

## Internet Usage from a Generational Perspective

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This study investigated Internet usage from a generational perspective. A survey was conducted among 176 Internet users from the four regions in the Philippines. Cluster analysis of age and Internet usage revealed two groups – digital natives and digital immigrants. These groups significantly differed in 16 areas of Internet usage: utilizing search engine, playing games, visiting pornographic sites, listening to the radio, viewing videos or movies, downloading media (music, movies, TV shows), downloading software, participating in online communication/e-groups, using social networking sites (e.g., Friendster, Facebook, etc.), writing and posting online journal (blog), sharing personal files, artwork, photos and videos, creating and maintaining own website, reading website or blogs of others, posting comments on other's website, contributing information to websites like Wikipedia, and spreading photos or videos of others without their permission. Digital natives scored higher than digital immigrants in all 16 areas.

*Keywords:* Internet usage, digital natives, digital immigrants, generational cohort theory

Computer-based communication was introduced during the 1980s and by 1993, the Internet and various other types of computing technology had become an inherent part of people's life (McMillan & Morrison, 2006). One can categorize people into different generations based on their experience of similar life events, values, beliefs,

attitudes, emotions, and personalities (Farr-Wharton, Brunetto, & Shacklock, 2011; Parry & Urwin, 2011). This paper examines Internet usage from the lens of generational cohort theory. We suggest that exposure to and usage of computing and Internet technology are some of the factors that distinguish one generation from the other. We also seek to examine the classifications of Filipino Internet users based on their age and Internet usage behaviors.

### **Generational Cohort Theory**

The concept of generations was first discussed by Karl Mannheim (1952) who defined generations as individuals who participate in common experiences and share “an identity of responses. A certain affinity in the way in which all move with and are formed by their common experiences” (p. 306). Schuman and Scott (1989) suggested that significant events during adolescence and young adulthood form a collective memory of those events that affect future attitudes, preferences, and behaviors of people belonging to the same age group. Building on Mannheim’s work, generations have been defined as “a cohort of persons passing through time that come to share a common habitus, hexis and culture, a function of which is to provide them with a collective memory that serves to integrate the cohort over a finite period of time” (Eyerman & Turner, 1998, p. 93). The generation cohort theory defines generation as members who share similar historical and societal dimensions (McMullin, Comeau, & Jovic, 2007). It postulates that the individuals who were born in a particular historical time, experienced similar historical socio-political events (historical consciousness), and came of age around at the same time will share similar attitudes, behaviors, and values systems (Carpenter, Moore, Doherty, & Alexander, 2012).

The objective experience of being born in a time frame alone does not permit one to be a part of a generation. The individual must also have gone through similar subjective experiences of historical consciousness. Thus, the two components that define a generation are “the objective consideration of generational location and the subjective experience of historical consciousness” (McMullin et al., 2007, p. 300). Moreover, these events and experiences must happen between

early adolescence and youth as this is the phase for development of generational identity and generational consciousness. Identity formation occurs when adolescents encounter the accumulated heritage afresh and evolve their own responses based on the socio-political context of their time. It is also in this phase that one develops generational consciousness where one learns certain ways of thinking, feeling, and behaving that one shares collectively with others who were born in the same time frame (McMullin et al., 2007). Because they have similar life journeys, these individuals tend to share similar motivation for behaviors that differ from others who do not belong to the same cohort (De Run & Ting, 2013).

Generations have been described and labelled in different ways based on the time frame. Those who are born in the years 1920-1945 are called matures (Yost, 2008), veterans (Hannay & Fretwell, 2011), and silent generation or traditionalists (Schullery, 2013). Those born in the years 1946-1964 are known as baby boomers. Those born in the years 1965-1979 are called Generation X (Yost, 2008) or GenX (Schullery, 2013). Those born in the years 1980-2000 are Generation Y (Yost, 2008) or Millennials (Schullery, 2013). However, there is lack of definitive consensus on the actual dates that apply to these generations (Parry & Urwin, 2011).

