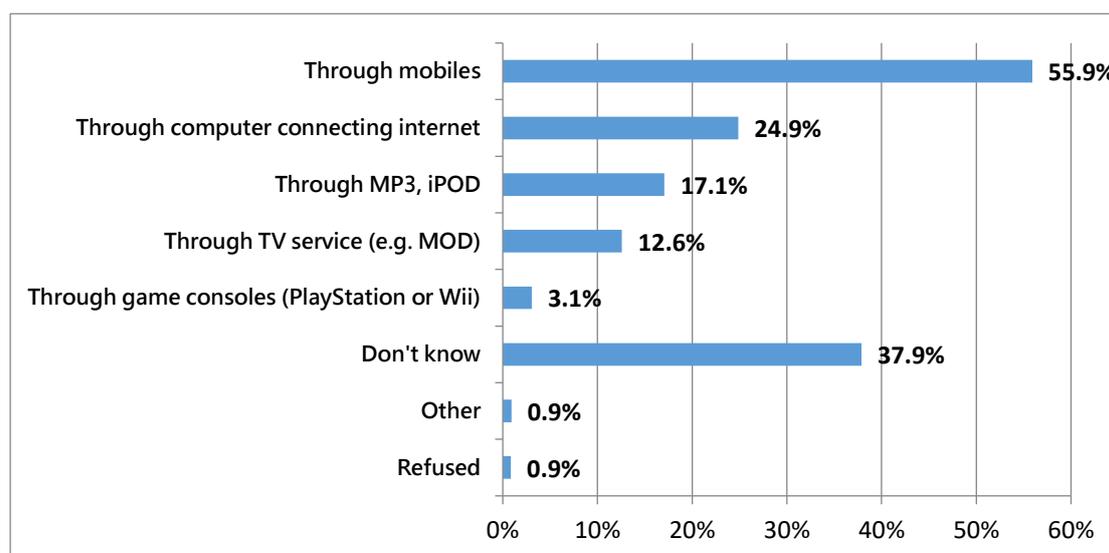


Figure 15 The Channels to Listen to Instant Broadcasts

Base: N=1,069, multiple-choice

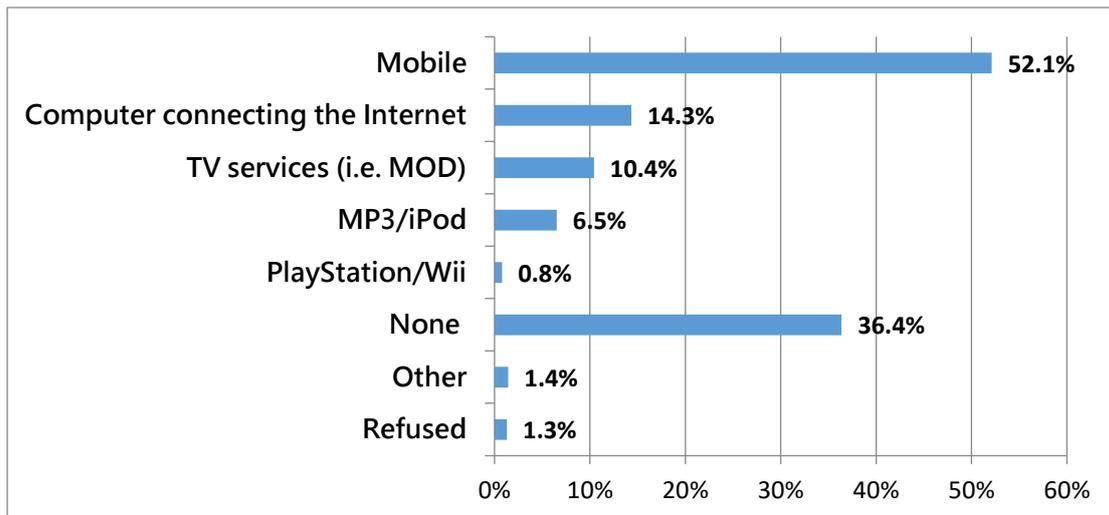


Figure 16 The Channel to Listen to Instant Broadcasts

Base: N=655, multiple-choice (for those who know how to receive instant broadcast)

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, except Taipei City, New Taipei City and Keelung choosing know nothing (48.2%), the other regions choose mobiles as the highest.

(2) Analysis of basic differences

By gender, men (56.4%) and women (55.5%) know that they can listen to instant broadcasts, mainly through mobile phones, and both of them most often listen to instant broadcasts via mobile phones.

According to age, except for the ages of 56-65 (50.5%), 66 years old and above (73.7%), in the other age groups do not know has the highest rate, the rest are via mobiles.

According to the marital status, unmarried people (66.2%) and married people (53.2%) know that they can listen to instant broadcasts, all of whom use mobile phones, and those who are widowed or separated (56.8%) do not know ratio is higher. Regarding the listening situation, all marital status show most often used to listen to instant broadcasts via mobile phones.

