Exploring Computer Usage, Attitude and Self-Efficacy of Teachers in Jose Rizal Memorial State University – Dipolog Campus, Dipolog City

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Abstract

This study determines and explores how teachers use the computer, their best and worst attitudes towards computers, and their confidence and self-efficacy in using the computers. Using a three-part questionnaire accessed in the Integrated Virtual Learning Environment (IVLE) from the De La Salle University website, it was administered to 50 members of the faculty of Jose Rizal Memorial State University in Dipolog City. Results revealthat teachers sometimes use the computer in 22 different uses where a few includes uses for software visualization, music, voice, images, graphics, videos, outlining programs, graphic presentation, electronic mail, and social spreadsheets like the Facebook. Teacher-respondents have varied uses of the computer at work which could improve their knowledge and experience in teaching and learning and would eventually make an impact in education. Teachers' attitudes show unanimous agreement in regard to their use of the computers as they agreed that computers help improve their work better, that computers made it possible to work more productively, and that computers could enhance the presentation of their work to a degree which justifies the extra effort rendered. Teachers have mostly agreed that they are confident enough and are self-efficacious in computers as they feel confident when confronted with the following computer dilemmas: working on a personal computer, escaping/exiting from a program or software, handling a USB flash disk correctly, copying a disk, moving the cursor around the monitor screen, and using the computer to write a letter or essay. All these imply that the teachers are open-minded enough to receive knowledge in the use of computers for the benefit of good and quality teaching and learning experience and that all the basic functions of the computer were very much explored by the teacher-respondents that they all feel to have confidence in doing and manipulating the technology by themselves. On a similar note, teachers acknowledged the importance of in service training to prepare them to integrate computers into the classroom and curriculum. The findings suggest that these concerns need to be addressed when administrators design technology related training sessions.

***Key words and phrases*:** *Computer usage, attitudes towards computers, computer self-efficacy*

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Introduction

Gone are those days when teachers shy away in using computers for it is believed that computers greatly improve the self-efficacy in teaching and learning. Early research shows resistance to the benefits computers would give in a teacher-student learning situation. Dongping (2003) in Marcinkiewicz and Winter (1993) reports that most teachers demonstrated high resistance and will not adapt the use of computers in those schools surveyed. He investigated and described the teacher's perceptions regarding thereasons for high level usage and low level usage among their fellow teachers. Throughethnographic interviews, the study identified teachers' perceptions of using instructionaltechnology. By examining these factors, the conditions and requirements for developingan effective training program was identified.

On a similar note, Indeed computer technology had begun influencing students' learning experience for more than 25 years ago though it was only in a moderate manner (Cuban, 2001). However, for the past decade there is a major push toward integrating computer technology into public classrooms because of the vast promise it offers such as cheap, accessible and instantaneous information, enormous potential for interactivity and media-rich communication and powerful educational tools it will put at the service of students (Mouza, 2002). Geisert and Futrell Teachers' Readiness to Use Technology in the Classroom: An Empirical Study (2001) exclaimed that if teachers were to revolutionize their classrooms with computers, ordinary students would make massive gains, wherever illiteracy is a problem, it would be dissolved, and students would have immense new vistas opened to them. Moreover, policy makers hoping to improve the quality and quantity of student learning have become increasingly willing to make major investments of fiscal and human resources into hardware, software, and training.

It is for the facts stated above the this present study finds reason on exploring computer usage, attitude towards computer and computer self-efficacy among teachers of Jose Rizal Memorial State University (JRMSU) – Dipolog Campus, Dipolog City.The use of computer-aided technology in the classroom will, no doubt, inspire the teachers to approach their tasks with a greater sense of purpose and, more importantly, asense of play to make the learning process fun for students. Using computer-based technology such as data-logging and simulations is important for modelling subjects such as science and mathematics.

The objective of this study is to investigate and describe the teachers'perceptions of using computer, their attitude towards it and their computer self-efficacy. The study attempted todescribe the factors that influence teachers' use of computer in the classroom throughanalyzing the difference between teachers who display a higher level of computer usage(hereafter referred to as higher users) versus those teachers who use computers lessfrequently or at a lower level (hereafter referred to as lower users).

