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RESEARCH ARTICLE

UTILIZATION OF ICT IN TEACHING CHEMISTRY: THE CASE OF EASTERN SAMAR STATE UNIVERSITY

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ABSTRACT

Education has taken a significant overhauling with technological advances coming our way. It is therefore imperative that teachers update their online skills so as to reach their students and get them interested in improving their academic performance. The researcher used the normative survey to find out the extent of utilization of ICT in teaching chemistry among instructors and professors of the university. The study revealed that college instructors/professors are utilizing various forms of ICT in teaching chemistry, majority of the instructor/professors handling chemistry are using only power point and internet research in instruction among the various forms of ICT available, and students enrolled in chemistry believe that the use of ICT in teaching chemistry facilitates learning and improve their academic performance.

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INTRODUCTION

Education has taken a significant overhauling with technological advances coming our way. Gadgets like laptops, ipods, mobile phones, iphone and other are taking the place of textbooks and libraries. Our students are engaged for house in online gaming or social networking. It is therefore imperative that teachers update their online skills so as to reach their students and get them interested in improving their academic performance.

Objectives

The researcher who is a teacher in chemistry wanted to find out the extent of utilization of ICT in teaching chemistry among instructors and professors of the university. Specifically, they attempted to seek answers to the following questions:

1. What is the profile of the instructors/professors handling chemistry in terms of:
 - Educational qualification
 - Years of experience in teaching chemistry
 - Academic rank

- Age, and
- Civil status?
2. To what extent do the instructors/professors utilize the following forms ICT in teaching chemistry
 - Power point presentations
 - Internet research
 - Creating class web pages
 - Lab works using laboratory interfacing system
 - Using the social networking sites to communicate with students
 - Cyber molecular models
 - Chem. Windows?
3. What are the reactions of the students to the use of ICT in teaching chemistry?

MATERIALS AND METHODS

The study is a normative survey research using a researcher made questionnaire as instrument for gathering data. The questionnaire was validated by requesting chemistry instructors and students in other colleges in the province to answer them and use their feedback in revising and improving the same. All the instructors and professors handling chemistry in all

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programs offered in the five campuses of the University were considered as respondents of the study. Their respective students were made to give their reactions, comments and suggestions on the use of ICT in teaching chemistry. The data gathered were summarized, categorized and analyzed using frequency counts and percentages.

RESULTS AND DISCUSSION

There is a total of sixteen (16) instructors/professors teaching chemistry in the entire ESSU system: six are in the main Campus, two in Can-Avid, three in Guiuan, two in Maydolong and three in Salcedo Campus. As to educational qualification, there are four who are doctorate degree holder but in other fields of specialization like education, technology management and social sciences research. Most of these instructors and professors though have master's degrees in teaching chemistry and allied sciences. As to their baccalaureate degrees, four of them are licensed chemical engineers and the rest are education graduates major in chemistry and other sciences.

between 40-49 and four are 30-39 years of age. They also are not neophyte in the field of teaching chemistry: one has been teaching the subject for over 30 years. Six have been in this field for more than 20 years, six have been engaged in this endeavor from 10-19 years and three have been in the field for less than 10 years. Among the fifteen, two have remained single: 11 are happily married while one is separated and one is a single mom.

This faculty profile clearly shows that teaching chemistry attracts people from all ages and they have remained in this field for the rest of their teaching careers. All of them pursued master's degrees as it is a requirement of instructors and professors in state universities and colleges. Only few have pursued doctorate degrees and not in their field of specialization because in our part of the country there is no school which are bent on pursuing the degree.

It can be gleaned from Table 2 that all of the instructors and professors make use of PowerPoint presentation in teaching chemistry but only in selected topics due to the inadequacy of

Table 1. Profile of Chemistry Instructors/Professors in ESSU

Variables	Borongan	Can-avid	Guiuan	Maydolong	Salcedo	Total
Total Frequency	6	2	3	2	3	16
Educational Qualification						
Doctorate Degree	1	2	1			4
MA + Ph.D. Units	2		1		1	4
MA/MS Degree	1		1	1	1	4
BS + MA/MS Units	2			1	1	4
BS Degree						
Academic Rank						
Instructor	3		1	2	1	7
Asst. Professor	2	2	2		2	8
Associate Professor	1					1
Professor						
Age						
60 – above					1	1
50 – 59	1	2			1	4
40 – 49	2		2	1	1	7
30 – 39	3		1	1		4
20 – 29						
Experience in Teaching Chemistry						
30 – 39					1	1
20 – 29	1	2	2		1	6
10 – 19	3		1	1	1	6
0 – 9	2			1		3
Civil Status						
Single	1			1		2
Married	4	2	2	1	3	12
Widow/Separated	1		1			2

Table 2. Number of Chemistry Instructors/Professors in ESSU who use ICT

Variables	Borongan Campus	Can-Avid Campus	Guiuan Campus	Maydolong Campus	Salcedo Campus
Power point Presentation	6	2	3	2	3
Internet Research	6	2	3	1	2
Creating Class Web Pages	1	0	0	0	0
Lab works Using Laboratory Interfacing System	1	1	1	1	1
Using the Social Networking Sites	1	1	1	1	1
Cyber Chemistry Models	1	0	0	0	0
Chem. Windows	0	0	0	0	0

Seven of these instructors and professors have instructor's positions, eight are assistant professor and only one is an associate professor. As to their chronological age, one of them is over 60 years old, four are over 50 years old, seven are

projectors in the university. Most (87%) of them assign their students to research on some topics using the internet. One of the faculty members has created a class web page where students can interact with their classmates and professors

regarding their lessons. Assignments and other related matters. One instructor is using the cyber chemistry models but only on the molecular models. Five instructors are using the social networking sites as venue for giving of instructors or professors though are using laboratory interfacing System and Chem. Windows in teaching chemistry. The students of the subject instructors were asked the survey questionnaire on their reactions or comments on the use of ICT in teaching chemistry. Their responses are indicated in the table below. The response of the students indicates that the utilization of ICT in instruction particularly in teaching chemistry enhances learning. Most of the students affirmed that the ICT resources utilized by their instructors/professors were beneficial to them and facilitated the understanding of course materials. They liked I better compared to the traditional chalkboard method. There were some problems which cropped like using the internet is an additional expense on the part of the students because most of them have no connections at home so they have to go to the internet cafes in towns. Another problem among the faculty is that there is not enough LCD projectors in the university that faculty members have to take turns in using them. In effect even if they have prepared power point slides for a particular lesson sometimes they are not able to use them because of the inadequacy of ICT resources.

Conclusions

Based on the results and findings of the study, the following conclusions are drawn:

- College instructors/professors are utilizing various forms of ICT in teaching chemistry.
- Majority of the instructor/professors handling chemistry are using only power point and internet research in instruction among the various forms of ICT available.
- Students enrolled in chemistry believe that the use of ICT in teaching chemistry facilitates learning and improve their academic performance.

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