UNDERSTANDING THE RELATIONSHIP AMONG INTERNET ANXIETY, INTERNET IDENTIFICATION AND INTERNET SELF – EFFICACY IN THE PHILIPPINES

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ABSTRACT

The study aims to examine the relationship among three key factors related to Internet usage and experience in the Philippines: Internet anxiety, Internet identification and Internet self - efficacy. Confirmatory factor analysis and regression analysis were used to analyze the data from 820 respondents focusing on three subgroups (gender (male or female), age groups and occupation (college student, employees and entrepreneurs)). The results indicate that Internet anxiety is negatively related to Internet self – efficacy which is positively related to Internet identification. The results also indicate that, although Internet anxiety may not be negatively related to Internet identification in general, there is a significant and negative relationship between Internet anxiety and Internet identification among the respondents in the 18 – 25 year - old age group. This is most likely explained by the fact that most of the respondents in this group were born after the introduction of the Internet in the Philippines in 1994 and do not remember a time without the Internet.

Since Internet self – efficacy is a strong predictor of Internet identification, it is imperative that opportunities to build Internet self – efficacy in schools, workplaces and in the business environment here in the Philippines such as trainings in using Internet technologies for coursework, workplace productivity and streamlining business transactions and interactions should be provided to help Filipinos reap the benefit of the Internet. To help ensure this, internet infrastructure must be enhanced and prioritized through the leadership of the Department of Information and Communications Technology in cooperation with Internet technology providers in the private sector.

Keywords: Internet anxiety, Internet identification, Internet self – efficacy, Internet usage and experience

INTRODUCTION

We live in a digital world where we spend a lot of time on the Internet, whether it is for academic, work or personal reasons. Because an increasing number of people access the Internet regularly for different types of information – from academic (especially for research related requirements in school) to personal (such as health and wellness or restaurant choices) to financial and investment related, do different types of searches – from job opportunities to scholarships to staycation or vacation packages and watch videos and other forms of entertainment on top of their messaging and posting on Facebook, Twitter and Instagram (Howard, Rainie, and Jones, 2002; Fallows, 2004; Hargittai and Shafer, 2006), their information

creation and sharing capabilities as well as data mining and interaction facilitation have rapidly increased and developed.

We are able to recognize the importance of being able to leverage Internet technologies and applications. However, especially in a third world country like the Philippines where being digitally connected may only be fully experienced by those in cities or places where the telecommunications infrastructure is sound, it is important that opportunities for Filipinos across all walks of life to reap the benefits of the Internet whether it be in at home, in school or in the workplace or any business environment be provided and taken advantage of.

In order for such opportunities to harness Internet technologies and applications to be effective, more research has to be done to look into the factors that affect a person's use of the Internet. There has been previous research into different factors that impact on a person's Internet usage including gender differences in psychological influences of Internet usage (Teo and Lim, 2000; Whitty and McLaughlin, 2007; Vekiri and Chronaki, 2008; Madu, Otuka and Adebayo, 2011; Powell, 2013), gender and Internet anxiety (Cazan, Cocorada and Maican, 2015) gender, Internet anxiety and Internet identification (Joiner, Brosnan, Duffield, Gavin, and Maras, 2007; Joiner et al., 2012), perceived usefulness and ease of use (Teo, 2001; Hanson, 2010) and Internet self-efficacy (Hsu and Chiu, 2004; Tsai, Chuang, Liang and Tsai, 2011; Tsai and Tsai, 2003). There are three factors that can be considered as important determinants of Internet usage and experience: Internet anxiety, i.e., the trepidation or apprehension that individuals undergo when using the Internet (Presno, 1998), Internet identification, the degree to which an individual's self-concept is connected with his or her perceived ability to use the Internet (Cooper and Weaver, 2003; Joiner et al., 2007, 2012) and Internet self – efficacy, an individual's self-perceived confidence and expectation of using the Internet (Tsai and Tsai, 2003) or the beliefs in one's capabilities to organize and execute courses of Internet actions required to produce given attainments (Hsu and Chiu, 2004).