Specifically, the followingresearch questions guided the study:

1. What is the profile of the teacher-respondents in terms of:
    a. Age;
    b. Gender;

c. Years of teaching experience;
d. Current teaching at a particular level'
e. Previous experience on a technology training course; and
f. Current experience on a technology training course?

2. What uses do teachers find on computers?

3. How often do teachers use computers?

4. How do teacher-respondents perceived on their attitude towards computers?

5. How do teacher-respondents perceived on their computer self-efficacy?

Methodology

This study utilized a quasi-statistics design adapting a three-part questionnaire accessed in the Integrated Virtual Learning Environment (IVLE) from the De La Salle University website with permission from itsauthor it was administered to 50 members of the faculty of Jose Rizal Memorial State University in Dipolog City. The questions posed require a qualitative approach which seeks to ascertain why some teachers in JRMSU are motivated to integrate computers into their teaching and some are not; therefore ethnographic research methods are appropriate for this study. These questions are to focus on participants' perspectives (Erickson, 1986) and by learning the perspective s of the participants "illuminate theinner dynamics of the situations" (Bogdan& Biklen, 1992, p.32). Ethnography is the work of describing a culture, in this instance, the culture of teachers in a western public elementary school. To understand the perspectives that these teachers have regarding the use of computer technology in and outside of the classroom, aself-administered questionnaire was utilized to gather the necessary data. Permission was granted to administer the questionnaire to teachers of JRMSU in its four colleges namely: College of Arts and Sciences, College of Education, College of Engineering and Technology, and the College of Criminology.

Results and Discussion

In this study, the profile of the 50 teachers was considered. The profile details were as follows: age, gender, years of teaching experience, current teaching at a particular level, previous experience on a technology training course, and current experience on a technology training course. Data findings are presented below in tabular form.

Table 1 Profile of the Teacher-respondents in Terms of Age

Age Bracket	Frequency	Percentage Rating
20 – 25 years old	-	-
26 – 30 years old	5	10%
31 – 35 years old	8	16%
36 – 40 years old	10	20%
41 – 45 years old	14	28%
46 years old and above	13	26%
TOTAL	**50**	**100%**

Table 1 shows the profile of the teacher-respondents in terms of age. It reveals that out of the 50 respondents 14 or 28% belonged to 41 – 45 years old bracket, 13 or 26% aged 46 years old and above, and 10 or 20% aged within the 36 – 40 years bracket. This means that there are more teacher-respondents in JRMSU – Dipolog belonging to the older stage than the younger ones. This implies that teachers who access and use the computers are in the age of reason and mature enough to deal with the advancements in technology.

Table 2 Profile of the Teacher-respondents in Terms of Gender

Teachers' gender	Frequency	Percentage Rating
Male	26	52%
Female	24	48%
TOTAL	**50**	**100%**

Table 2 presents the profile of the teacher-respondents in terms of gender. Finding shows that the males composed the highest frequency with 26 or 52% participation in this study, which is only a slight difference from the females who consisted of 24 or 48%. This means that there were more male teachers who prefer using the computer at work than the females. But this does not mean that the females were depriving themselves to gain access of the technology whenever computers are available. This implies that almost all the respondents have knowledge in computer usage.

Table 3 Number of Years in Teaching of the Teacher-respondents

Years of Teaching	Frequency	Percentage Rating
Less than one year	1	2%
1- 4 years	4	8%
5 -8 years	10	20%
9 – 12 years	10	20%
13 – 16 years	11	22%
17 or more years	14	28%
TOTAL	**50**	**100%**

Table 3 presents the number of years in teaching of the teacher-respondents. Result shows that 14 or 28% of the teacher-respondents have 17 or more years of teaching, while most of them have been in the teaching profession within the range of five to 16 years of service comprising a majority of around 62%. This means that the respondents have already gained knowledge especially in the use of computers from their reasonable years of stay in teaching. This implies that as teachers, they could have explored more time in the different uses of the new technology for the benefit of good and quality teaching and learning.

Table 4 Courses Teacher-Respondents' Currently Teaching – Tertiary Level

Teaching Courses	Frequency	Percentage Rating
Basic	20	40%
Major	30	60%
TOTAL	**50**	**100%**

Table 4 shows the course teacher-respondents' currently teaching in the tertiary level. It reveals that more teachers who participated in this study are teaching major courses. This means that in using the computers, it aided them to supplement knowledge in teaching major subjects and learning key information in line of their field of specialization. This implies that with teachers having used the computers in many ways, teaching and learning are made better.

