**Computer Anxiety, Self-Efficacy, and Attitudes towards the Internet among Cagayan State University Students**

Dr. Billy S. Javier

*Faculty of Information and Computing Science*

*Cagayan State University, Aparri Cagayan 3515 Philippines*

*Email:* [*billy.javier.csua@gmail.com*](mailto:billy.javier.csua@gmail.com) */ +639255495989*

***Abstract***

*The study investigated the computer anxiety, self-efficacy levels and attitudes towards the Internet of the students of the Cagayan State University (CSU), Aparri, Cagayan, Philippines, and their relationships and differences based on sex and college. Descriptive-correlational research design was used to investigate the perceived self-efficacy, anxiety, and attitude towards internet using a 4-part survey-questionnaire to obtain the responses of the 366 students selected randomly using a stratified sample. Findings revealed that regardless of courses, CSU students possesses a highly confident self-efficacy levels in the use of computers and a positive attitude towards the utilization of the Internet especially among younger males, and a lower anxiety level on the use of and implications on the challenges of the computers. Further, the lesser anxiety in the use of computers they have, the more positive attitudes are conveyed towards their use of the Internet. It is concluded that students of CSU are technically competent in the use of computers and Internet to school, work and at home and are ready to take the challenge of the ASEAN integration. It is recommended that teachers be gender-biased in the utilization of computers and the internet in teaching and learning at the early school years.*

***Keywords****: anxiety, attitudes towards Internet, computers, self-efficacy, Cagayan State University, Aparri*

1. **INTRODUCTION**

The challenges of the ASEAN Integration has poured the need of every member economies to embark on advancing its manpower and technology towards internationalization. The Philippines as a third world country has been doing its part towards this integration by way of rationalizing and standardizing policies in order to be competitive in all aspects. Outcomes-based education implementation has challenged HEIs to provide competent, self-sustaining and universally-adept graduates. It is an opportunity to maximizing the multi-sectoral means of diversifying and advancing the role of educators and of all stakeholders. Towards this goal is achieving a high level of information technology literacy which has become the core of skilled literacy and workforce readiness. Workforce readiness includes skills in communications, skills in emerging technologies, and critical thinking skills. Given the certainty of technological change, far more desirable than competencies in a limited number of specific applications are broad flexible skills, transferable skills and the related confidence to adapt to new applications and environments (Rush, 1998). In 2005, Sam, Othman, & Nordin, cited that higher education will continue to expand academic computing resources not only for their pedagogical welfares but also because it will be seen to be the duty of education to use such systems in order to prepare its graduates for the realities of a workplace where they will be obliged to use them.

Computer anxiety is considered as an effective response, an emotional fear of potential negative outcomes such as damaging the computer equipment or looking crazy. Maimunah Mohd Shah (2012) reported that younger adults experienced higher computer anxiety than middleage adults. From an information processing perspectives, literatures declared that the negative feelings associated with high anxiety reduces cognitive resources from task performance. Hence, the performance of a person with higher computer anxiety might be poorer than those with little or no computer anxiety. Although we are living in a technological world, there are still indications that Filipino college students felt confused and experience loss of personal control when they encountered such technology like computer use within the computer laboratory.

Computer self-efficacy is the confidence of one’s competence to use the computer and those with no or little confidence in their ability to use computers might do more poorly on computer-related tasks. Maimunah Mohd Shah (2012) exclaimed that employees with high attitude towards computers experienced high computer knowledge but low computer anxiety. Computer self-efficacy was found to be associated with attitudes toward computer technologies. Females usually have more negative attitudes toward computers and greater computer anxiety than males. Several studies have investigated female students’ choice of course and careers and self-efficacy has turned out to be a critical predictor. Female students have significantly lower self-efficacy than male students regarding math-related and traditionally male-dominated subjects, including computer courses.

The rapid growth of the use of internet brings up the question of whether the gender, age, and computer use issues reported earlier would be present with regard to the Internet. On the basis of workforce readiness and computer usage, this study looked into the case of Cagayan State University (CSU) Aparri and a more effective means of eliminating or reducing anxiety of using computers among students. This benchmark survey will somehow benefit the school as well as the administration and student by providing equal opportunities to using computers and internet, and in preparing the students with the technical skills afforded to them. The study generally studied the relationship of computer anxiety and computer-self-efficacy to the use of and attitudes toward the Internet among CSU Aparri students and their differences based on sex and college for these students.