The critical life events that took place during the time of veterans were “Depression, WWII, the New Deal, families, the rise of labor unions, and patriotism”; the baby boomers experienced “suburbia, Vietnam, assassinations, the Cold War, the Civil Rights Movement, Women’s Liberation and the Space Race”; the events that took place during the time of Generation X were “Watergate, latchkey kids, single-parent homes, stagflation, MTV, AIDS,...the Challenger, the Fall of the Berlin Wall, the Persian Gulf War, Glasnost and Perestroika”; and Generation Y is defined by events such as “schoolyard violence, the Oklahoma City bombing, multiculturalism and TV talk shows” (Hannay & Fretwell, 2011, p. 2). The experiences pertaining to these life events remain as collective memories in the minds of each generation and these affect their thoughts and behavior (Carpenter et al., 2012).

## **Technology and Generations**

McMullin et al. (2007), in their qualitative research, expanded the generational cohort theory by introducing computing technology as a determinant of generational formation and identity. They argued that the advent and development of technology namely, mainframe, PCs, online services, and web facilities are critical events that shaped generations. They contended that when a new technology emerges, the old actors in the society do not attempt to embrace the new technology; rather, the new technology is embraced by a set of new actors who use and disseminate the technology. They divided the generations into five based on their exposure to the computing technology at that time: a) the Pre-ATARI Generation (born before 1955) who came of age before the widespread emergence of computing technology; b) the ATARI Generation (1955-1963) who came of age when Atari home videos and PCs were becoming common; c) the Console Generation (1964-1973) who came of age when Apple MacIntosh and Windows 3.0 were common; the Windows Generation (1974-1978) who came of age when Microsoft Office, Adobe PDFs, and emails were common; and the Internet Generation (born after 1978) who came of age when Netscape, Yahoo, Google, Windows XP, and iPods were common.

## **Internet Usage and Generations**

Beyond computing technologies, the Internet has become an important marker of generations (Kennedy et al., 2008). However, Internet use has evolved with technology. In Web 1.0, people were more like consumers of the content that was available in the web and there were very few content creators. Initially, people used the Internet to watch entertainment programs namely music, television, movie, and news (Ferguson & Perse, 2000). Later, they started using the Internet to gather information on various issues and topics. In early 2004, Web 2.0, otherwise known as user-generated content where users share opinions, ideas, and other materials, was introduced. Web 2.0 enabled collective intelligence where users can create their own content, interact with others, and enhance sociability. The user became both the customer and the contributor. This platform gave

rise to various forms of interactions. These include social networking sites (e.g., Facebook), blogs (online diaries where people make instant broadcast), micro-blog (broadcasting small amount of content; e.g., Twitter), content-sharing sites (to create and share contents; e.g., YouTube), Wikis (people collaborate and work on the content; e.g., Wikipedia), social bookmarking sites (to identify websites based on the interest; e.g., stumbleUpon), podcast (to access video files), and forums (issue-based interaction) (Kocak & Oyman, 2012). Although some researchers suggest that all Internet users can be grouped under one umbrella as Internet generation (McMullin et al., 2007), other researchers have come up with different classifications.

There have also been comparative studies between generations regarding particular forms of Internet usage. Miller and Washington (2013), on their study on consumer behavior, made a generational comparison of Internet usage of different generations. They stated that Generation Y members have more access to browsing, Internet surfing, and social networking compared to those from Generation X. However, members of Generation X have higher use of email compared to Generation Y and baby boomers. They found that baby boomers were more into online purchasing, followed by Generation X. The veterans scored low in the abovementioned internet usages.