Table 5 Teacher-Respondents' Completion in Technology Training Course

Completion of technology training	Frequency	Percentage Rating
Completed	15	30%
Not completed	35	70%
TOTAL	**50**	**100%**

Table 5 presents the teacher-respondents' completion in technology training course. Result shows that most of them did not complete any technology training course as evident of the frequency having 35 or 70% of them responded "No". This means that they was no formal training whatsoever was experienced by the teachers when they get to use the computers. This implies that teachers should be interested to attend in trainings in order for them to explore more the many possibilities of computer usage.

Table 6 Teacher-respondents Currently Taking Technology Training Course

Technology training	Frequency	Percentage Rating
Taking	6	12%
Not taking	44	88%
TOTAL	**50**	**100%**

Table 6 shows the teacher-respondents currently taking technology training course. It reveals that 44 or 88% of them are not currently taking any technology training course. This means that they are not interested to undergo training in relation to computer use. This implies that computerization in education and learning is highly unconvincing for the teacher-respondents involved in this study.

Table 7 Teachers' Computer Usage

Computer usage	Mean	Descriptive rating
1. Model exploration and simulation toolkits	2.27	Rarely
2. Visualization software	3.11	Sometimes
3. Virtual reality environments	2.23	Rarely
4. Data modelling	2.26	Rarely
5. Procedural models	2.35	Rarely
6. Mathematical models	2.08	Rarely
7. Semantic network or outline tools	2.26	Rarely
8. Knowledge Integration Materials	2.74	Sometimes
9. Hypertext and hypermedia environments	2.64	Sometimes
10. Library access and ordering	2.38	Rarely
11. Digital libraries	2.35	Rarely
12. Databases	2.13	Rarely

Computer usage	Mean	Descriptive rating
13. Music, voice, images, graphics, video	3.02	Sometimes
14. Remote scientific instruments	2.22	Rarely
15. Microcomputer-based laboratories with sensors	1.80	Rarely
16. Survey makers	2.10	Rarely
17. Video and sound recording	2.83	Sometimes
18. Exploratory data analysis	2.25	Rarely
19. Statistical analysis	2.31	Rarely
20. Environments for inquiry	2.82	Sometimes
21. Image processing	2.50	Sometimes
22. Spreadsheets (*eg*MS Excel)	2.94	Sometimes
23. Programs to make tables and graphs	2.74	Sometimes
24. Problem-solving programs	2.09	Rarely
25. Word processing (*eg*MS Word)	3.59	Often
26. Outlining Programs	3.08	Sometimes
27. Graphics Priograms (*eg MS Paint*	2.50	Sometimes
28. Spelling, grammar, usage, and style aids	3.41	Often
29. Symbolic expressions	2.96	Sometimes
30. Desktop publishing	2.65	Sometimes
31. Presentation graphics	3.0	Sometimes
32. Electronic mail	3.14	Sometimes
33. Asynchronous computer conferencing	2.43	Sometimes
34. Synchronous computer conferencing	2.55	Sometimes
35. World-wide Web (internet)	3.45	Often
36. Student-created hypertext environments	2.85	Sometimes
37. Collaborative data environments	2.50	Sometimes
38. Group decision support systems	2.32	Sometimes
39. Shared document preparation	2.68	Sometimes
40. Social spreadsheets (*eg Facebook)*	3.12	Sometimes
41. Telementoring	2.33	Rarely
Average weighted mean	**2.609**	**SOMETIMES**

Table 7 presents the computer usage as perceived by the teacher-respondents. Finding reveals that they sometimes use the computer in 22 different uses as listed in the above table such as for software visualization, music, voice, images, graphics, videos, outlining programs, graphic presentation, electronic mail, and social spreadsheets like the Facebook as evidenced by the average weighted mean of 2.609, with the verbal description of Sometimes. This means that teacher-respondents have varied uses of the computer at work. This implies that knowledge and experience in teaching and learning could impact more when aided by the use of the computer technology.