Despite the fact that we are living in a digitally connected world, as experienced even to a certain extent in countries like the Philippines, Internet anxiety can still be considered as one of the major obstacles in effective Internet usage (Kalwar, Heikkinen, and Porras, 2011, 2013). Anxiety and other similar emotional states affect not only interaction but also performance, productivity, social relationships, learning, health and overall well-being (Saadé and Kira, 2009). A significant number of research studies have discovered that Internet anxiety is negatively related to Internet use and experience (Cooper and Weaver, 2003; Joiner et al., 2012), while Internet identification, on the other hand, impacts positively on Internet use and experience (Cooper and Weaver, 2003; Joiner et al., 2012). Someone possessing a high degree of Internet identification is most likely to be characterized as having extensive experience using the Internet, motivated to allocate time to learn how to fully use the Internet by either enrolling in courses or watching different media sources on expertly navigating the Internet and thus demonstrating a positive attitude toward the Internet (Joiner et al., 2007).

Although the significance of Internet anxiety, Internet identification and Internet self – efficacy to Internet use and experience has been established, little is known about the relationships that exist, if any, among the three of them (e.g. how are Internet anxiety and Internet identification related to one another, how is Internet self – efficacy related to Internet anxiety and Internet identification, etc.) Delving into these relationships will allow us to: 1) get a better understanding of how to deal with the impact of these factors on a person's Internet use and experience; 2) more clearly grasp the interactions manifested in the relationship between Internet anxiety and Internet identification, Internet self – efficacy and Internet anxiety and

Internet self – efficacy and Internet identification and 3) equip decision – makers (i.e., educators, industry leaders, government officials, etc.) in making decisions related to providing opportunities to leverage Internet technologies and applications in different environments (e.g., schools, workplaces, government offices, etc.) so that Filipinos will be better prepared to use the Internet in a more effective and efficient manner.

LITERATURE REVIEW

Knowing that a number of previous research studies have looked into the relationship between factors such as Internet anxiety and Internet identification (Joiner et al, 2007; Rezaei and Shams, 2011) and the importance of Internet self – efficacy in determining how a person uses and experiences the Internet and related technologies and applications (Hsu and Chiu, 2004; Tsai and Tsai, 2003), it would be advantageous to investigate how these three important factors interact with one another and impact on a person's Internet usage and experience.

Previous research studies have identified that Internet anxiety, an emotional state, serves as an important source of information in making judgments and decisions, and in liking, efficacy belief and importance evaluation (Hsiao, Zhu and Chen, 2017; Clore, Gaspar and Garvin, 2001; Clore and Storbeck, 2006). In order to get a better understanding on how the hypotheses in this research study were developed, it would be good to look at related literature on the three factors.

Internet Anxiety

When people observe intimidating, hostile or even frightening or menacing circumstances in their surroundings or in the situations they face day to day, these people can suffer from anxiety. Anxiety is defined as worry, stress, fright, the feeling of being unsuccessful, inability, not knowing the result and criticism type of excitement or almost all is included (Cuceloglu, 2008). When the situation involves the Internet, people experience Internet anxiety, which is defined as the fear or trepidation that people experience when they use the Internet (Presno, 1998). Internet anxiety is said to be an anxiety that is situation – specific as it is brought about by the distress of danger and powerlessness when interacting with others on the Internet which leads to mental anguish (Joiner et al., 2007). Thus, Internet anxiety is considered an impediment or hindrance to the effective and efficient use or experience of Internet technologies and applications (Hsiao, Zhu and Chen, 2017) which are considered staple fare in today's digitally connected world such as email, social media (e.g., Facebook, Twitter, Instagram, etc.), information searches (e.g., Google, etc.) and other online activities.

Earlier research studies have discovered that Internet usefulness, enjoyment and efficacy as observed by people in their Internet experience are negatively related to Internet anxiety (Zhang, 2005). Relatedly, an individual's awareness that there is are resources that provide a more positive Internet experience and the trust of such Internet technologies that result can lead to Internet anxiety being reduced (Thatcher, Loughry, Lim, and McKnight, 2007). The characteristics of Internet anxiety are derived from computer self-efficacy; thus, Internet self-efficacy is also a concept-specific form of anxiety because it is a feeling that is associated with a person's interaction with the Internet (Hsiao, Zhu and Chen, 2017). Individuals need to understand the new applications that seem strange for them and learn the new technologies. This then creates new anxieties upon users (Thatcher, Loughry, Lim, & McKnight, 2007). It also

brings along with it most of the risks of internet usage such as viruses, spyware/malware or invasion of privacy (Thatcher, Loughry, Lim, & McKnight, 2007).