Another study on social media usage divided respondents into five groups based on their age: 15-24, 25-34, 35-44, 45-54, and 55-69. The results showed that social networking sites were accessed frequently by all age groups, followed by video sharing. Social bookmarking, podcasting, and professional networking were the least used social media platform. People who belonged to the age group 55-69 accessed professional networking sites more than those in the 35-44 age group. Those in the age group 15-24 used video sharing the highest and the usage decreased by age. Similarly, in all other activities pertaining to social media (social networking sites, blogs, microblog, content sharing sites, Wikis, social bookmarking sites, podcast, and forums), youngsters had greater access than older people (Kocak & Oyman, 2012).

Prensky (2001) studied generational differences from the perspective of computing technology and education. He suggested that one can basically divide the population into two groups – digital

immigrants and digital natives. Digital natives are those born during the Internet age and digital immigrants are those who witnessed the emergence of the Internet and who adapted themselves to the Internet age.

There has been mixed support for these classifications. On one hand, a study comparing the use of technology among digital natives and digital immigrants suggested that there is significant difference in a few Internet-related activities. The researchers came up with eight different usages of technology, six of which are related to the Internet. Of the six Internet usages, digital natives and digital immigrants had a significant difference in three. Digital natives scored higher than immigrants on advanced mobile use, standard web and music, and gaming. Advanced mobile use involves using mobile phones to send pictures, listen to music, access information on the web, make video calls, take digital photos and movies, receive email, and use it as a personal organiser. Standard web and music comprises of usage of web for browsing, study, past-time, email, portal course, listening to sound recording and digital music files, and downloading and sharing MP3 files. Gaming involves using a computer, console, or the Internet to play games. No significant difference was found between generations with regard to advanced technology use which includes web conferencing calls, contributing to Wiki, podcast, reading RSS feeds, social bookmarking software on the web, and handling computer as a personal organizer; social web publishing that comprises reading and writing blogs, social networking, and building and maintaining website; and web-based services that involve using web for buying, selling, and other services (Kennedy et al., 2008).

On the other hand, Boshier and Huang (2010) analyzed generational differences between parents and children in relation to their Internet knowledge and found no overall difference between parents and children in terms of Internet knowledge. However, parents were more knowledgeable than children in English-speaking families and the results were reversed in Cantonese-speaking families. In their qualitative study, McMillan and Morrison (2006) analyzed the role of the Internet in the lives of the young and they found that differences in generations may be perceptual; youngsters feel that there is generational difference among the older and younger family

members. They see themselves and their younger siblings as more technologically adept compared with their elders.

### **Internet Usage in the Philippines**

Internet uses and needs are culturally-bound. Although there are those who contend that technology is an equalizer, there is a difference when it comes to access and exposure to technology. In fact, when the Internet was first introduced to the Philippines in 1994, the number of Internet users comprised only 0.005% of the total population. In 2009, only 9% of the population had access to Internet (Labucay, 2011). Most recent estimates show a dramatic increase in Internet usage and current projections put Internet penetration at 35% (Comscore, 2013).

Despite the increase, Internet adoption is still much lower compared to developed countries such as the United States that had 79 million users in 1998 (Ferguson & Perse, 2000) and by 2009 had an Internet penetration rate of 93% in teens and 74% in adults (Lenhart, Purcell, Smith, & Zickuhr, 2010). Those in developing countries were introduced to the Internet at a much later stage when compared to their western counterparts. The resource constraints of developing countries may be the reason behind the tardiness in technology adoption. Hence, a study on generational usage of the Internet from the perspective of a developing country would help one to develop a contextually-nuanced understanding of Internet use.

Today, the Philippines has the fastest growing Internet population in Southeast Asia. The rise is attributed to social networking that owns the largest share of personal computing time (Comscore, 2013). Research on Internet usage among Filipinos suggest that 89% use the Internet primarily for social networking, followed by sharing of photos and videos (44%), watching news and current events (40%), getting general health information (37%), playing games (37%), and procuring information on specific health topics (28%). It also suggests that the vast majority of users fall between the age of 18 and 24 and those above 55 have minimal usage (2%) (Labucay, 2011).

