Faculty Adoption Patterns of Computer Technology Used for Teaching and Learning in Higher Education

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Abstract

This study was designed to determine the faculty adoption patterns of computer technology used for teaching and learning in higher education institutions of Iligan City.

Specifically, this study attempted to: (1) determine the respondents' patterns of computer technology in terms of (a) Acquisition, which involved personal and professional academic tasks, utilizing the computer for research and instruction, personal/home use; (b) Knowledge and skills, which involved acquiring initial computer skills, range of computer knowledge and skills, teaching computer courses, number of hours spent in using the computer per day; (c)Access, which involved items designed for professional use, for computer software and needed equipment for teaching tasks; (d) Satisfaction, which involved campus support for campus-related teaching tasks, acquisition of computer technology by individual faculty, acquisition of computer technology for teaching-learning activities; (2) determine the respondents' level of computer experience as regards: software and tools, operating system, tool application, graphics software, communication software, authoring, instructional courseware, and variety;(3) identify the respondents' level of computer generalized self-efficacy; (4) identify the respondents' level of teaching and learning in terms of : (a) changes for teaching and learning with the integration and use of technology in the classroom

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environment. (b) incentives in integrating technology for teaching. (c)barriers in integrating technology for teaching and learning, and (d) methods for using and integrating technology in teaching and learning; and (5) determine whether significant relationship existed between the respondent's patterns of computer technology use and the: (a)Respondents' levels of computer experience,(b) computer generalized self-efficacy. (c) changes *for teaching and learning with the integration and use of technology in the classroom environment. (d) incentives in integrating technology for teaching. (e) barriers in integrating technology for teaching and learning, and (f) methods using and integrating technology for teaching and learning.*

Keywords: faculty Adoption Patterns, Computer Technology, Higher Education

Introduction

Technological literacy-computer skills and the ability to use computers and other technology have become as fundamental to a person's ability to navigate through society as traditional skills like reading, writing, and arithmetic. As envisioned by the Commission on Higher Education (CHED) and the Department of Education Culture and Sports (DECS) authorities, all students in the 21st century should be technologically literate. To realize such noble mission, it behooves that all teachers in the nation should undergo computer training to valuably help students use computers in their classroom as an integral part of every school's curriculum.

In the speech of President Fidel Ramos in the Fourth Asian Ministers of Education Organization (SEAMEO) conference held last February 23-25, 1994, he emphasized that :

... for the Philippines 2000, innovation and technology are integral parts of the medium-term Philippine Development Plan for 1993-1998. Technology can strengthen the internal efficiency of basic education. To attain our time our people's aspirations for a better quality of life, "knowledge, innovation, values, applied technology are the principal weapons.

The above reality calls for the Philippine government to offer responsive and relevant education in order to cater to the needs of the people. It is along this context that our educational system adopts measures, specifically on computer literacy to meet the emerging demands of the time. With improved computer literacy, learners will be able to cope with newer contexts and realities that beset their performance in the class. As gleaned, the situation calls upon the educators to fulfill their critical role and to respond to such need.

In realizing the mission, vision, goals and objectives of education, there should be valuable change in attitudes, habits and work ethics of all teachers at all levels in schools- be the public or private. Inasmuch as they have direct contact with their students, they should continue to grow professionally and equip themselves with sound values worthy of emulation. No matter how superior a teacher's pre-service education has been, his preparation for teaching is never complete. He has to keep abreast with what is happening in his profession. This involves keeping up with the changes and newer developments in his subject area, in the theory and practice of teaching, in current experimentations in education, and in other areas of knowledge relevant to his teaching (Lardizabal,1999). It means that teachers should adopt changes particularly in the new trends on teaching and learning process. The effectiveness of teaching depends upon the instructional materials that are used and employed by the teachers in the teaching-learning process. The insufficiency of the teaching materials and equipment cannot be substituted with very good teaching and procedures. No matter how orderly and sound the procedure a teacher employs, without the necessary

materials, it would be less effective. The effectiveness of the teaching-learning process can be increased greatly through the proper use of instructional aids. Computers, as the most current instructional aids, have their impact on the educational endeavor. Teachers who are computer literate could easily introduce functional ideas through computers. According to Lardizabal (1999) and Macleod (1989), teachers with high computer literacy have an advantage in motivating students to do their assigned tasks.