Internet Identification

Another significant factor that impacts an individual's use and experience of the Internet is Internet identification (Cooper and Weaver, 2003; Facer, Furlong, Furlong and Sutherland, 2003; Holloway and Valentine, 2003). Identification with a domain (e.g., mathematics, sports, songwriting, technology, etc.) connects an individual's self-esteem with his or her ability to perform successfully in that domain (Cooper and Weaver, 2003; Shen and Chiou, 2009). Internet identification is a type of domain identification inherently attached with images of those who use the Internet, a type of visual connection by a person to those he or she sees as most likely to be using the Internet for different purposes (Gavin et al., 2007). Consequently, Internet identification can be defined as the extent to which an individual's self-concept is bound with his or her manifest ability to use the Internet or the importance of an individual's ability to use the Internet for their self-concept (Joiner et al., 2007). An individual with a high degree of Internet identification is able to use the Internet effectively to maintain his or her sense of self-worth. It can also be argued that identification is an important factor in understanding people's attitudes towards and uses of technology (Cooper and Weaver, 2003). Consequently, they are likely to have a high degree of experience using the Internet; will have positive attitudes towards the Internet; will be motivated to spend time learning how to use it; and may take courses on using the Internet. If they perform badly using the Internet, this is likely to make them feel anxious because it threatens their self-esteem. (Joiner et al., 2007)

According to affect-as-information theory, people attend to their feelings as a source of information. Affect such as Internet anxiety can serve as important sources of information and knowledge not only in making judgments and decisions, but also in liking, efficacy belief and importance evaluation (Hsiao, Zhu and Chen, 2017; Clore, Gaspar and Garvin, 2001; Clore and Storbeck, 2006). If people feel anxious, uncomfortable or perturbed about using the Internet, they will justify their behavior by saying that the Internet may not be good for them, and, as a result, they may decide that they do not want to belong to the community of digital natives on the Internet (Hsaio, Zhu and Chen, 2017). Hence, it would be logical to propose as the first hypothesis to be tested and explored:

Hypothesis 1: *Internet anxiety will be negatively related to Internet identification.*

Internet Self – Efficacy

In order to enhance self-efficacy or one's ability to undertake different opportunities or face different challenges with the end goal of succeeding in general, one should focus on making sure that such opportunities are available for people to master a variety of challenging tasks in many different domains and finding positive role models such as people in different circles that individuals find themselves in who will encourage, inspire and motivate them to rise up to the challenge and succeed. Research findings suggest that the predictive capability of a self-efficacy estimate is most accurate when determined by specific domain-related measures rather than with general measures (Bandura, 1989). Computer self – efficacy research served as the takeoff point for research initiatives into Internet self – efficacy. This was a result of Internet self – efficacy

being distinguished from computer self – efficacy as the belief that one can successfully perform a distinct set of behaviors required to establish, maintain and utilize effectively the Internet over and above basic personal computer skills (Eastin and LaRose, 2000).

Previous research has looked into the impact of Internet self-efficacy on Internet use (Hsu and Chiu, 2004; Tsai and Tsai, 2003). Students with high Internet self-efficacy have better information searching strategies and learn faster than students with low Internet self-efficacy when given Web – based learning tasks (Tsai and Tsai, 2003). People with high Internet self-efficacy are more likely to use e-services and implied that the increasing Internet self-efficacy of customers is extremely important to an e-service's successful operation (Hsu and Chiu, 2004). Thus, it is important to recognize that efficacy belief is a significant factor in investigating activities, emotions, and perceptions related to the use of the Internet in various milieus or domains.