1. **METHODOLOGY**

This study employed the descriptive-survey, correlational research design as well as focus group discussions to investigate the students’ computer anxiety, computer self-efficacy, and reported use of and attitudes towards the Internet. Participants were the 366 student-respondents enrolled in school year 2013-2014 selected using the stratified random sampling. The sample size was determined using Slovin’s formula and each strata using percentage proportion. A structured questionnaire was derived, modified and verified as a means of obtaining the students’ responses. The questionnaire included the demographics of the students, how much time in a day/week they use the Internet and which it was used for, Computer Anxiety Rating Scale or CARS first designed and validated by Heissen et.al.(1987), to assess the level of computer anxiety, Internet Attitude Scale or IAS, developed and validated by Nickell and Pinto (1986), to measure students’ attitude toward the internet, and the Computer Self-Efficacy Scale or CSE, to measure the degree of confidence in students’ ability to use computers all using a 5-point Likert Scale. Focus group discussions (FGDs) were conducted during the course of the data gathering. The research was descriptive-correlational in nature, hence, Pearson Product Moment of Correlation Coefficient was used to determine relationships. ANOVA and t-test were used to ascertain difference between CARS, IAS, and CSE. Frequency counts and percentage were used for the descriptive parts.

1. **RESULTS AND DISCUSSIONS**

Results recorded a substantial percentage (55.2%) of respondent in the age bracket 19 to 21 years old, 58 percent of the males and 52.9 percent of the females. This is highly attributed to the fact that CSU has an increasing enrollment rate and that majority represented this age bracket. Sex disaggregated summary of enrolment in 2013-2014 reported a larger percentage of females across all year levels except those course such as Criminology and Industrial Technology(Cagayan State University, 2014). While it is evident that some of the CSU Aparri students were already married, most of the students (94.8 %) were still single, a manifestation of their focus of attaining a degree and a strong hold against early marriage. Dominated by mostly females, the study recorded a larger portion from first year to third year. This is a trend in the university where most of the entry-level College freshmen were females. Most of the male counterparts were in their final year, particularly from the Business, Information Technology and Hospitality Industry Management courses. A greater number of male respondents represented the Criminology (19.1%) and Industrial Technology (8.6%). Findings revealed an increasing enrolment and consciousness in line with business and accountancy, criminology and IT among students in CSU Aparri especially among females (CHED, 2010).

Academic performances in common computer subjects were taken to determine if it affects computer self-efficacy, anxiety, and attitudes towards the Internet. With an overall weighted mean of 88.90, majority both obtained a satisfactory performance in their Computer 11 subject (Fundamentals of Computers) and Computer 12 (Office Productivity Tools/Software Fundamentals). The performance in Computer 11 manifested an adequate knowledge in the subject possessing thereof the necessary skills related thereto. The very satisfactory remark in Computer 12 indicates an adjustment towards a positive attitude in the use of software applications and the computer in general among the CSU students.

Most of the respondents (68.31%) owned an internet-able or 3G/4G mobile phones especially among females. In table 1, 201 respondents owns a laptop or netbook which could actually connect to the Internet via their broadband or Wi-Fi spots, majority of which were males (59.9 percent). About 98 percent owns up to 3 identified technologies in the study, a manifestation that CSU students were able to utilize variants of technologies along all course of their daily lives, and are techies. The respondents’ frequency of internet use revealed that most of the students (29.8%) spends an average 2 to 4 hours a day in the use of internet, majority of which were female (31.4%) students. The average time spent in using the Internet is 3.09 hours with a standard deviation of 1.85, an indication that CSU students are able to manage their time for use of the internet, and that they limit themselves with the standard average time (WeAreSocial.sg, 2015). Internet penetration among CSU Aparri students agree with the findings reported in some literatures where majority of the online Filipino age 15 to 24 spends an average of 14 hours a week or 16.4 hours in a month. In the wake of the unlimited internet service and mobile data plans, it comes no surprise that Internet use among Filipino students continues to grow every year.