The use of computers in teaching is very much substantiated by Republic Act 7722 otherwise known as the "Higher Education Act of 1994" (cited in the CHED memo # 11, series of 1999). The following provisions of such Act enunciate such policy:

Article V section 2.1

A general education component which is consistent with the CHED issuances will consist of the humanities, natural and behavioral sciences and computer literacy, mathematics, logic and ethics aimed at developing a broadly educated, creative, cultured, morally upright and productive person.

Article VI section 1

Teacher education institutions shall maintain high standards of instruction, utilizing a variety of appropriate emerging instructional technology procedures, which contribute to the effectiveness of the teacher education students.

Article IX section 1

A multimedia instructional center shall be maintained as a separate unit or as part of the library. It shall serve as a laboratory for the production of materials and educational media for instruction to include maps, charts, pictures, films, slides, tapes, curriculum materials, courses of study, computer-aided instructional materials, etc. A professionally trained

personnel having experience in both areas of instruction and educational media shall administer the center.

In support, CHED Memo 16, series of 1999 requires all higher Education institutions to provide their Regional CHED officials data pertaining to Information Technology. Such data would serve as bases for sound decision making policy formation, and planning by higher education stakeholders and government legislative bodies in connection with projects and computerization programs of the government. In short, the memorandum requires all higher education schools to valuably use computer as an instructional technology to attain quality education. Through the use of computer technology in the teaching and learning process, students would be incessantly motivated to actively participate in every classroom activity. In the six colleges of Iligan City, there are some teachers who are using computer technology in giving their students research works. Instead of scanning books in the library which is very time consuming, students will only surf in the internet. Through computers, learning then can be easily facilitated. Nonetheless, computers will be useless without the programmer or user. Man's genius is still needed in all aspects of computer learning. Thus, there is a need for the teachers to be computer literate in order to assist the learners in the teaching-learning process. Teachers should be innovative enough on the new trends of teaching. However, based on the researcher's actual observation, only very few of the teachers are using computers. Some of them are not interested to adopt the new trend of teaching. They prefer to use the traditional method of teaching. These differences in the faculty adoption patterns of computer technology for teaching and learning in higher education prompted the researcher to conduct the study.

Theoretical Framework

This study is anchored on the theories of John Dewey: theory of progressivism, pragmatism and reconstructionism; Bruner's theory of learning, Skinner's theory on reinforcement and conditioning, Kohler's insight theory, Piaget's cognitive theory and Roger's diffusion theory and innovation.

John Dewey's theory of progressivism (cited in Mateo and Tangco, 1997) stipulates that an individual learns through reacting, doing, and

experiencing. Hence, all learning is experience. Since education is a matter of the interaction between the individual and his society, the curriculum must be child-centered and the child must be developed as a whole person-physically, mentally, socially, emotionally, and spiritually. The experiential background of the child is fundamental to future learning. Human thinking is the process by which man can adjust to his changing environment. Likewise, his theory on pragmatism substantiates that "education is life, education is growth, education is a social process, and education is a reconstruction of human experiences". Based on the pragmatic concept of education, the child is made the center of educative process rather than the subject matter, and that the child acts as a unified whole or act as a unit. As shown in this context, learning is an active process and good teaching stimulates thinking and reasoning for activity is made the core of curriculum. The school program is integrated with life and activities of the community. In like manner, his theory on reconstructionism is concerned with social change. Schools should originate policies and progress which would bring about reform of the social order, and teachers should use their power to lead the young in the program of the social reform. Culture is dynamic, that man can re-shape his culture so that it promotes optimum possibilities for development. Society has to reconstruct its values, and education has a major role to play in bridging the gap between the values of culture and technology and there is a serious lag in cultural adaptation to the realities of a technological society.