G. Apps via Mobiles

Apps via Mobiles

1. Overall Analysis

Over the past 12 months, the most commonly downloaded apps were free apps (77.9%), the second most common were mostly free apps (18.4%) (Refer to Figure 17).

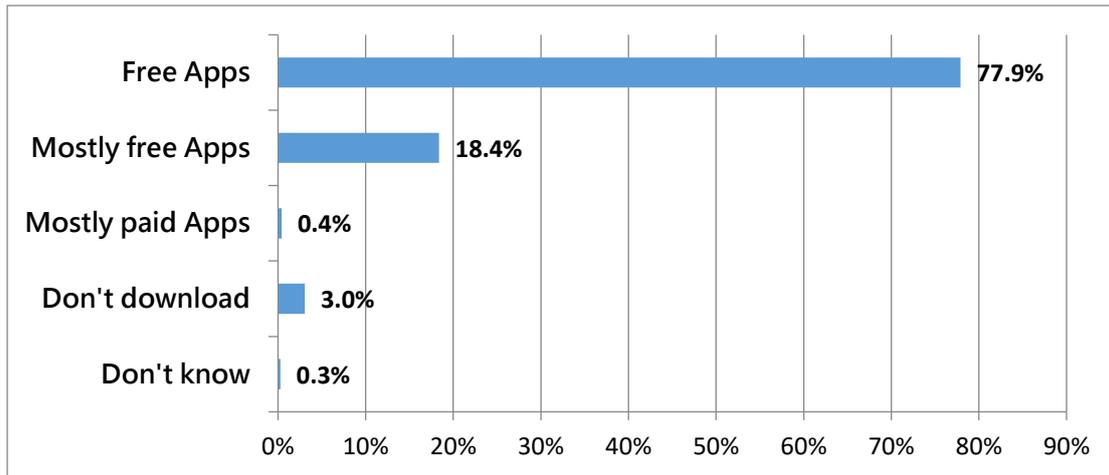


Figure 17 APPs Downloaded in the Last 12 Months

Base: N=777 (for those who know how to download the apps)

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, all the regions show downloading Apps provided for free as the highest. Taoyuan, Hsinchu and Miaoli (94.5%) is higher than other regions.

(2) Analysis of basic differences

According to gender, the results for downloading Apps in the last 12 months show male (76.4%) and female (79.4%), are all free apps.

According to age, the results for downloading Apps in the last 12 months is mainly free apps, and the main proportion is over 70%, among which people aged 66 and above are up to 94.9%.

According to marital status, the results for downloading Apps in the last 12 months show all marital status are mainly free Apps, of which the highest proportion is widows or separated persons, reaching 84.3%.

Mobile Apps

1. Overall Analysis

The highest rate of Apps use is games (28.3%), followed by social activities (21.5%) and entertainment (19.9%) (Refer to Figure 18).

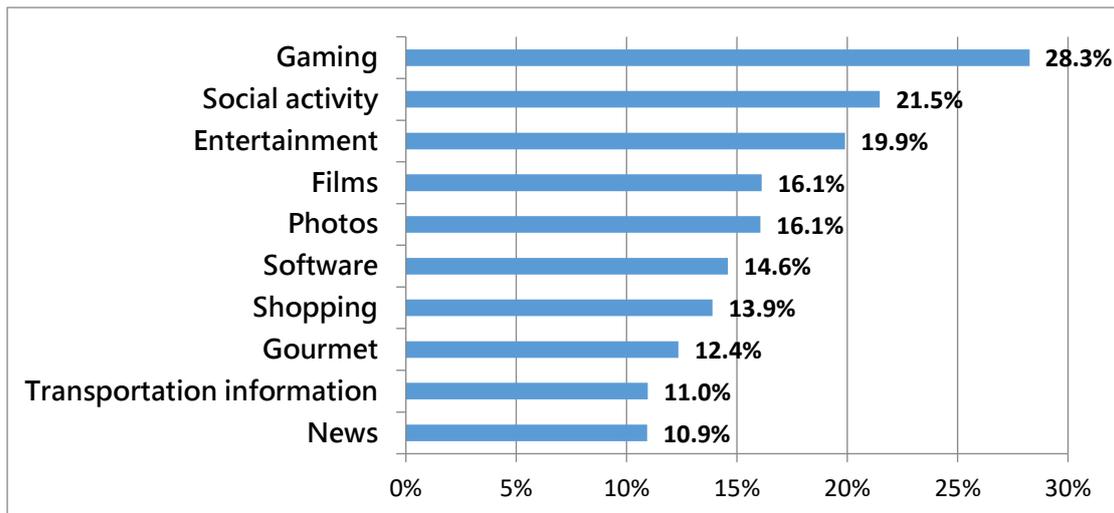


Figure 18 Mobile Apps (Top 10)

Base: N=742, multiple-choice (for those who know how to download apps)

2. Comparative Analysis

(1) Analysis of regional differences

Regarding regions, except for Taoyuan, Hsinchu and Miaoli with photo apps (44.7%), other regions are games.