This study builds on a previous study on Internet usage in the Philippines that found Filipinos use the Internet in seven ways: expression and interaction (blogging, owning a website, reading

others' websites or blogs, sharing files such as pictures), school-related activities (downloading e-books, software, and materials, e-groups), recreation (movies, playing games, radio), news and information (reading news, sports, entertainment), e-commerce (buying, selling, E-bay), basic Internet use (email, chatting, utilizing search engines), and technology deviance (hacking, spreading a virus or wrong information, etc.) (Hechanova & Ortega-Go, 2014). However, the study reports general findings and did not examine Internet use from the lens of generations.

### **Research Problem**

Most of the research on Internet and generations have emanated from developed countries. In addition, there is inconsistent evidence in the classifications of generations with respect to Internet use. To bridge these gaps, this research examines Internet usage from the lens of the generational cohort theory. Specifically, it asks:

- 1) Are there generational differences with respect to Internet usage? and
- 2) What usages differentiate the generations?

### **METHOD**

This study explored the generational usage of Internet using the survey method. It attempted to understand the digital divide regarding Internet usage and the pattern behind the different groups.

### **Sampling**

The sample was drawn from 176 participants from four major regions namely, Luzon, Visayas, Mindanao, and National Capital Region. A combination of cluster and quota sampling approaches was employed to gather data from the respondents. Cities were first selected to represent the regions using cluster sampling. Once the cities were chosen, quota sampling was used with the criteria that respondents needed to be Internet users. Ten percent of the respondents were from San Jose Del Monte, Bulacan representing the Luzon region, 10%

were from Cebu City representing the Visayas region, 50% from Davao City representing the Mindanao region, and 31% from Quezon City representing the National Capital Region (NCR). The participants' age ranged from 13 to 61, and 39.2% of them were male and 61% of them were female. Among the participants, 46% were employed, 14% were unemployed, and 34% were students.

### **Measures**

*Internet usage.* A survey constructed by Hechanova and Ortega-Go (2014) to measure Internet usage was used. It listed 31 different usages of Internet and the participants were asked to score based on their frequency of the specific usage. Email, instant messaging, electronic banking, utilizing search engine, reading news or current events, reading entertainment sites, reading sports-related sites, selling goods online, buying goods online, e-learning, playing games, gambling, visiting pornographic sites, listening to the radio, viewing videos or movies (i.e., Youtube), downloading media (music, movies, TV shows), downloading e-books, magazines, comics, downloading software, downloading materials and pass it off as my own, participating in online communication/e-groups, using social networking sites (Friendster, Facebook, etc), writing and posting online journal (blog), sharing personal files, artwork, photos and videos, creating and maintaining own website, reading website or blogs of others, posting comments on other's website, contributing information to websites like Wikipedia, disseminating wrong information, spreading photos or videos of others without their permission, spreading a virus, and hacking websites were measured. It is a 31-item, 7-point Likert scale where possible responses ranged from 1 to 7 (1-never, 2-once a month or less, 3-every few weeks, 4-one to two days a week, 5-three to five days a week, 6-once a day, and 7-several times a day). The highest possible score is 217 and the lowest possible score is 31. Cronbach's alpha for the 31-item internet usage scale was .92.

### **Data Analysis**

Cluster analysis was used to identify clusters pertaining to different

Internet usages taking into consideration the age of the participants. Specifically, hierarchical cluster analysis was performed to determine the number of clusters existing in Internet usage on the full sample of 176 participants. The age and various Internet usages were included in the analysis to identify the number of clusters. K-means cluster analysis was used to confirm the existence of the clusters. One-way ANOVA was used to identify the Internet usages that were significantly different among groups.

## **RESULTS**

Cluster analysis was used to identify and confirm the number of clusters involved in internet usage. It was comprised of a two-step analysis. Initially, the number of clusters was identified using hierarchical cluster analysis and then the number of clusters was confirmed using k-means cluster analysis.