The educational theory of John Dewey mentioned above, is based on the concept of self-activity. It means that teachers should employ teaching strategies and instructional materials that will lead the students to be active learners. One of these is through the use of computer technology in teaching and learning process, which is the new trend of teaching for this age of information technology.

Bruner's theory of learning (cited in Bustos and Espiritu, 1996) focuses on the problem on what people do with information to achieve generalized insights or understanding. He sees that the cognitive process involves: acquisition, transformation and evaluation. Acquisition is the process of obtaining new information that can either replace or refine something previously known. Transformation is the manipulation of information to fit new situations and evaluation is checking whether or not the learned material has to be manipulated appropriately. This theory

fits the new trend of teaching, which is the use of computer technology in teaching and learning process. Teachers of today should adopt the integration of computer technology in teaching. This is also a call of the present educational system that all teachers should be computer literate. The information-processing theory of Bruner, states that most cognitivists at present ascribe to an information-processing model, which is developed almost at the same time as interest is growing in the field of computer technology. This is the transformation of information from input to output.

Skinner's Theory on reinforcement and conditioning through the programmed learning (Bustos and Espiritu, 1996) is a system of learning in which pre-established subject matter is broken down into sequential steps. In going through the steps, the learner is immediately reinforced after each step as soon as he makes the correct response. Thus, program learning could be easily accomplished either with the use of teaching machines or a recent development program learning of computer-assisted instruction.

Kohler's insight theory (cited in Bustos and Espiritu, 1996) substantiates the above theory. In this theory, gaining insight is a gradual process of exploring, analyzing, and restructuring perceptions until a solution is arrived at. As exemplified, the more intelligent a person and the more experience he has in using computer, the more capable he will be doing his school works efficiently and effectively. Hence, with sufficient experience in computer, the schoolteachers could easily deliver their assigned tasks valuably to their students.

On the other hand, Piaget's cognitive theory (cited in San Mateo and Tangco, 1997), which states that knowledge is always a construction by the learners involving operative processes would lead to transformation of reality, either in action or thought among the involved individuals. It is along this vein that teachers are expected to use active games, active teaching strategies, and experimentation to elicit better participation among the students. As depicted, this theory brings about the integration of computer technology in teaching and learning process to feasibly facilitate better learning among the students.

Likewise, Roger's theory on diffusion and innovation (1995) [on-line]. Available: http://www.altavista.com stresses an idea, practice or object that is perceived as new by the individual, and diffusion as the process by which an innovation makes its way through a social system. The

innovation in the present investigation is instructional technology, and the diffusion is the extent to which all faculties on campus have adopted this innovation for teaching and learning.

Hence, the different theories included in this study are of great help in determining the faculty adoption patterns of computer technology used for teaching and learning in higher education.

Conceptual Framework

The focus of this study is on the faculty adoption patterns of computer technology for teaching and learning in higher education. The independent variables of this study were the respondents' patterns of computer knowledge use such as *acquisition*, which involved using computer for personal and professional academic tasks, for research tasks, teaching tasks, and for personal/ home use; *knowledge and skills*, which involved acquiring initial computer skills, range of computer knowledge and skills, teaching computer courses, and number of hours spent in using computer per day; *access* for professional use, computer software and needed equipment for teaching tasks; and *satisfaction* which involved campus support for computer-related teaching tasks, acquisition of computer technology by individual faculty, and acquisition of computer technology for teaching-learning activities.

On the other hand, the dependent variables involved the respondents' level of computer literacy, computer generalized self-efficacy, and changes for teaching and learning with the integration and the use of technology in the class. From the findings of this study, a Campus-Wide Computer Technology Training Workshop in Teaching and Learning In Higher Education would be proposed.

Statement of the Problem

This study aimed to determine the faculty adoption patterns of computer technology used for teaching and learning in higher education of Iligan City during the school year 2000-2001.