(2) Analysis of basic differences

According to gender, male (31.6%) and female (24.9%) download games as the highest use.

According to age groups, 16-25 (37.6%), 26-35 (33.3%), 36-45 (29.7%) and 46-55 (22.5%) show downloading games as the highest. Ages 56-65 (25.6%) and 66 and above choose to download social activities.

According to marital status, unmarried people choose mainly games (38.0%), married people choose mainly social activities (22.6%), and widows or separated people choose mostly entertainment (26.7%).

H. The Behavior of Using Mobile Payment

Mobile Payment

1. Overall Analysis

17.2% of people in Taiwan use mobile payment (using mobile devices for payment), and 79.3% do not use this service (Refer to Figure 19).

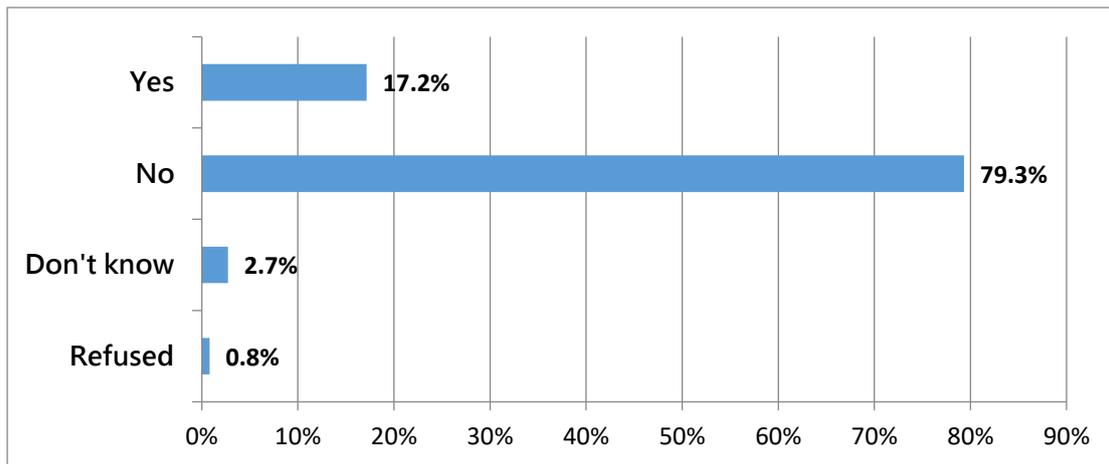


Figure 19 Mobile Payment

Base: N=1,069

2. Comparative Analysis

(1) Analysis of regional differences

According to the regional classification, the Kaohsiung, Pingtung and Penghu area has the highest proportion of mobile payments use, accounting for 21.5%, and the Ilan, Hualien and Taitung area has the lowest proportion of using action payments, accounting for 11.7%.

(2) Analysis of basic differences

According to gender, the proportion of men who use mobile payments is 18.5%, which is slightly higher than that of women (15.9%), and the proportion of those who do not use mobile payment is nearly 80% (men 79.1% and women 79.5%).

By age, 26-35 years old (29.9%) and 36-45 years old (29.0%) have a higher proportion of mobile payments use, and age 66 and above has the lowest proportion, only 0.8%.

According to marital status, unmarried persons have the highest proportion of using mobile payments, accounting for 25.3%, and widows or separated have the lowest proportion only 4.1%.

(3) Analysis of differences in social and economic status

According to the Chi-Square result, there are significant differences among the average monthly income, living status, education level and occupation.

According to the average monthly income of individuals, the proportion of mobile payments use in the group of earning than 60,000 NT dollars is the highest, reaching 40.3%, and the proportion of 10,000-under 20,000 NT dollars is lower (5.4%).

According to living conditions, the proportion of renters (24.8%) who use action payments is higher than that of homeowners (14.7%).

According to the degree of education, the proportion of people who use mobile payments increases with the level of education. The lowest proportion (0.0%) is used

in primary schools and below, and the proportion of people with universities (29.4%) and master's degree or above (29.6%) is higher.

According to occupational distinctions, publishing, audio-visual production, communication and communication services (61.6%) and professional, scientific and technical services (40.1%) have a higher proportion of using mobile payments-

Items of Using Mobile Payments

1. Overall Analysis

The services people use for mobile payment are mainly LINE Pay (39.6%), Apple Pay (19.4%), online credit card on mobile handset (17.5%) and JKOS Pay (13.9%) (Refer to Figure 20).