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| **Table 1: Ownership and Use of Technologies** | | | | | | |
|  | **Male (162)** | **%** | **Female (204)** | **%** | **F (366)** | **%** |
| **Ownership of Technologies** |  |  |  |  |  |  |
| PC w/ Internet Connection | 63 | 38.9 | 76 | 37.3 | 139 | 37.98 |
| PC w/o Internet connection | 21 | 13.0 | 24 | 11.8 | 45 | 12.30 |
| Laptop/Notebook/Netbook | 97 | 59.9 | 104 | 51.0 | 201 | 54.92 |
| Tablet/IPad | 48 | 29.6 | 41 | 20.1 | 89 | 24.32 |
| Net-able/3G/4G Phone | 107 | 66.0 | 143 | 70.1 | 250 | 68.31 |
| **Frequency of Internet Use** |  |  |  |  |  |  |
| Less than 1 hour a day | 43 | 26.5 | 47 | 23.0 | 90 | 24.6 |
| 2 to 4 hours a day | 45 | 27.8 | 64 | 31.4 | 109 | 29.8 |
| 5 to 10 hours a day | 9 | 5.6 | 2 | 1.0 | 11 | 3.0 |
| More than 10 hours a day | 26 | 16.0 | 12 | 5.9 | 38 | 10.4 |
| Twice a Week | 29 | 17.9 | 47 | 23.0 | 76 | 20.8 |
| 3 Times a Week | 6 | 3.7 | 27 | 13.2 | 33 | 9.0 |
| 5 Times a Week | 4 | 2.5 | 5 | 2.5 | 9 | 2.5 |
| **Type of Connection** |  |  |  |  |  |  |
| DSL (Landline/Wired) | 2 | 0.9 | 21 | 8.6 | 23 | 6.3 |
| Broadband | 91 | 42.7 | 83 | 34.0 | 174 | 47.5 |
| Wi-Fi Spots | 54 | 25.4 | 43 | 17.6 | 97 | 26.5 |
| Pocket Wi-Fi | 38 | 17.8 | 18 | 7.4 | 56 | 15.3 |
| 3G/4G Phones (net-enabled) | 23 | 10.8 | 73 | 29.9 | 96 | 26.2 |
| **Classification of Internet Use** |  |  |  |  |  |  |
| Educational Research | 144 | 88.9 | 175 | 85.8 | 319 | 87.2 |
| Social Networking | 107 | 66.0 | 126 | 61.8 | 233 | 63.7 |
| Entertainment | 101 | 62.3 | 95 | 46.6 | 196 | 53.6 |
| Blogging/Forum | 7 | 4.3 | 2 | 1.0 | 9 | 2.5 |
| Government Portals | 15 | 9.3 | 15 | 7.4 | 30 | 8.2 |
| E-Commerce / Business Site | 35 | 21.6 | 13 | 6.4 | 48 | 13.1 |
| News Feeds/ News Portal | 21 | 13.0 | 14 | 6.9 | 35 | 9.6 |
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Most of the students gets internet connection through their broadband stick, Wi-Fi spots, and Internet-able mobile phones. Although the study did not asked for the family income, findings would mean that families of these students can afford to own various technologies. Wi-Fi spots in the campus has been contributory to the access to Internet among CSUA students. Students’ activities in the use of different internet technologies remarkably show a large group of the respondents using the internet for educational research. Most of the educational site they visit include YouTube educational channel, Google scholar, online academic and research platforms, Wikipedia, and other research and education websites. This means that students maximized the resources of the World Wide Web for academic learning and advancement. While majority of the female students uses the internet for social networking, more males are engage to various entertainment activities online including watching videos, listening to music, downloading, and online gaming. As a result of the interview, more males agree with the findings on their exposure to online games. Most of the students go social networking, especially Facebook and Instagram as a means for communicating, exchanging of educational views, and networking with online academic groups. While most of the students engage with entertainment-related activities while online, especially among males, it may be regarded that online addiction may prevail among the students of CSU. Considering the laboratory exposure and access to Internet connection in school where Wi-Fi spots are made available, this tends to infer a negative impact to students exposing themselves 5 to even more than 10 hours a day especially among males (Internet Live Stats, 2014).

**Computer Self** **–Efficacy, Anxieties and Attitudes towards Internet of Cagayan State University Students**

The students’ perceived computer efficacy, their anxieties and attitudes towards internet are presented in table 2. With an overall weighted mean of 3.78, students generally agree with their computer self-efficacy levels with only an uncertain remark about troubleshooting computers which may require higher technical understanding. This means their high confidence in their capability to perform the task required to produce specific results and work with effectively and efficiently through computers in school and at home. In informal interviews, students’ responses on their value and competence of using computers is in relation to ownership of computers, mobile phones and other technologies. Students who consider the computer to be a useful instrument, have control over the computer, possess a certain level of computer and internet competence, and are at ease with computers are more likely to have skills needed to maintain a computer, develop a web site, and to use basic ICT skills.