### **Identification of Generations**

Hierarchical cluster analysis is used to determine the number of clusters when there is no a priori theory. As suggested by Hair, Anderson, Tatham, and Black (1998), clusters can be identified by examining the differences in similarity measures between each cluster. When the similarity measure makes a sudden jump, the prior cluster solution is chosen on the logic that its combination caused a substantial decrease in similarity. The analysis suggested the existence of two main clusters. The results showed two clusters with 108 participants in cluster one and 68 participants in cluster two.

### **Confirmation and Characteristics of Generations**

K-means or nonheirarchical cluster analysis was used to confirm the existence of the clusters. For Cluster One, the mean age of participants was 22.94 (SD = 5.67) and for Cluster Two, 45.90 (SD = 7.16). The age groups affirm the existence of two groups among Internet users namely, digital natives and digital immigrants. The two clusters that emerged are displayed in Table 1.

Table 1. Results of Cluster Analysis

	Cluster	
	1	2
Age	23.00	46.00
Email	3.92	4.20
Chat	3.96	3.75
Ebanking	1.29	1.53
Search	2.84	2.15
News	3.21	3.07
Entertainment	3.17	2.78
Sports	2.49	2.31
Selling online	1.34	1.22
Buying online	1.32	1.34
Elearning	2.45	2.12
Play games	2.80	2.21
Gambling	1.21	1.13
Pornography	1.55	1.24
Radio	2.76	2.13
Movies	3.60	2.29
Media	3.06	2.04
Books	2.09	1.88
Download Software	1.97	1.59
Plagiarizing	1.92	1.57
Egroup	2.82	2.01
Social network	4.04	2.49
Blogging	2.49	1.53
Sharing files	2.89	1.59
Own a Web	1.74	1.24
Read Blog	2.65	1.60
Posting	2.79	1.63
Inform	1.79	1.21
Pass wrong information	1.17	1.06
Spread Information	1.23	1.03
Spreading Virus	1.02	1.00
Hacking	1.01	1.00

A one-way ANOVA revealed that the two identified clusters significantly differed in 16 types of Internet usage. There is a significant difference between digital natives and digital immigrants in the following areas: utilizing search engine, playing games, visiting pornographic sites, listening to the radio, viewing videos or movies (i.e., Youtube), downloading media (music, movies, TV shows), downloading software, participating in online communication/e-groups, using social networking sites (Friendster, Facebook, etc.), writing and posting online journal (blog), sharing personal files, artwork, photos and videos, creating and maintaining own website, reading website or blogs of others, posting comments on other's website, contributing information to websites like Wikipedia, and spreading photos or videos of others without their permission. The Internet usages where the two generations were significantly different in are given in Table 2.

No significant difference between digital natives and digital immigrants was found in the following areas: email, instant messaging, electronic banking, reading news or current events, reading entertainment sites, reading sports-related sites, selling goods online, buying goods online, e-learning, gambling, downloading e-books, magazines, comics, downloading materials and pass it off as my own, disseminating wrong information, spreading a virus, and hacking websites.

## DISCUSSION

The generational cohort theory suggests that people can be grouped based on similar life experiences or events that shape attitudes, preferences, and behaviors (Schuman & Scott, 1989). In the case of this research, these life experience or events are described in the context of information technology, specifically the Internet. Unlike the previous taxonomy of generations (Gen Y, Gen X, Baby Boomers) that was based on historical, economic, and socio-cultural trends, the results reveal only two generational cohorts. It validates previous taxonomies used in the West that differentiate digital natives and digital immigrants (Kennedy et al., 2008; Prenzy, 2001).

