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ICT SOCIAL AND ETHICAL COMPETENCY AMONG TEACHER EDUCATORS IN THE PHILIPPINES

Abstract. This paper presents findings from an empirical investigation of the competency level of social and ethical use of ICT among teacher educators in Central Visayas, Philippines. The study used a survey questionnaire based on the Philippine's National ICT Competency Standard for Teachers. A total of 383 responses from 76 private and public higher education institutions were included in the analysis. The study reveals that the level of ICT competence in social and ethical domains among the teacher educators is "good." The result implies that the respondents have the ability to explain and discuss the task but have not experienced the actual social and ethical practices in ICT. Moreover, there is a significant relationship between the level of ICT competence in terms of social and ethical aspects and the respondent's age, status, type of institution, number of years in teaching, Internet accessibility, and desktop, smartphone and laptop ownership.

Keywords: e-learning; Information Systems; Online Guidance Counseling; ICT in Education.

1. INTRODUCTION

ICT redefines how people think and how people communicate. It brings benefits and new possibilities as well as risks and new problems. "In a world where information and communication technology has come to define how people live and work and has critically affected culture and values, it is important for us to review ethical issues, as well as social responsibility, in the Asia-Pacific region" (Sembok, 2003). ICT creates ethical issues because "it changes the instrumentation of human action" (Johnson, 2001). Moreover, the ICT ethical issue is unique as it provides "new species of traditional moral issues" (Johnson, 2001). Thus, it "raises serious ethical questions for individuals and organizations" (Edewor, Ethics and Social Issues Related to Information Communication Technology, 2011) like the academe. Most importantly, teachers need to understand these issues.

Several frameworks on ICT social and ethical policies are available that define several issues and provide guidelines. For example, the UNESCO's Info-Ethics Programme, cited in (Sembok, 2003), promotes equality, justice, mutual respect, production, access, dissemination, preservation and use of information in the electronic environment. Also, the ISTE National Educational Technology Standards for Teachers emphasize the need "to promote and model digital citizenship and responsibility" (International Society for Technology in Education (ISTE), 2016). The standard states that "teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices". It focuses on advocating, addressing, promoting, and developing social and ethical ICT responsibility. On the same way, the Philippines' Commission on Information and Communication Technology formulated in 2006 the National ICT Competency Standard for Teachers, also known as NICS-Teachers (Commission on Information and Communication Technology). One of the domains in the standard is social and ethical competencies related to social, ethical, legal and human issues, and community linkage. Specifically, the standard emphasizes the following: 1) understand and observe legal practices in the use of technology, 2) recognize and practice ethical use of technology in both personal and professional levels, 3) plan, model and promote a safe and sound technology-supported learning environment, 4) facilitate equitable access to technology

that addresses learning, social and cultural diversity. Although the standard was formulated in 2006, there is limited evidence of existing ICT social and ethical competencies among teacher educators. This paper provides the supplemental discussion about the ICT competence in the teacher education program in the central part of the Philippines, particularly on the social and ethical competency of ICT.

Analysis of recent studies and publications. Shakeel Ahmad Khan, Bhatti, &Aqeel Ahmad Khan (2011) asserts that the "purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues." Thus, it is imperative that teachers must have the necessary competencies for them to appropriately and efficiently guide the students. J. Kerkula (2011) concludes that teachers need to be "technologically knowledgeable and competent" but may not be necessarily "technology-savvy." Moore & Ellsworth (2013) argued that there is a low level of ethical integration of educational technology. Lin (2007) gathered nine important ethical issues in technological development in teaching and learning that focus more on the understanding of the identified skills.

Many of standards emphasize privacy, information rights, intellectual property rights, ethics policy (Edewor, Ethics and Social Issues Related to Information Communication Technology, 2011), digital divide, poverty, piracy, cybercrime, human rights, gender equality (Sembok, 2003), among others. The NICS-T include software Licenses & Fair Use, Intellectual Property Rights, Cybercrime, Copyright, Trademark, Patent of various products, plagiarism in student work, and the digital divide. On the other hand, in the book (Baase, 2013) described privacy, freedom of speech, intellectual property, crime, work, evaluating and controlling technology, errors, failures, risks, professional ethics, and responsibilities. Below is the definition of the basic ICT social and ethical issues as defined by Computer Hope, an online computer dictionary (http://www.computerhope.com).

Table 1.