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| **Table 2: Computer Anxiety, Self-Efficacy and Attitudes towards Internet of CSU students** | | | |
|  | Weighted Mean | Std. Deviation | Adj. Value |
| Computer Anxiety | 3.57 | 0.43201 | Agree |
| Computer Self-Efficacy | 3.78 | 0.383451 | Agree |
| Internet Attitude | 3.42 | 0.36878 | Agree |
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With an overall weighted mean of 3.57, students generally agree having a very little fear or angst along the use of and utilization of computers. Interestingly, students strongly agree and feel that they will be able to keep up with the advances happening in the computer field. This means that students view about the more constructive implication of the use and exploitation of computers including the advances happening in the computer field, and the exciting challenges in learning and using computers. Computer anxiety is often seen as not strongly present among youngsters (Verhoeven, Heerwegh, & De Wit, 2010). Based on the interview, this is a clear manifestation of the absence of cyber phobia among youths nowadays.

CSU students generally agree with the 20-item attitudes towards the use of and engaging with the Internet with an overall weighted mean of 3.42. However, while majority disagree that the internet makes them uncomfortable because they don’t understand it, this is a manifestation that majority do understand it positively. Based on FGDs, there exists an agreeable positive attitude towards the Internet among Filipino students, an indicator of looking at the positive side of maximizing the potentials of the Internet affecting their lives in a confident way. This further mean their comfort and use of the internet as an effective and efficient means to support their educational needs, social networking and entertainment, apart from doing other activities online. The optimistic outlook over the use of Internet has actually diminished computer anxiety at the negative side.

**Relationship between profile variables**

There exists a highly significant relation between students’ year level and sex, age, frequency of internet use, ownership of internet-able mobile phones, ownership of laptops/netbooks, and ownership of personal computer without internet connection. Course has been very significantly related to ownership of PC with or without internet connection, ownership of laptops/netbooks, and possession of tablets/iPad. This has been very evident to students were majority of the courses requires such technology to support educational researches and activities including those in Information Technology, education, business administration and fisheries. Younger students tends to maximize the potentials of the Internet for academic-related activities through their internet-able mobile phones or personal computers and laptops. Performance in the basic computer subject is much related with their performance in the use of office productivity tools, frequency of internet use, and possession of internet-able mobile phones, laptops/netbooks, and tablets/iPad. This is not surprising since the basic computer subject overs a variety of knowledge and foundations to students needed to perform future computer-related activities. The knowledge acquired has given the idea to students to acquisition of such technologies. The fact that office productivity tools maximizes the use of various document, spreadsheet, presentation packages and databases, the findings relates to ownership and use of internet-able mobile phones due to the potential of using phones for office productivity outside the use of a PC. The more they uses internet-able mobile phone, the more students used to connection online. Students who owns personal computer without internet connection accesses the internet most of the time via internet-able mobile phones or through tablets/iPads connected via broadband or Wi-Fi spots. The different activities over the internet have been found significantly related with possession and use of PC with Internet Connection. Able to have and use an internet-able mobile phone is significantly related with the use of and possession of laptops and PC without net connection. There exists a very high relationship between possession and use of PC with net connection and laptops and tablets/iPad.

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| **Table 8: Relationship between Attitudes towards Internet and Computer Self-Efficacy and Anxiety** | | | | | | | | | |
|  | | Computer Self-Efficacy | | Attitudes Towards Internet | | Computer Anxiety | | | |
|  | | Male | Female | Male | Female | | Male | Female | |
| Computer Self-Efficacy | Pearson Correlation | 1 | 1 | -.100 | .068 | .020 | | | .083 |
| Sig. (2-tailed) |  |  | .207 | .332 | .800 | | | .239 |
| Attitudes Towards Internet | Pearson Correlation | -.100 | .068 | 1 | 1 | .123 | | | .**262**\*\* |
| Sig. (2-tailed) | .207 | .332 |  |  | .118 | | | .000 |
| Computer Anxiety | Pearson Correlation | .020 | .083 | .123 | .**262**\*\* | 1 | | | 1 |
| Sig. (2-tailed) | .800 | .239 | .118 | .000 |  | | |  |
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| **Table 7: Relationship between select profile variables and their Computer Self-Efficacy, Attitudes toward Internet, and Computer Anxiety** | | | | | | |
| Profile Variables | Computer Self Efficacy (based on CSE Levels) | | Attitudes towards Internet (based on IAS) | | Computer Anxiety (based on CARS) | |
|  | Male | Female | Male | Female | Male | Female |
| Year Level | .125 | .**175**\* | -.**157**\* | .006 | .001 | .047 |
| Acad. Performance in Comp 11 | .**195**\* | .009 | .099 | .005 | -.010 | -.065 |
| Ownership of Laptop/Palmtop | -.**165**\* | -.006 | .116 | -.058 | -.130 | -.059 |
| Ownership of Internet-enabled Phone (3G/4G) | .**170**\* | .032 | -.090 | .111 | -.081 | .062 |
| *\*. Significant at the 0.05 level (2-tailed). \*\*. Significant at the 0.01 level (2-tailed).* | | | | | | |