The results of this study are nearest to that of Kennedy et al. (2008)

Table 2. Internet Usage With Significant Difference Between Digital Natives and Digital Immigrants

Internet Usage	D. Natives		D. Immigrants		F
	M	SD	M	SD	
Utilize search engine	2.84	2.09	2.15	1.70	5.30*
Play games	2.80	1.84	2.21	1.90	4.29*
Visiting pornography	1.55	0.91	1.24	0.55	6.67*
Listen to radio	2.76	1.81	2.13	1.50	5.69*
Viewing videos or movies	3.60	1.91	2.29	1.63	21.67*
Download media	3.06	1.90	2.04	1.40	14.61*
Download software	1.97	1.36	1.59	1.04	3.95*
Participation in online communication or egroup	2.82	1.93	2.01	1.58	8.42*
The social network	4.04	1.85	2.49	1.67	31.73*
Writing and posting blogs	2.49	1.88	1.53	1.14	14.46*
Share personal files, artwork, photos & videos	2.89	1.79	1.59	.98	39.02*
Create and maintain own a website	1.74	1.36	1.24	.83	7.63*
Reading website and blog of others	2.65	1.74	1.60	1.27	18.41*
Posting comments of others' websites	2.79	1.75	1.63	1.40	21.56*
Contribute information to websites like Wikipedia	1.79	1.39	1.21	.53	10.79*
Spread others' photos / videos without permission	1.23	0.71	1.03	.17	5.38*

Note. \* $p < .05$ .

who found a significant difference in the standard usage between these two generations in terms of email, search, movies, study, leisure, and downloading and listening to music, and gaming. However, no difference was found between generations on email usage. In addition, the results reveal significant difference in terms of pornography, downloading software, online communication or e-group, social network, writing and posting blogs, sharing of personal files, artwork, photos & videos, creating and maintaining own a website, reading of website and blog of others, posting comments of others' websites, contribution of information to websites, and spreading of photos or videos of others without their permission.

One implication of the findings is the need to understand better and adjust to differences in usage and needs of these two generations whether at school, workplace, or home. For example, what is communicated may also differentiate digital natives and immigrants. Digital immigrants are likely trained to communicate using formal language. Because of new technologies, digital natives, on the other hand, may be used to more informal forms, acronyms or shorter sentences that have given rise to new kind of language. Norms of communication may also be different for these two generations. Because digital immigrants did not grow up using the Internet, they are likely to value face-to-face communication unlike their children, who may prefer communicating using digital means (text, FB, etc.). Digital immigrants are also likely to have more conservative views on privacy and what information should be shared publicly. This is in contrast to digital natives who seem to be very comfortable in sharing their views, personal information, and pictures through applications such as Facebook, Instagram, Twitter, etc. These differences may be a cause of conflict between the two cohorts that need to be negotiated and managed.

One area where the divide is likely to exist is in the home. Parents are likely to be digital immigrants while their children are digital natives. The lack of knowledge of how children use the Internet may make monitoring of Internet among minors more difficult for parents. At the same time, technologies for social networking and communication can also be important tools in bringing families together especially those who are geographically dispersed. At the same time, differences

in communication patterns and preferred media may cause conflict between parents and children.

In the school setting, it is likely that digital natives will be students and their teachers digital immigrants. The differences in the use of technology may pose difficulties in harnessing technology for instruction purposes. In the study of Hechanova and Ortega-Go (2014), the researchers labelled one category of Internet use as school-related activities. This included downloading ebooks, software and materials, and the use of e-groups. Teachers who are digital immigrants may fail to utilize technologies that can be used to engage their learners. At the same time, in an age where “googling” has become students’ means of research, teachers who are not Internet savvy may fail to detect plagiarism.

Given the relatively young population of the Philippines, digital natives will become the largest workforce in the near future. Hence, new modes of usage of Internet-based technology may be explored and implemented by employers to enhance effective functioning. On one hand, new technologies may be used to improve productivity and efficiency. However, care should be taken that digital immigrants do not feel inferior regarding the use of technology and thus should be given the opportunity to learn how to use new technologies.