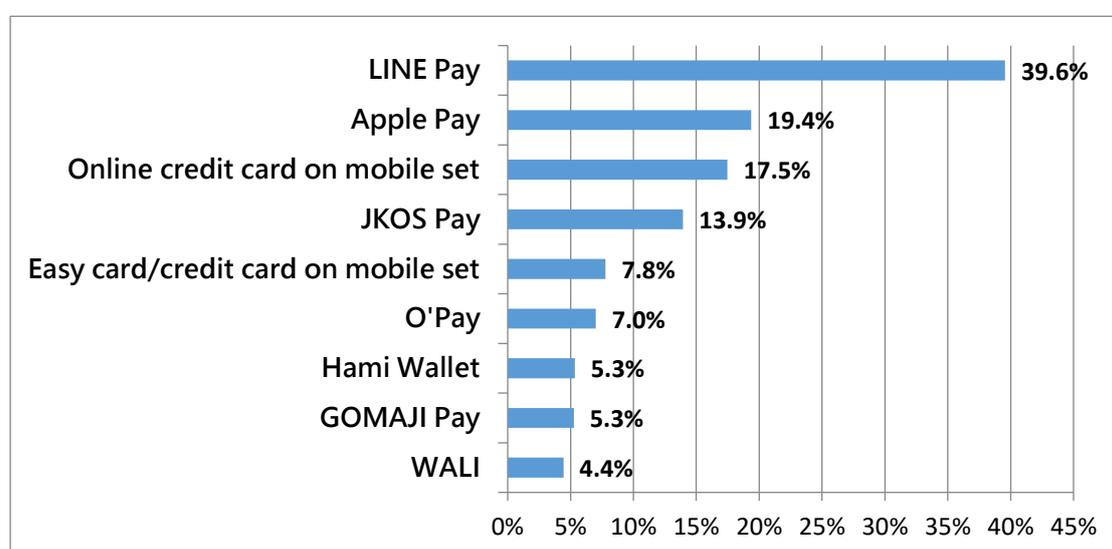


Figure 20 The Services of Mobile Payments (Top 10)

Base: N=183, multiple-choice (for those who use mobile payments)

2. Comparative Analysis

(1) Analysis of regional differences

Regarding regions, using Apple Pay in Ilan, Hualien and Taitung is higher than other areas (54.4%), and the rest of the regions are dominated by LINE Pay.

(2) Analysis of basic differences

By gender, both male (34.8%) and female (44.9%) use LINE Pay as the highest.

According to age, using Line Pay as the main service, are the groups of 16-25 years old (33.8%), 26-35 years old (45.6%), and 36-45 years old (56.0%). Apple Pay is mainly used for 46-55 years old (27.0%); for the group of 56-65 years old, the highest proportion (34.1%) is online credit card on mobile handset.

According to marital status, unmarried (43.5%) and married (35.5%) use Line Pay as their major service.

The Situation of Using Mobile Payments

1. Overall Analysis

The situations in which people use mobile payments are grocery (38.9%), line pictures (34.3%) and purchasing tickets (25.7%) respectively (Refer to Figure 21).

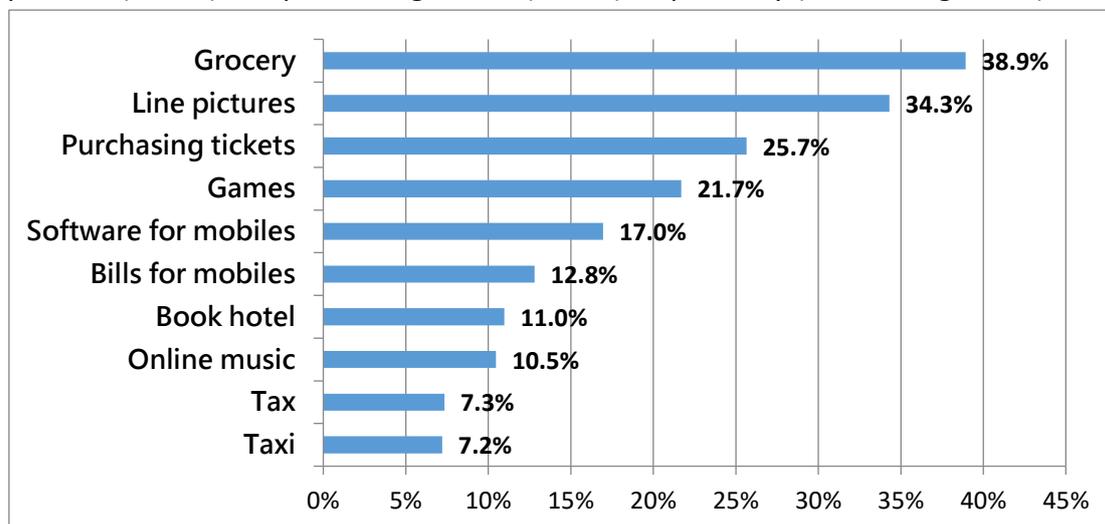


Figure 21 The Situation of Using Mobile Payments

Base: N=183, multiple-choice (for those who use mobile payments)

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, Taipei City, New Taipei City and Keelung (38.2%), Taoyuan, Hsinchu and Miaoli (41.1%) and Kaohsiung, Pingtung and Penghu (46.6%) areas are more likely to use action payment in the context of purchasing daily necessities, Taichung, Changhua and Nantou (43.7%) and Yunlin, Chiayi and Tainan (33.5%) use more commonly in purchasing LINE pictures, while Ilan, Hualien and Taitung more often use for ticket purchases (65.1%) More specifically, the Taoyuan, Hsinchu and Miaoli area is paying higher taxes than other areas.