**Relationship between select profile variables to Computer Self-Efficacy, Internet Attitudes, and Computer Anxiety according to Gender**

The relationship between select profile variables and the students’ computer self-efficacy and anxiety, and their attitudes towards the Internet, is presented in table 7. There exists a significant relation between performance in computer 11 (r=0.195), ownership and use of Internet-able phone (r=0.170) to male students’ computer self-efficacy at 95% level of significance. Year level, on the other hand, has been significantly related to computer self-efficacy levels among females (r=0.175). Males’ attitudes towards internet has been significantly related with their year level. There has been no significant relations between profile variables to students’ computer anxiety. There exists a significant relation between performance in computer 11, ownership and use of Internet-able phone to male students’ computer self-efficacy. In contrast with the study on computer self-efficacy and anxiety (Halder & Chaudhuri, 2013), this study revealed that frequency of internet use or time spent do not correlate with students’ computer self-efficacy and anxiety, and their attitudes towards Internet. Year level, on the other hand, has been significantly related to computer self-efficacy levels among females. Males’ attitudes towards internet has been significantly related with their year level. This is an indication that as female students gets higher year levels, the more she is likely to gain confidence in using computers, producing and performing computer-related works with ease and efficiency. Younger male students have a more positive attitudes in the utilization of the Internet. There has been no significant relations between profile variables to students’ computer anxiety. Although Raub (1981) reported that gender, level of computer experience, college major, math anxiety and trait anxiety were significant contributors to computer anxiety, this study did not found relations to profile variables.

Table 8 presents the relationship between attitudes towards internet, computer self-efficacy and anxiety using a bivariate correlation. There have been highly significant relationships between students’ attitudes towards internet and computer anxiety levels (r= 0.262) at 0.01 level of significance. There were no significant relations between students’ computer self-efficacy and attitudes towards internet and computer anxiety. There has been a highly significant relationships between students’ attitudes towards internet and computer anxiety levels. This findings indicates that the lesser anxiety in the use of computers they have, the more positive attitudes are conveyed towards their use of the Internet.

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| **Table 9: T-Test Results For Difference based on Sex** | | | | | |
|  | Sex | N | Mean | Std. Deviation | Std. Error Mean |
| Computer Self Efficacy | Male | 162 | 3.8273 | .38801 | .03049 |
| Female | 204 | 3.7359 | .42664 | .02987 |
| Attitudes towards Internet | Male | 162 | 3.3790 | .39952 | .03139 |
| Female | 204 | 3.4289 | .40501 | .02836 |
| Computer Anxiety | Male | 162 | 3.5550 | .46862 | .03682 |
| Female | 204 | 3.6000 | .45644 | .03196 |
|  |  |  |  |  |  |

1. **CONCLUSIONS**

From the results, it is therefore concluded that regardless of course and sex, CSU students possesses a highly confident self-efficacy levels in the use of computers, a positive attitude towards the utilization and application of the Internet, and a lower anxiety level on the use and implications on the challenges and utilization of the computers. Higher self-efficacy levels among males recounts with their performance in computer subjects, and is attributed too with their ownership and utilization of the Internet-able mobile phones and laptops or palmtops. Younger male students has positive attitudes towards the Internet. As female students attains higher education levels, the more they are confident in the use of computers. Having a strong hold against anxiety in the use of computers resolves to a positive attitude towards the Internet among females. It is concluded thereof that students of CSU are technically competent in the use of computers and Internet to school, work and at home and are ready to take the challenge of the ASEAN integration

Based from the study, it is recommended that teachers be gender-biased in the use of and utilization of computers in learning and teaching at the early school years. Since majority of the respondents utilizes the Internet through various connections, it is recommended further that parents and teachers shall devise mechanisms so that students will not overuse the Internet, thereby guiding them to be morally responsible in the use of the Internet. The conduct of cyber wellness in school maybe one of the activities the administrators particularly gender and development center can initiate in cooperation with the concerned government or private organizations. Local administrators may look upon implementing policies and regulate the use of internet among students in computer shops. Further studies is recommended to look into the social-economic and psycho-social aspects of computer use, anxiety and internet usage, blended learning through computers and Internet.

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