More specifically, this study sought to answer the following questions:

1.What are the respondents' patterns of computer technology in terms of:

1.1 Acquisition

1.1.1 personal and professional academic tasks
1.1.2 utilizing computer for research tasks
1.1.3 computer for teaching tasks
1.1.4 personal/home use

1.2 Knowledge and skills

1.2.1 acquiring initial computer skills
1.2.2 range of computer knowledge and skills
1.2.3 teaching computer courses
1.2.4 number of hours spent in using computer per day

1.3 Access

1.3.1 for professional use
1.3.2 for computer software and needed equipment for teaching tasks

1.4 Satisfaction

1.4.1 campus support for campus-related teaching tasks,
1.4.2 acquisition of computer technology by individual faculty,
1.4.3 acquisition of computer technology for teaching-learning activities

2. What is the respondents' level of computer experience as regards:

2.1 software and tools
2.2 operating system
2.3 tool application
2.4 graphics software

2.5 communication software
2.6 authoring
2.7 instructional courseware, and
2.8 variety

3. What is the respondents' level of computer generalized self-efficacy?

4. What is the respondents' level of teaching and learning in terms of The following:

4.1 changes for teaching and learning with the integration and use of technology in the classroom environment;
4.2 incentives in integrating technology for teaching;
4.3 barriers in integrating technology for teaching and learning;
4.4 methods for using and integrating technology in teaching and learning

5. Is there a significant relationship between the respondents' patterns of computer technology use in terms of

5.1 Respondents' levels of computer experience
5.2 computer generalized self-efficacy
5.3 changes for teaching and learning with the integration and use of technology in the classroom environment
5.4 incentives in integrating technology for teaching
5.5 barriers in integrating technology for teaching and learning
5.6 methods for using and integrating technology for teaching and learning

6. From the study what Campus-Wide Computer Technology Training Workshop in Teaching and Learning In Higher Education should be proposed?

Hypothesis

Below was the null thesis tested at .05 level of significance:

1. There is no significant relationship between the respondents' patterns of computer technology use and the respondents' levels of computer experience, computer generalized self-efficacy, changes for teaching and learning with the integration and use of technology in the classroom environment, incentives in integrating technology for teaching, barriers in integrating technology for teaching and learning, and methods for using and integrating technology in teaching and learning.

Significance of the Study

Any educational research endeavor is geared towards improvement of the quality of education in any level. This is because the empirical findings may assist the school, in one way or another, in designing measures for said upliftment. As such, this study will specifically benefit the following:

Commission on Higher Education (CHED). The results of this work would serve them as basis in setting up standards and policies to improve the quality of graduates.

Administrators. The findings would guide them in formulating policies institutional planning as well as designing faculty development programs and campus-wide technology integration curriculum plan.

Faculty members. The findings of this study would provide them directions in using new trends of teaching-learning process.

Students. The findings of this study would encourage them to use computers in doing their research work.

Educational Researchers. The findings would serve them as springboard in conducting studies related to computer literacy.

Scope and Limitations of the Study

This study was focused on the faculty adoption patterns of computer technology for teaching and learning in higher education of the six institutions of Iligan City, Region XII, namely: MSU- Iligan Institute of Technology, St. Michael's College, Iligan Capitol College, St. Peter's College, Iligan Medical Center College and Lyceum of Iligan Foundation, Incorporated. It also determined the teachers' level of computer literacy, generalized self-efficacy and the changes for teaching and learning with the use of computers in the classroom environment.

Methodology

The study made use of quantitative-qualitative descriptive survey method, which aimed to describe the faculty adoption patterns of computer technology for teaching and learning in higher education of the six colleges in Iligan City, Region XI, and determine the faculty level of computer literacy, computer generalized self-efficacy, and the changes for teaching and learning with the integration and use of computer technology. To support the obtained data, both quantitative (selected-response survey items) and qualitative methodologies (open-ended survey response items) were used.