Since state anxiety (more specifically, Internet anxiety) and specific self-efficacy (in this case, Internet self-efficacy) are elements in the self-efficacy framework of Bandura (1997), it can be surmised that anxiety, which is an affective response, has a direct influence on self-efficacy beliefs. Relatedly, a significant relationship among state anxiety, specific self-efficacy and performance can be demonstrated (Chen, Gully, Whiteman, and Kilcullen, 2000). Anxiety can also have an effect on computer-based learning by affecting the levels of self-efficacy (Saadé and Kira, 2009). Thus, a relationship between Internet anxiety and Internet self-efficacy can be established which ultimately influences Internet-related behavior, use and experience. This leads to the proposition of the following hypotheses:

Hypothesis 2*: Internet anxiety is negatively related to Internet self - efficacy.*
Hypothesis 3*: Internet self-efficacy is positively related to Internet identification.*

METHODOLOGY

The Instrument

The questionnaire used three scales from different studies related to the three factors being investigated: 1) Internet anxiety scale (Joiner et al, 2007) where respondents were asked to answer a 6 item scale using a five-point Likert scale ranging from "never" to "always" (1=never, 2=rarely, 3=sometimes, 4=often, and 5=always); 2) Internet identification scale (Joiner et al, 2007 based on the work of Maras, 2002) where respondents were asked to answer a 10 item scale using a five-point Likert scale ranging from "definitely/totally disagree" to "definitely/totally agree" (1=definitely/totally disagree, 2=sometimes disagree, 3=neither agree nor disagree, 4= sometimes agree, and 5= definitely/totally agree); 3) Internet self – efficacy scale (Tsai and Tsai, 2003) where respondents were asked to answer a 6 item scale using a five-point Likert scale ranging from "never" to "always" (1=never, 2=rarely, 3=sometimes, 4=often, and 5=always).

Sample and Procedures

A mix of random sampling and purposive sampling (i.e., to ensure more or less a balance of male and female respondents and a mix of students, employees or working people and entrepreneurs) was conducted in the identified location of Metro Manila and a respondent base of 820 resulted consisting of 383 males (46.71%) and 437 females (53.21%) who were either

students (303 or 36.95%), employees or working people (375 or 45.73%) or entrepreneurs (142 or 17.32%). The ages of the respondents ranged from 18 – 55 and they came from SECs A, B, broad C and D.

Factor loading was done in order to determine which components of each scale should not be included (because they had factor loading values of less than 0.6) and the Chronbach's alpha of the resulting scales were determined to establish the reliability of the scales.

Correlation analysis (Hypothesis 1) and Regression Analysis (Hypothesis 2 and 3) were conducted to determine if a relationship, if any, existed between Internet anxiety and Internet identification (Hypothesis 1), Internet anxiety and Internet self – efficacy (Hypothesis 2) and Internet identification and Internet self – efficacy (Hypothesis 3).

RESULTS AND DISCUSSION

The reliability (internal consistency) of items in the three scales used was examined using Cronbach's alpha to confirm the adequacy of the measures for testing the hypotheses.

One item ("I usually fee lost or confused when I am seeking information on the World Wide Web (WWW)) was deleted from the Internet self – efficacy scale because it's loading was below 0.6. The Chronbach's alpha of the resulting five – item scale is 0.84 and reliability was found to be accurate on this measure.

Two items ("It is easy for me to use the Internet" and "It is important for me to be able to use the Internet") were deleted from the Internet anxiety scale because their loading was below 0.6. The Chronbach's alpha of the resulting four – item scale is 0.78 and reliability was found to be accurate on this measure.

Two items ("I am very different from Internet users" and "I feel very emotionally attached to Internet users in general") were deleted from the Internet identification scale because their loading was below 0.6. The Chronbach's alpha of the resulting eight – item scale is 0.837 and reliability was found to be accurate on this measure.

For Hypothesis 1, correlation analysis was done for the different subgroups (Occupation, Gender and Age). For Occupation, a significant and negative correlation (-.102) was established for Occupation category 1 which was Students. Looking at cross – tabulation results, it can be seen that a majority of the 303 student respondents were in the age bracket 18 – 25 years old (74.6%) and almost all the respondents who were 18 – 25 years old were students (98.7%). For the other two categories, Occupation category 2 (Employees) and Occupation category 3 (Entrepreneurs), insignificant correlations were established and the correlation, in fact, for Occupation category 3 was positive on top of being insignificant. Thus, it can be said that there is support for Hypothesis 1 only in one Occupation category and that is Students.