Whether in the academe, the workplace, or the home, one way to bridge the gap between the two generations is to provide technology-based training to allow digital immigrants to catch up with digital natives. At the same time, it is important for teachers, parents, and supervisors to understand how the younger generation uses the Internet and what are the outcomes of these uses. For example, Hechanova and Ortega-Go (2014) found that Internet use has both positive (personal enhancement and productivity) and negative outcomes (social harm and problematic Internet use). In their study, they found that blogging, posting on other people’s sites, and other social network-related activities appear to be instrumental in improving one’s relationships and being able to express oneself. However, there also appears to be an addictive element to this type of activity – people may also feel a compulsion to constantly check updates, tweets, instagrams, etc. of those in their social network. They also found that basic communication (email, chatting, search)

and using the Internet for news and information predict productivity. However, basic communication is also associated with problematic Internet use. E-commerce is negatively correlated with productivity. Also, entertainment is negatively correlated with productivity and positively correlated with problematic Internet use.

Beyond knowing Internet usage and their outcomes, the study of Hechanova and Ortega-Go (2014) also highlighted the importance of regulation. Their study found that the greater the self-regulation, the higher the productivity and personal enhancement and lower the incidence of social harm and problematic Internet use (addiction). On the other hand, the greater the external regulation, the greater is the personal enhancement. External regulation is negatively related to social harm. However, they found that external regulation did not predict productivity and addiction and suggested that more than controls, it is important to teach Internet users how to regulate their own behaviors. Relating this to our findings on generations, one implication may be the need to help digital natives to develop self-regulation skills to ensure positive outcomes of Internet use.

### **Limitation and Future Research**

A recent study on Internet use notes the rise in Internet use through mobile devices (Comscore, 2013). Unfortunately, this research did not include mobile Internet usage. Future researches may wish to examine mobile Internet usage to examine differences in patterns across generations.

There are some nuances in Internet use among Filipinos, suggesting that geographical context and state of technology adoption are still important factors. Internet penetration in the Philippines is relatively small when compared with Western counterparts. Though a research suggests that there is 35% internet penetration in the Philippines (Comscore, 2013), 65% are neither exposed to nor have access to the Internet. It may be due to the geographical landscape of the country that comprises many islands making internet access challenging, or it may be due to the delay in the adoption of the new technology due to resource constraints, or both. In our sample, digital natives and immigrants were found in all the four regions, but the

dispersion by generation was different. In the sample, 65% of the Luzon sample were digital natives and 35% were digital immigrants, in Visayas, 47% were digital natives and 53% were digital immigrants, in Mindanao region, 59% were digital natives and 41% were digital immigrants, and in NCR 69% were digital natives and 32% were digital immigrants. Thus, age may need to be controlled for in the sampling of future studies.

In addition, given the dynamism in information technology, the results of the study may change in the future given developments in applications that may be directed towards older users. One example of this is the aggressive marketing of one telecommunications company to capture the older population that highlight ease of use of applications that allow communications across borders (i.e. Facetime, Skype, etc).

Furthermore, the types of usage included in the study were general. However, technology is fast-evolving. Chandio (2012), Ferguson and Perse (2000), and Lin and Yu (2008), in their research on Internet use among adolescence and youngsters, suggested school-related usages as one of the prominent usages. In addition, the increasing adoption of technology as mechanisms for learning may not have been adequately reflected in this study. The same is true to the use of technology in organizations. As employers increasingly use the Internet to enable connectivity and productivity, it is likewise important to see how organization culture, policies, and resources influence Internet usage patterns. Future studies may wish to include more usages that have emerged in both schools and organizations.

To summarize, the results provide empirical support for the presence of generations but suggests not three but only two generations – at least in terms of Internet usage. It validates some Western researches that have described two groups – the digital immigrants and digital natives. On one hand, the results suggest that at least in terms of information and communication technologies, generations can cut across geographical borders. Beyond the classification, the study highlights similarities and differences that have wide-reaching implications in terms of parenting, education, and organizational leadership. Recognizing these are important if our society is to adapt and evolve to a world where technological advancement has become a way of life and a tool to well-being and productivity.

### AUTHORS NOTE

This study is part of a larger research project conducted by the Ateneo Center for Organization Research and Development of the Ateneo de Manila University.

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