(2) Analysis of basic differences

By gender, men (36.6%) and women (41.5%) use mobile payments in the context of purchasing household items rather than other purchasing.

According to age, 16-25 years old use mobile payment (49.6%) for purchasing Line pictures. People aged 46-55 use more often in the purchase of Line pictures or ticket purchase (31.5%). People of 26- 35-year-old (35.7%), 36-45 (54.9%), and 56-65 (42.0%) have a higher proportion of use in the context of purchasing household items.

According to marital status, unmarried people (39.4%) use mobile payment for purchasing Line pictures, and married people (37.9%) use more often for purchasing daily necessities.

The Reason for Using or Not Using Mobile Payments

1. Overall Analysis

The main reason people use mobile payment is for the convenience, accounting for 85.1% (Refer to Figure 22). The main reason for not using mobile payment is that they do not need to (43.7%) and are concerned about the insecurity (23.7%) (Refer to Figure 23).

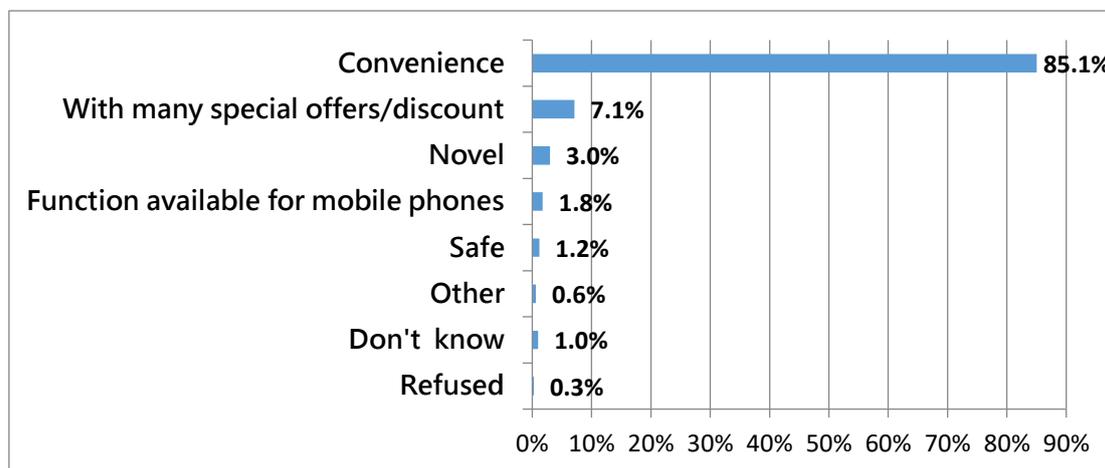


Figure 22 Main Reason for Using Mobile Payments

Base: N=183 (for those who use mobile payments)

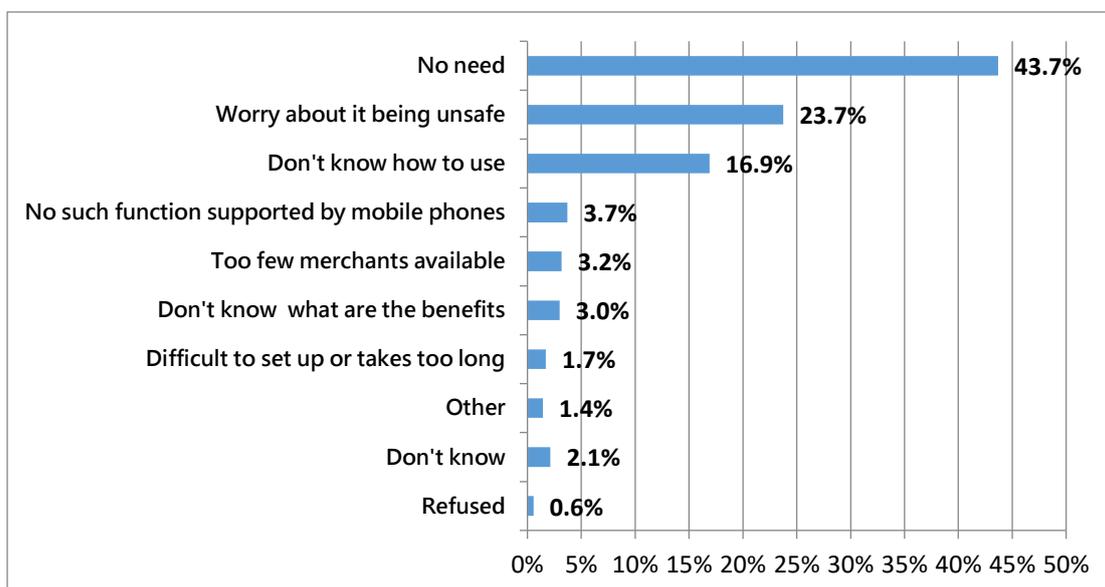


Figure 23 Main Reason for not Using Mobile Payments

Base: N=848 (not using mobile payments)

2. Comparative Analysis

(1) Analysis of regional differences

According to regions, the main reason for using mobile payments in each region are convenience, and the proportion is more than 70%. The main reason for not using

mobile payment in each region is that the majority of people do not think it is necessary.