For Gender, a significant and negative correlation was found in both males (-0.094) and females (-0.138). Since the sample was more or less balanced across the two gender categories, it was significant to note that respondents aged 18 – 25 years old comprised almost half of the male respondents (48.8%) and also almost half of the female respondents (49%). This led to exploring the third subgroup to see how this subgroup impacted on Hypothesis 1.

For Age Groups, it could be seen that Age Group 1 (18 – 25 year olds) answered more towards the poles of the scale than any other age group, and had less variation. They also answered exactly in the expected manner, reporting higher internet identification and lower internet anxiety scores than other groups. This leads to the belief that a significant and negative

correlation was established because it can be surmised that the respondents in this age group had very similar, leaning towards the more positive, Internet experiences.

Overall, although Internet anxiety may not be negatively related to Internet identification in general, there is a significant and negative relationship between Internet anxiety and Internet identification among the respondents in the 18 – 25 year - old age group. This is most likely explained by the fact that most of the respondents in this group were born after the introduction of the Internet in the Philippines in 1994 and do not remember a time without the Internet.

For Hypothesis 2, regression analysis on the different subgroups (Occupation, Gender and Age) was performed with Internet self – efficacy as the dependent variable and Internet anxiety as the independent variable. The following table summarizes the different regression equations of the subgroup categories (Occupation (Student, Employee, Entrepreneur); Gender (Male, Female); Age Groups (18 – 25, 26 – 30, 31 – 35, 36 – 40, 41 – 45, 46 – 50, 51 – 55).

Table 1
Hypothesis 2
Summary of Regression Equations of Subgroup Categories under Occupation, Gender and Age

SUBGROUP CATEGORY	REGRESSION EQUATION
Student	Efficacy = -0.7015Anxiety + 2.5915
Employee	Efficacy = -0.4003Anxiety + 3.9203
Entrepreneur	Efficacy = -0.0715Anxiety + 2.5912
Male	Efficacy = -0.3826Anxiety + 3.8601
Female	Efficacy = -0.2663Anxiety + 3.3474
18 – 25	Efficacy = -0.7505Anxiety + 5.4857
26 – 30	Efficacy = -0.2663Anxiety + 3.3651
31 – 35	Efficacy = -0.4778Anxiety + 4.1856
36 – 40	Efficacy = -0.0321Anxiety + 2.5353
41 – 45	Efficacy = -0.4316Anxiety + 4.0449
46 – 50	Efficacy = -0.5113Anxiety + 4.3033
51 – 55	Efficacy = -0.015Anxiety + 2.2252

As can be seen from the table, all subgroup categories exhibit a negative relationship between Internet Anxiety and Internet Self – Efficacy albeit exhibiting low Internet anxiety does not significantly impact on an individual's Internet self – efficacy in general. It can be seen also from these equations that respondents who are students or are aged 18 – 25 years old and who exhibit low Internet anxiety scores tend to increase their Internet self – efficacy levels more compared to the other subgroup categories. This is in consonance with the conclusion from the analysis of Hypothesis 1 where the reason behind 18 – 25 year olds identifying more with the Internet when they exhibit low anxiety levels is because they were born during the time when the Internet was introduced in the Philippines and therefore, did not use any other technology or process when it came to information searches or doing research (e.g., Google, Google Scholar, etc.), communication (e.g., Facebook, Twitter, etc.), or even, to a certain extent, looking for entertainment (e.g., YouTube, Netflix, etc.). The fact that they grew up in a digital world lends to their exhibiting more confidence in their Internet use and experience.

For Hypothesis 3, regression analysis on the different subgroups (Occupation, Gender and Age) was performed with Internet self – efficacy as the dependent variable and Internet identification as the independent variable. The following table summarizes the different

regression equations of the subgroup categories (Occupation (Student, Employee, Entrepreneur); Gender (Male, Female); Age Groups (18 – 25, 26 – 30, 31 – 35, 36 – 40, 41 – 45, 46 – 50, 51 – 55).