The Respondents of the Study

There were two hundred nineteen (219) faculty respondents across disciplines with different fields of specialization teaching in the various college institutions in Iligan City during the school year 2000-2001. This number of respondents was taken from the six (6) higher institutions of learning in Iligan City. However, since this number was too big, the researcher resorted to utilizing stratified sampling to obtain the desired number of respondents for the study. The researcher used the following procedure to wit: (1) identified the population of the respondents; (2) utilized the Slovin's formula using the marginal error of .05 in determining the sample size; (3) grouped the respondents into six categories according to the college they belonged; (3) and computed the

sample proportion (percent) employing the formula refers to the size of the sample; N pertains to the size of the population; and 100 is constant.

Table 1. shows the population distribution of the respondents.

Colleges in Iligan City	Faculty Respondents	Sample Size
MSU-IIT	60	27
SMC	45	20
SPC	40	18
ICC	24	11
IMCC	25	11
LIFI	25	11
Total	219	98

Research Instruments

In obtaining the needed data two instruments were used:

1. A survey instrument taken from the internet web site (http://www.ucalgary.ca/~dmjacobs/phd/) *"Teaching and Learning With Technology in Higher Education"* consisting of quantitative selected-response survey items and qualitative methodologies (open-ended survey response items) with eighteen (18) questions used to gather information regarding the faculty patterns of computer technology in terms of acquisition, knowledge and skills, access, and satisfaction. Likewise, there were forty-four (44) examples of computer software and tools used to determine the current level of computer experience of the respondents.
2. Another instrument used in this study was the work of Ralf Schwarzer(fu1270ap@fu46.zedat.fu-berlin.de)orURL: (http://www.yorku.ca/academics/schwarze). This instrument was employed to determine the generalized efficacy of the respondents.

The above-instrument employed a five-point rating scale to determine the incentives to integrate technology for teaching and learning, the barriers to integrating technology for teaching and learning

computer experience, methods for using and integrating technology in teaching and learning, and evaluating the outcomes of using technology for teaching and learning.

Statistical Treatment of Data

To arrive at an accurate interpretation of the obtained data the following statistical tools were employed:

1. ***Frequency and Percentage Distributions*** were used to determine the faculty adoption patterns of computer technology use in terms of acquisition, knowledge and skills, teaching computer courses, number of hours spent in using computer per day, access for professional use, for computer software and needed equipment for teaching tasks, satisfaction of campus support for computed-related teaching tasks, acquisition of computer technology by individual faculty, and acquisition of computer technology for teaching-learning activities.
2. ***Mean*** was utilized to determine the respondents' level of computer experience in terms software and tools, operating system, tool application, graphics software, communications software, authoring, instructional courseware and variety. Likewise, this tool was used to determine the respondents' level of computer generalized self-efficacy as well as the respondents' level of changes for teaching and learning with the integration and use of technology in the classroom environment .
3. ***Chi - Square*** was used in determining the significant relationship between the respondents' patterns of computer technology and the respondents' levels of computer experience, computer generalized self-efficacy, and changes for teaching and learning with the integration and use of technology in the classroom environment.

In scoring, the researcher made use of the following scales:

A. Faculty members' level of computer literacy

Point Score Rating	Equivalent Descriptive Rating
4	Extensive
3	Substantial
2	Fair
1	A little
0	None

B. Faculty members' Generalized Self-Efficacy

Point Score Rating	Equivalent Descriptive Rating
4	Almost Always True
3	Often True
2	Sometimes True
1	Not at All

C. Changes for Teaching and Learning with the Integration and use of Computer Technology

Point Score Rating	Equivalent Descriptive Rating
1	Strong Agree
2	Agree
3	Neutral
4	Disagree
5	Strongly Disagree

D. Incentives to Integrate Computer Technology for teaching and learning

Point Score Rating	Equivalent Descriptive Rating
1	Strong Agree, a major incentive
2	Agree
3	Neutral
4	Disagree
5	Strong Disagree, not incentive