(2) Analysis of basic differences

According to the Chi-square result, there is a significant difference in gender for the reason people do not use mobile payments.

According to gender, the main reason for the use of mobile payment by men and women is the convenience, with the proportions being 88.2% and 81.5% respectively. The main reason why men (44.8%) and women (42.6%) do not use mobile payments is there is no need for using it.

(3) Analysis of differences in social and economic status

According to the Chi-square result, there is a significant difference in living conditions when asking why people do not use mobile payments.

According to the living conditions, the main reason why renters (51.8%) and the homeowners (41.2%) did not use action payments was that the majority did not need to.

The Importance of Mobile Payments

1. Overall Analysis

Regarding the importance of mobile payments, the proportion of people who feel it is important (important and very important accounted together) is 62.6%, and the proportion for whom it is not important (less important and least important accounted together) is 35.5% (Refer to Figure 24).

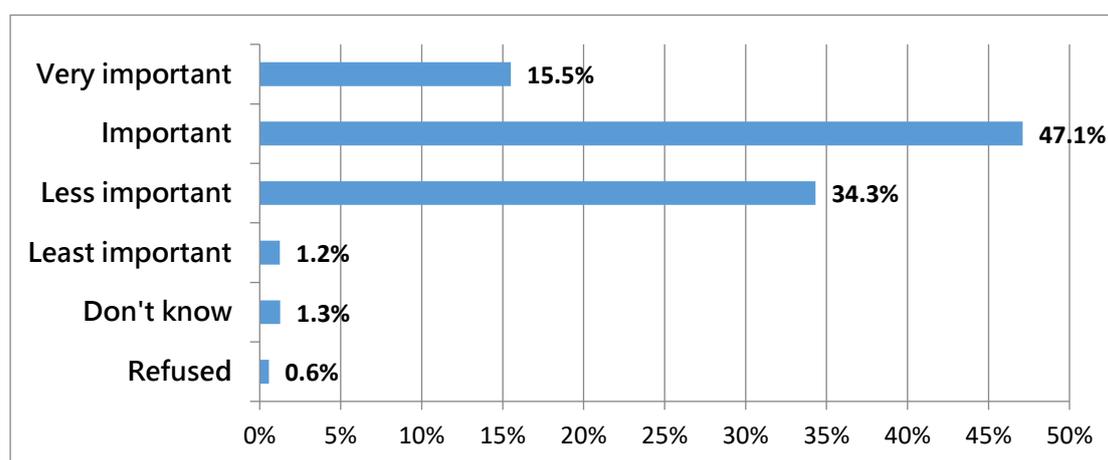


Figure 24 The Importance of Mobile Payments

Base: N=183 (for those who use mobile payments)

2. Comparative Analysis

(1) Analysis of regional differences

By region, except for the higher proportion (47.7%) that Yunlin, Chiayi and Tainan felt that mobile payments are not important (less important and least important

accounted together), the rest of the regions agree mobile payments are important (very important and important accounted together).

(2) Analysis of basic differences

By gender, men (61.8%) and women (63.5%) mostly agree that mobile payments are important.

According to age, except for the 56-65-year-old people who agree mobile payments are not important (52.8%), the rest of the age groups agree that mobile payments are important.

According to marital status, most marital status consider mobile payments important.

I. Receiving News Information

The Channels to Receive News Information

1. Overall Analysis

As to the news channels for people to receive news information, the highest proportion is TV (59.1%). The second rank is online community website/App (15.2%). Others are less than 10% (Refer to Figure 25).