Table 8 Teachers' Attitudes Towards Computers

Attitude towards Computers	Mean	Descriptive rating
1. If given the opportunity to use a computer, I am afraid that I might damage it in some way.	2.15	Disagree
2. I will use computers regularly throughout school.	3.80	Neutral
3. I could probably teach myself most of the things I need to know about computers.	3.79	Agree
4. I hesitate to use computers for fear of making mistakes I can't correct.	2.05	Disagree
5. I only use computers at school when I am told to.	3.63	Agree

Attitude towards Computers	Mean	Descriptive rating
6. I can make the computer do what I want it to.	3.65	Agree
7. I don't feel apprehensive about using a computer.	3.33	Neutral
8. I avoid coming into contact with computers in school.	1.98	Disagree
9. Computers make me feel uncomfortable.	1.85	Disagree
10. I would avoid taking a job if I knew it involved working with computers.	1.85	Disagree
11. If I get problems using the computer, I can usually solve them one way or the other.	3.55	Agree
12. Using a computer does not scare me at all.	4.05	Agree
13. I do not need someone to tell me the best way to use a computer.	2.83	Neutral
14. I hesitate to use a computer in case I look stupid.	2.08	Disagree
15. I need an experienced person nearby when I use a computer.	2.78	Neutral
16. Computers help me improve my work better.	4.38	Strongly agree
17. I am not in complete control when I use a computer.	2.45	Disagree
18. Computers make it possible to work more productively.	4.49	Strongly agree
19. If I get problems using the computer, I can usually solve them one way or the other.	3.51	Agree
20. Computers can enhance the presentation of my work to a degree which justifies the extra effort.	4.73	Strongly agree
21. Computers can allow me to do more interesting and imaginative work.	4.19	Agree
Average weighted mean	**3.196**	**AGREE**

Table 8 presents the teachers' attitudes towards computers. It shows that teacher-respondents have agreeable attitudes in regard to their use of the computers as evidenced by the average weighted mean of 3.196 with the verbal description of Agree. This means that most of them agreed that computers help them improve their work better, that computers made it possible to work more productively, and that computers could enhance the presentation of their work to a degree which justifies the extra effort rendered. This implies that the teachers are open-minded enough to receive knowledge in the use of computers for the benefit of good and quality teaching and learning experience.

Table 9 Computer Self-Efficacy

Computer self-efficacy	Mean	Descriptive Rating
1. I feel confident working on a personal computer	4.21	Strongly agree
2. I feel confident getting the software up and running	3.74	Agree
3. I feel confident logging onto a mainframe computer system	3.82	Agree
4. I feel confident working on a mainframe computer	3.65	Agree
5. I feel confident using the user's guide when help is needed	3.83	Agree
6. I feel confident entering and saving data (numbers or words) into a file	3.90	Agree
7. I feel confident escaping/exiting from a program or software	4.05	Agree
8. I feel confident logging off the mainframe computer system	3.92	Agree
9. I feel confident choosing a data file to view on a monitor screen	3.87	Agree
10. I feel confident understanding terms/words relating to computer hardware	3.78	Agree

Computer self-efficacy	Mean	Descriptive Rating
11. I feel confident understanding terms/words relating to computer software	3.68	Agree
12. I feel confident handling a USB flash disk correctly	4.05	Agree
13. I feel confident learning to use a variety of programs (software)	3.81	Agree
14. I feel confident learning advanced skills within a specific program (software)	3.69	Agree
15. I feel confident making selections from an onscreen menu	3.97	Agree
16. I feel confident using the computer to analyze number data	3.66	Agree
17. I feel confident using a printer to make a "hard copy" of my work	4.0	Agree
18. I feel confident copying a disk	3.82	Agree
19. I feel confident copying an individual file	3.84	Agree
20. I feel confident adding and deleting information to and from a data file	3.77	Agree
21. I feel confident moving the cursor around the monitor screen	4.03	Agree
22. I feel confident writing simple programs for the computer	3.63	Agree
23. I feel confident using the computer to write a letter or essay	4.0	Agree
24. I feel confident describing the function of computer hardware (keyboard, monitor, disk drives, processing unit)	3.74	Agree
25. I feel confident understanding the three stages of data processing: input, processing, output	3.68	Agree
26. I feel confident getting help for problems in the computer system	3.62	Agree
27. I feel confident storing software correctly	3.70	Agree
28. I feel confident explaining why a program (software) will or will not run on	3.32	Neutral
29. I feel confident using the computer to organize information	3.76	Agree
30. I feel confident getting rid of files when they are no longer needed	3.87	Agree
31. I feel confident organizing and managing files	3.95	Agree
32. I feel confident troubleshooting computer problems	3.08	Neutral
Average weighted mean	**3.795**	**AGREE**