E. Barriers to Integrating Technology for teaching and learning

Point Score Rating	Equivalent Descriptive Rating
1	Strongly Agree, a major Barrier
2	Agree
3	Neutral
4	Disagree
	Strong Agree, not barrier

F. Satisfaction with campus support for computer-related teaching tasks and satisfaction with the acquisition of computer technology by individual faculty

Point Score Rating	Equivalent descriptive Rating
1	Very Satisfied
2	Satisfied
3	Neutral
4	Unsatisfied
5	Very unsatisfied

Findings

The obtained data generated the following findings:

A. Respondents' Patterns of Computer Technology in terms of acquisition, knowledge and skills, access, and satisfaction.

It was found out that in terms of acquisition, majority of the faculty members in the six Colleges of Iligan City started to use computer for personal and professional academic, research tasks, for teaching, and for personal use in 1998.

On the other hand, most of the respondents were not teaching computer courses. They only acquired their initial computer skills through self-teaching and formal courses with an average of 1 to three hours a day using computers.

In terms of access, majority of the respondents had an exclusive and convenient access to computer for professional use and for computer

software and equipment for teaching tasks. Moreover, as regards computer satisfaction, the respondents were satisfied with campus support for campus-related teaching tasks, available training on campus-related teaching tasks, and current campus investment plans in terms of acquiring computer technology by individual faculty and acquiring computer technology for teaching and learning activities.

B. Respondents' Level of Computer Experience

As disclosed, the respondents had little experience in using computer softwares and tools, operating systems, graphics software, and computer variety. However, in terms of tool applications, communication software, and instructional courseware, the respondents had fair experience, but with no experience at all in terms of authoring.

C. Respondents' Level of Computer Generalized Self-Efficacy

Although the respondents had little experience in using computers, however, they were patient enough in finding ways to combat their inadequacies through constantly exploring things in the computer until they learned the various functions of a computer as manifested by most of their behaviors.

D. Respondents' Level of Teaching and Learning in terms of changes for teaching and learning with the integration and use of technology in the classroom environment, incentives in integrating technology for teaching, barriers in integrating technology for teaching and learning, and the methods for using and integrating technology in teaching and learning.

With the integration of technology in the classroom environment, the respondents agreed that teaching and learning could be easily facilitated through computers. Likewise, teaching via computers would eventually prepare students to find easy jobs in the future requiring computer literacy. On the contrary, the respondents though were willing to adopt computer-based teaching, however, they were obstructed by the lack of computer facilities in the school campus and administration's support valuably deemed necessary for their exposures and students' training.

Despite the above-scenario, the respondents continually perceived the importance of computer materials as well as the source of assistance as very significant in integrating technology in the teaching and learning.

E. Relationship between the Respondents' Patterns of Computer Technology Use and the Respondents' Level of Computer Experience, Computer Generalized Self-Efficacy, Changes for teaching and learning with the integration and use of technology in the classroom environment, Incentives in Integrating Technology for Teaching, Barriers in Integrating Technology for teaching and learning, and the Methods for Using and Integrating Technology for Teaching and Learning.

As indicated, the year respondents first used computers for personal and professional academic tasks, for teaching task, for personal and home use, for teaching computer courses, average hours using computers, access for professional use, and access for teaching tasks showed significant relationship with their level of computer experience. However, no significant relationship existed between the respondents' patterns of computer technology and their computer generalized-efficacy.

On the other pole, only the year the respondents first used computer for research task exhibited *significant relationship* with the respondents' changes for teaching and learning emphasizing integration and use of technology in the classroom environment; and only year the respondents first use computer for research tasks, for teaching task and changes for teaching, year the respondents first bought computer for personal and home use, sources of computer knowledge and skills, and the access for teaching tasks indicated *significant relationship* between the respondents' patterns of computer technology and incentives in integrating technology for teaching.