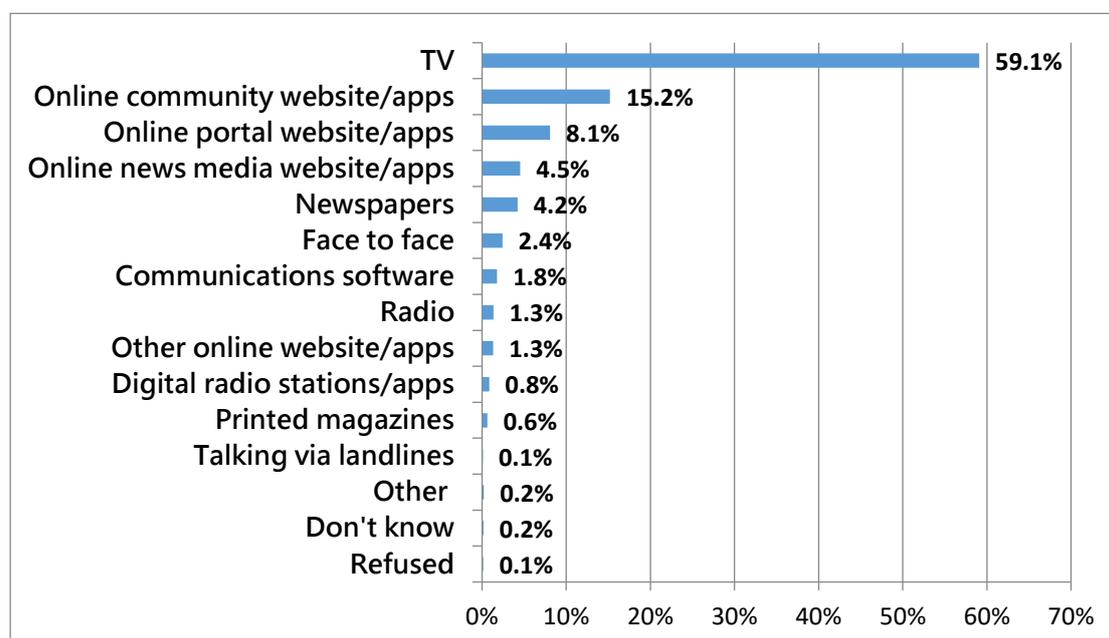


Figure 25 The Channels to Receive News Information

Base: N=1,040 (for those who receive news)

2. Comparative Analysis

(1) Analysis of regional differences

By region, the main channels for news information in each region are TV-based,

with a ratio of 50% to 70%. Secondly, through online community websites, the ratio is between 10% and 20

(2) Analysis of basic differences

According to gender, the main channels for men and women to receive news information are TV, accounting for 58.8% and 59.4% respectively.

According to age, for all age groups, the channels for news information is TV, and the proportion increases with age. The proportion of people aged 16-25 is the lowest, accounting for 38.8%, and the proportion of people aged 66 and above is the highest, reaching 87.1%.

According to the marital status, for all marital status, the channels for obtaining news and information are mainly televisions, with the highest proportion for widows or separated persons reaching 78.7%.

The Accuracy of News

1. Overall Analysis

51.2% of people believe that the most accurate source of news is TV, followed by printed newspapers (7.0%) and online news media websites/apps (6.7%) (Refer to Figure 26).

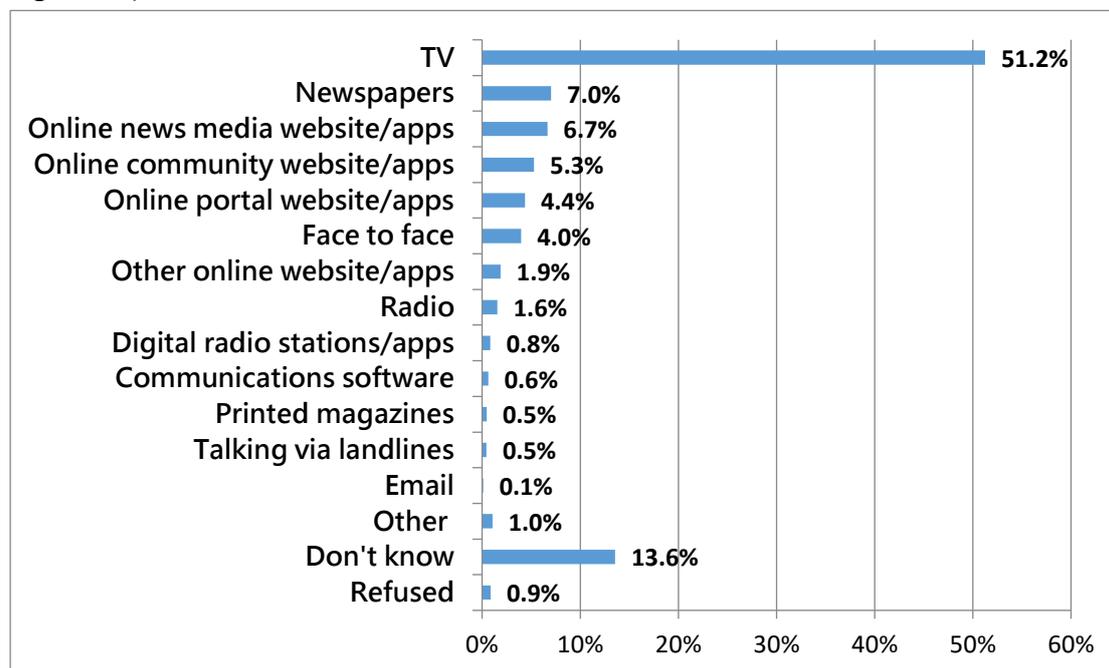


Figure 26 Accuracy of News

Base: N=1,069

2. Comparative Analysis

(1) Analysis of regional differences

By region, the most accurate sources of news in each region are in the highest proportion with TV (between 45% and 60%), and the other sources being less than

10%.

(2) Analysis of basic differences

By gender, men (48.6%) and women (53.8%) believe that the most accurate source of news is television.