As can be seen from the table, all subgroup categories exhibit a positive relationship between Internet Identification and Internet Self – Efficacy albeit exhibiting high Internet identification does not significantly impact on an individual's Internet self – efficacy in general. It is interesting to note that the higher Identification coefficients are those of Entrepreneurs and those in the older age group brackets (i.e., 41 – 50, 46 – 50 and 51 – 55).

Table 2
Hypothesis 3
Summary of Regression Equations of Subgroup Categories under Occupation, Gender and Age

SUBGROUP CATEGORY	REGRESSION EQUATION
Student	Efficacy = 0.396Identification - 0.08
Employee	Efficacy = 0.47Identification
Entrepreneur	Efficacy = 0.624Identification + 0.065
Male	Efficacy = 0.516Identification + 0.015
Female	Efficacy = 0.537Identification - 0.015
18 – 25	Efficacy = 0.412Identification - 0.033
26 – 30	Efficacy = 0.359Identification - 0.08
31 – 35	Efficacy = 0.36Identification - 0.082
36 – 40	Efficacy = 0.501Identification + 0.025
41 – 45	Efficacy = 0.518Identification - 0.065
46 – 50	Efficacy = 0.548Identification + 0.03
51 – 55	Efficacy = 0.604Identification + 0.156

This is most likely because these are people who grew up in the pre – Internet period and, therefore, were exposed to many other ways of information searches or doing research (e.g., reading books in the library, going through encyclopedias or dictionaries, etc.), communication (e.g., snail mail/post office, telegrams, etc.) or looking for entertainment (e.g., radio, non – plasma TVs, cinema houses with the film reels, etc.). Therefore, it is more deliberate on their part to be able to identify with the Internet and all that can be done on it which leads to a higher self – efficacy or confidence in navigating the ins and outs of the Internet once they realize how beneficial it can be to them especially in their business dealings or corporate work environments.

Thus, it can be seen from the analysis and discussion that Hypotheses 2 and 3 are supported while Hypothesis 1 is not supported.

SUMMARY AND CONCLUSIONS

The objective of this research study was to determine and understand the relationships, if any, among three significant factors related to Internet usage and experience (Internet anxiety, Internet identification and Internet self-efficacy) in the Philippines. The research findings determined that Internet anxiety is negatively related to Internet self-efficacy, which, in turn, is positively related to Internet identification. However, it was also determined that, in general, Internet anxiety does not possess a significant negative relationship with Internet identification, except for 18 – 25 year olds who are mostly students. This is similar to what Joiner et al. (2007)

discovered, which is a negative significant relationship between Internet identification and Internet anxiety of students.

This means that there is a possibility that Internet anxiety and Internet identification could be positively related wherein younger people nowadays are expected to be confident about using the Internet and these expectations are carried out in the classroom, workplace or even at home. Yet, especially in the Philippines, it is known that not every young person has had the opportunity to harness the power of the Internet simply because there is a lack of infrastructure in a number of barangays even in the metropolis and even more so, in the far flung villages in the Philippine archipelago. It can also be seen that even older people, as long as they are exposed to the internet, like working people or even entrepreneurs especially in the metropolis, can actually have more confidence in using the Internet compared to younger people. Given that Internet self – efficacy is a strong predictor of Internet identification, it is imperative that opportunities to build Internet self – efficacy in schools, workplaces and in the business environment here in the Philippines such as trainings in using Internet technologies for coursework, workplace productivity and streamlining business transactions and interactions should be provided to help Filipinos level the playing field especially in reaping the benefits of the Internet. To help ensure this, internet infrastructure must be enhanced whether it be in the metropolis or in the countryside. This can be done through the prioritization of such projects by the leadership of the Department of Information and Communications Technology in cooperation with Internet technology providers in the private sector. Then it is the turn of educators, business and government leaders to leverage on these infrastructure projects to help expose more and more people, male or female, young or old, student or employee or entrepreneur to the Internet and the benefits they can experience through fully utilizing it. As we have come to understand through this research study, as long as people are given the opportunities to harness the power of the Internet, they can better identify with it, overcome their anxiety in using it and therefore increase their Internet self – efficacy which in turn can encourage them to help their fellow students, workers or entrepreneurs leverage the Internet and contribute to improving the Internet penetration and infrastructure here in the Philippines. This would allow the Philippines to become more connected to the global digital world and not be left behind.

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