More pervasively, in terms of the relationship between the respondents' patterns of computer technology and barriers in integrating technology for teaching and learning, only the year the respondents first used computer for teaching tasks, the year the respondents first bought computers for personal and home use, sources of computer knowledge and skills and access for teaching tasks had significant relationship with the latter. Moreover, the respondents first used computers for research task, mode of acquiring initial computer skills and change for teaching, and sources of computer knowledge and skills *showed* a significant

relationship with the respondents' methods for using and integrating technology for teaching and learning.

Conclusions

Majority of the faculty across disciplines of the six colleges in Iligan City are not teachers of computers. They start to acquire their initial computer skills through self-teaching and formal courses by spending 1 to three hours everyday.

Likewise, even with little experience they started to employ computer for personal and professional academic tasks, research tasks, teaching tasks, and for personal/home use in 1998. However, their interest in using computers in teaching tends to die out since they lack support from the administration plus the lack of enough computers to be used both by the teachers and students, which could easily facilitate easy teaching and learning activities.

The fusion of technology in higher institutions in Iligan City, teaching via computers would afford both the teachers and students the chance to develop their computer literacy important in getting jobs.

Implications

Based on the findings of the study and from the conclusions made the following implications were drawn:

1. Though majority of the faculty across disciplines in the different college institutions in Iligan City were not teachers in computer but started to employ computer for personal and professional academic tasks, research tasks, and teaching tasks, this finding suggests that they (teacher-respondents) recognize the significant role of computer in their teaching career. As such, the administration should constantly expose their teachers to the role of technology in today's education.
2. The level of computer experience among the faculty across disciplines is little. Such level cogently implies that they need to constantly expose themselves to utilizing computers in their every class so as to acquaint themselves on the various softwares, and

commands necessary in computer-based teaching. This could be easily accomplished since they show a high level of computer generalized self-efficacy in learning to use computers in the class.

3. Majority of the teacher-respondents have acknowledged the role of computers in teaching. Shown in this context, the result implies that every school administrator should be cognizant to the needs of his faculty and students for them to be globally competitive.
4. The emergence of a significant relationship between the year the respondents first use computers for research and their changes for teaching and learning with the integration and use of technology in the classroom environment implies the necessity of adopting computers in the class as a viable technology designed to facilitate easy accomplishment of quality research.
5. The existence of a significant relationship between the respondents' patterns of computer technology and incentives integrating technology for teaching clearly depicts the benefits that computer technology could provide to teachers making their teaching profession more functional and productive.
6. Some of the respondents' patterns of computer technology indicate significant relationship with barriers in integrating technology for teaching and learning and of the methods for using and integrating technology for teaching and learning. Such results entail proper exposures and trainings to teachers on the different computer materials, skills, and source of computer knowledge deemed important in adopting computer-based teaching. Thus, administration's support is very much crucial and needed to the attainment of such educational pursuit.

Recommendations

In the light of the findings of the study, the following recommendations have been inferred by the researcher:

1. Any educational endeavor entails logistics. In fact, the success of the latter largely depends on the former. It is therefore recommended that the school administrators in the higher institutions in Iligan City should allocate sufficient budget designed to acquire computers to be used by their teachers in their classroom environment.

Accomplishing such task will in no doubt would produce quality students equipped with computer literacy necessary in today's education.

2. Since majority of the faculty across disciplines in the various higher institutions in Iligan City have little knowledge in computers, it is suggested and recommended that the school administrators should regularly send their faculty to seminars on computer literary so as to augment their skills and knowledge in adopting computer-based teaching.
3. The CHED officials should make computer courses as basic requirements to all teachers irrespective of their courses taught for them to become globally competitive in accomplishing works at an instant. Furthermore, they (CHED officials) should conduct regular evaluation among higher institutions in Iligan City so as to determine the number of computers available to the needs of both teachers and students in the teaching–learning process.
4. The proposed Campus-Wide Computer Technology Training Workshop in Teaching and Learning In Higher Education be institutionalized among the higher institutions in Iligan City to readily measure the efficacy of such plan.
5. Another study to this effect should of learning be conducted involving larger samples to confirm the findings of this study.

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