According to age, the most accurate source of news for all age groups is television. Among them, the proportion of people aged 66 and over is the highest (70.6%), and the proportion of people aged 16-25 and 26-35 is the lowest (37.7%).

According to marital status, the most accurate source of news for all marital status is television, with the highest proportion for widows or separated persons, reaching 72.1%.

The Impartiality of Receiving News

1. Overall Analysis

Regarding the impartiality of the news for television, 89.9% of people believe it is very important or important while 4.2% of people claimed it was not important or least important; for newspapers, 87.9% of people believe it is very important or important while 4.7% of people claimed it was not important or least important; for radio, 84.9% of people believe it is very important or important while 6.3% of people claimed it was not important or least important; for printed magazines, 83.6% of people believe it is very important or important while 7.7% of people claimed it was not important or least important (Refer to Table 8).

Table 8 Importance of Impartiality of News Sources

News Sources	Impartiality of News Sources					
	Very important	Important	Total	Not important	Least important	Total
TV	66.0%	23.9%	89.9%	3.5%	0.8%	4.2%
Newspapers	61.2%	26.7%	87.9%	3.7%	1.1%	4.7%
Radios	57.4%	27.5%	84.9%	5.6%	0.7%	6.3%
Printed magazines	52.0%	31.6%	83.6%	6.3%	1.4%	7.7%
Online news media websites/apps	51.9%	30.6%	82.5%	4.7%	0.8%	5.4%
Digital radio stations/apps	50.0%	31.3%	81.8%	5.5%	0.6%	6.1%
Online portal websites/apps	48.8%	32.9%	81.3%	5.4%	1.1%	6.5%
Online community websites/apps	48.0%	32.0%	79.9%	6.3%	1.2%	7.6%
Other online websites/apps	45.2%	31.6%	76.8%	8.1%	1.4%	9.5%
Communications software	42.3%	34.0%	76.2%	8.8%	2.1%	10.9%
Face to face	38.8%	34.1%	72.9%	13.0%	4.6%	17.5%
Email	34.7%	33.0%	67.6%	12.9%	3.0%	15.9%
Talking via landlines	30.2%	36.9%	67%	16.3%	4.4%	20.7%

Source: this research

N=1,069

2. Comparative Analysis

(1) Analysis of regional differences

According to the results of the Chi-square test, there are significant differences among the residential areas when asking the importance of the impartiality of news sources coming from face to face, talking via landlines and e-mail.

By region, each region regards the impartiality of news sources on TV as important. The highest percentage is 96.2% of Taoyuan, Hsinchu, and Miaoli and the lowest proportion is 78.6% of Yunlin, Chiayi, and Tainan. Each region regards the impartiality of news sources on Radio as important. The highest percentage is 92.6% of Taoyuan, Hsinchu, and Miaoli and 92.7% Kaohsiung, Pingtung, and Penghu. The lowest percentage is 75.4% of Yunlin, Chiayi, and Tainan. Each region regards the impartiality

of news sources on printed magazines as important. The highest proportion is 97.7% of Taoyuan, Hsinchu, and Miaoli. The lowest proportion is 74.6% of Yunlin, Chiayi, and Tainan.

(2) Analysis of basic differences

According to the results of the Chi-square test, there are significant differences in gender when asking the importance of the impartiality of news sources coming from face to face, communications software, and email. The importance of the impartiality of news sources coming from talking via landlines has significant differences in gender and age.

By gender, women present a higher proportion than men regarding the importance of the impartiality of news sources coming from face to face, talking via landlines, communications software, and email.

By age, all ages think it is important that news sources are impartial coming from talking via landlines, but those people over 66 years old apparently present a higher proportion of 'don't know' or 'no opinion' responses.

(3) Analysis of differences in social and economic status

According to the result of the Chi-square test, there are significant findings when asking the importance of the impartiality of news sources coming from face to face and talking via landlines. The importance of the impartiality of news sources coming from email has significant differences according to living conditions and educations.

By living conditions, homeowners (69.1%) are slightly higher than the renters (66.1%) for those who think it is crucial that there is impartiality of news sources coming from email.

According to the degree of education's effect on people's opinions about the impartiality of news sources coming from face to face interactions, the proportion of people who think it is important is highest among junior college students, reaching 82.6%. At masters level, the proportion of people think it is not important is apparently higher than other levels of education, reaching 46.3%. Furthermore, the education level below primary school who don't know or have no opinion is clearly higher than other levels. Each level of education that thinks the impartiality of news sources coming from talking via landlines is important is in the majority. Above masters level, those who think it is important and those who don't present a similar proportion which is 48.4% and 48.2% respectively.

When it comes to the impartiality of news sources coming from email, except people above masters level, the proportion of people that think it is important increases along with the education level. The primary level has only 31%, masters level has 56.9% and university level reaches 80.7%. Furthermore, the proportion of the level below primary school who answer "don't know" or have no opinion is apparently

higher than other levels.