Table 9 presents the teachers' computer self-efficacy. Finding reveals that teacher-respondents have mostly agreed that they are confident enough and are self-efficacious in computers as evidenced by the average weighted mean of 3.795 with the verbal rating of Agree. This means that they feel confident when confronted with the following computer dilemmas: working on a personal computer, escaping/exiting from a program or software, handling a USB flash disk correctly, copying a disk, moving the cursor around the monitor screen, and using the computer to write a letter or essay. This implies that all the basic functions of the computer were very much explored by the teacher-respondents that they all feel to have confidence in doing and manipulating the technology by themselves. This goes to show how self-efficacious they are in using the computers.

Related Works

A study on computer exposure concludes that although teachers have increased computer availability in their classrooms, they are not integrating computers into the standard curricula. It examined "technophobia" as an explanation for low levels of computer utilization. Elementaryteachers (N = 171), secondary science teachers (N - 117), and secondary humanities teachers (N = 200) in 54 schools across five urban school districts

completed three measures of technophobia and a measure of demographic characteristics, computer/technology experience, computer availability, and current computer use. Results indicated that: (1) computers are available at all schools, but are not being used by many teachers; (2) many teachers are technophobic, particularly elementary teachers and secondary humanities teachers; (3) teachers are most worried about dealing with the actual computer machinery in their classroom, about computer errors, and about learning to use computers; and (4) predictive models showed that although computer experience is the most prominent predictor of technophobia, it is not the only predictor — age, gender, teaching experience, computer availability, ethnicity, and school socioeconomic status also play an important role in predicting technophobia.

Furthermore, the availability of vast amounts of up-to-date information in the teaching and learning of different subjects are found on the World Wide Web. The internet provides far more up-to-date information than text books. Besides, looking for books and go in search for them and then discovering that it is not the one that has the kind of information you want can be time consuming and frustrating. The Net, on the other hand is very efficient. Up and above that, textbook can become obsolete without off date information that could misguide students into believing that there is no further development after that discovery.

It is also an undeniable fact that the multimedia and interactive nature of software programmes on CD-roms and on the World Wide Web assist with students' learning. The computer motivates and caters for different learning abilities. Students generally enjoy using the computer and with enjoyment come motivation. In particular, the presence of computer-based technology changes the way subjects such as science and mathematics is being taught. It is believed that the current era relate to computers as part of their up-bringing and being relevant in a technologically oriented society. In the homes of increasing number of students, computers play an essential role in students' recreation and learning. It changes the way different subjects such as science is taught as IT tends to accord more closely with the way students think (Dywer, 2000in Kumar, Rose and D'Silva, 2008).

Undoubtedly the recent advancement in information technology innovations and computer usage is rapidly transforming work culture and teachers cannot escape the fact that today's classrooms must provide technology-supported learning (Angers &Machtmes, 2005in Kumar, Rose and D'Silva, 2008). Being prepared to adopt and use technology and knowing how that technology can support student learning must become integral skills in every teacher's professional repertoire. District and school policy and professional development workshops and training are designed to positively influence teachers' adoption and usage of computer technology. However, the usage of computer technology in the classroom has been slow over the years (Krysa, 1998in Kumar, Rose and D'Silva, 2008).

Recognizing the paramount of importance of information technology, many countries including Malaysia have formulated special projects to enhance the usage of information technology. In the last two decades, Malaysian schools have experienced a dramatic

growth in the use of computer-based technology for education purposes. During the 2003 budget speech, the then Prime Minister of Malaysia, YAB Dato Seri Dr. Mahathir Mohammad had announced that the government would implement the teaching of mathematics and science using softwares in English language in schools.

Since then the Malaysian Education Ministry has given support and assistance to the Mathematics, Science, and English language (MSE) teachers in the form of providing Information and Communicating Technology (ICT) facilities, that is, ICT tools and teaching course wares for use by the teachers to teach besides giving them additional financial incentives.

Moreover, the Malaysia Government had also allocated special budget for the training of MSE teachers and they were given three types of training that is English Language proficiency training, Curriculum Orientation and Pedagogy Course, and ICT Usage (Hishammudin, 2005; Sharifah, 2002in Kumar, Rose and D'Silva, 2008). Such training or retraining is essential to give the MSE teachers the confidence and the necessary skills to enable them to actually use the computer in schools. Education declared on the on-going massive distribution of the IT tools to schools in 12 states and at present almost all schools are equipped with IT tools. In line with this, MSE teachers should be ready to adopt and use computers and students should benefit and be geared towards the realization of vision 2020. The investment on MSE teachers are also anticipated to create a technologically literate workforce who in turn would generate a future generation that would be competent and confident to perform in a global, IT-intensive work environment. However, in the school settings, one of the major obstacles faced is the non-extensive usage of computers by the educators for classroom instruction.

Clearly, something should be done to identify the root cause of this problem.In Malaysia, a goal has been set by the Ministry of Education that by the year 2008 all schools should be using computers to teach Mathematics, Science and English language. Since 2003 the Ministry has introduced laptops in the teaching of mathematics and science in English under the Teaching and Learning of Science and Mathematics in English Programme. A total of 27,543 MSE teachers were given training in the year 2002 by the Ministry besides placing these teachers under the incentive scheme that covers the paying of critical allowances, salary increment and promotions. The above policy requires MSE teachers to integrate information technology in the process of teaching and learning.

However, in the preliminary observations it was found that MSE teachers are not fully utilizing these facilities in their teaching (Chong, Sharaf& Jacob, 2005in Kumar, Rose and D'Silva, 2008). Although teachers are sent in batches for training to gain knowledge and skills in the Actual Usage of Computer (AUC) and ICT equipment, many have returned only to fall back onto their traditional mode of teaching. On average the MSE teachers in Malaysian schools only used ICT equipment for about 29 hours in the two year period which is considered to be very low (MHS, 2005in Kumar, Rose and D'Silva, 2008).

According to Carlson and Gadio (2003) in Kumar, Rose and D'Silva (2008) teachers' acceptance of technology is absolutely essential if technology provided to schools is to be used effectively. Simply put, it would be a sheer waste spending resources equipping schools with computer hardware and software without taking into account whether teachers' are comfortable using computers in schools. Studies carried out around the world in developed, industrialized and information based countries showed that teachers' use application of technology is the key determining factor for improved student performance in knowledge acquisition and skills development enabled by technology (North Central Regional Educational Laboratory, 2002). Educational technology is not, and never will be, transformative on its own - it requires teachers who can integrate technology into curriculum and use it to improve student learning.

Conclusion

Based on the findings of the present study, I acknowledge equal importance in the three concerns; computer exploration, attitudes towards computers and computer self-efficacy. Finding reveals that teachers sometimes use the computer in 22 different uses where a few includes uses for software visualization, music, voice, images, graphics, videos, outlining programs, graphic presentation, electronic mail, and social spreadsheets like the Facebook. Teacher-respondents have varied uses of the computer at work which could improve their knowledge and experience in teaching and learning and would eventually make an impact in education. Teachers' attitudes show unanimous agreement in regard to their use of the computers as they agreed that computers help improve their work better, that computers made it possible to work more productively, and that computers could enhance the presentation of their work to a degree which justifies the extra effort rendered. Teachers have mostly agreed that they are confident enough and are self-efficacious in computers as they feel confident when confronted with the following computer dilemmas: working on a personal computer, escaping/exiting from a program or software, handling a USB flash disk correctly, copying a disk, moving the cursor around the monitor screen, and using the computer to write a letter or essay. All these imply that the teachers are open-minded enough to receive knowledge in the use of computers for the benefit of good and quality teaching and learning experience and that all the basic functions of the computer were very much explored by the teacher-respondents that they all feel to have confidence in doing and manipulating the technology by themselves. On a similar note, teachers acknowledged the importance of inservicetraining to prepare them to integrate computers into the classroom and curriculum. Thefindings suggest that these concerns need to be addressed when administrators designtechnology related training sessions.

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