Common ICT Social and Ethical Issues

Issues	Description
Computer Crime	is an act performed by a knowledgeable computer user, sometimes referred to as a hacker that illegally browses or steals a company's or individual's private information.
Copyright	is a protection for any published work that helps to prevent that work from being used without prior authorization.
Digital divide	is a term which refers to inequality between one or more groups in terms of access to, use of, or knowledge about information and communication technologies.
Etiquette	refers to a code, manners or set of rules that allow you to behave and interact correctly with other users in a social environment.
Fair Use	is a limited use permitted by copyright law, allowing the use of copyrighted material for certain purposes, such as for research, commenting, etc.
Information rights	are access details given by users or network administrators that define access rights to files on a network.
Plagiarism	a term used to describe the act of taking another individual's work and claiming it to be your own work, without any credit or reference to the original work.
Privacy	refers to information shared with visiting sites, how that information is used, who that information is shared with, or if that information is used to track users.
Software License	is an agreement between a user and a software company that allows that individual to use the program.
Software piracy	a term used to describe the act of illegally using, copying or distributing software without ownership or legal rights.
Trademark	is a logo, design or symbol that distinguishes one company or brand from another; usually an image or word that is easily recognized.

The article's goal. The goal of this article is to assess the ICT social and ethical competence level of teacher educators in the Philippines. Specifically, this paper should answer the following questions: a) What is the level of competence about the social and ethical use of ICT among teacher educators in Central Visayas, Philippines? b) What is the relationships between the respondent's demographic profile such as sex, age, status, type of institution, number of years in teaching, highest educational attainment and the level of ICT competency in the social and ethical use? c) What is the relationship between the respondent's technology ownership of a desktop, Smartphone, tablet, and the laptop and the ICT social and ethical competence as perceived by the respondents? d) What is the relationship between Internet accessibility and ICT social and ethical use?

2. RESEARCH METHODS

The method used in the study was descriptive-correlative, and it utilized a survey technique. The survey was conducted in all recognized higher education institutions (HEIs) offering any teacher education programs in the four provinces in Central Visayas, Philippines. These provinces include Bohol, Cebu, Negros Oriental and Siquijor. Teacher education program refers to degree programs such as Bachelor of Science in Secondary Education and Bachelor of Science in Elementary Education offered in public and private HEIs. All private and public HEIs including community colleges were included.

The respondents of the study are all full-time faculty teaching any professional or specialization courses of teacher education program in Central Visayas, Philippines. A total enumeration of respondents was employed. The identification of HEIs was based on the list given by CHED Region 7 office, dated January 31, 2013.

A total of 76 out of 107 HEIs participated during the administration of the survey as shown in Table 2. All schools in Bohol and Siquijor participated in the investigation. In Negros Oriental, 12 out of 21 schools from Negros Oriental participated and were included in the analysis of the study. Five HEIs in Negros Oriental are not anymore offering teacher education program as listed in CHED's database. Some HEIs in Negros Oriental did not return the questionnaires. In Cebu, 40 out of 62 HEIs were included in the analysis of the study. There were filled up questionnaires from two schools rejected due to the qualifications of the person who answered the survey questionnaire. Some Cebu schools opted not to participate in the study, and some did not return the questionnaires after several days of extension. In total, responses from 23 (30.26%) public and 53 (69.74%) private HEIs were included in the analysis of the study.

Table 2.

Summary of HEIs participated in the study

Type of HEIs	Bohol		Cebu		Negros Oriental		Siquijor		Total	
	f	%	f	%	F	%	f	%	f	%
Public	7	35.00	12	19.35	3	25.00	1	25	23	30.26
Private	13	65.00	28	45.16	9	75.00	3	75	53	69.74
Total	20	100.00	40	100.00	12	100.00	4	100	76	100.00

The instrument used in data gathering to accomplish the specific objectives of the study was a survey questionnaire. Questions related to ICT social and ethical competencies are based on Philippine's National ICT Competency Standards for Teachers. Respondents were asked to evaluate the level of their competency according to the five-point Likert scale choices: 1 – poor (don't know anything about it), 2 – fair (just read from a book/heard it from

others), 3 – good (has the ability to explain and discuss the task but has not experienced the actual process), 4 – very good (has the ability to perform & carry out the task but needs the help, advice & guidance from an expert) and 5 – excellent (has the ability to perform & carry out the task proficiently without the help of an expert). Then, a test-retest among 23 qualified testers was conducted to measure the reliability of the instrument. These testers are full-time faculty in Silliman University College of Education teaching in the high school department. They were chosen because they have similar teaching attributes with the respondents. The testers were randomly selected in coordination with the college dean. Administration of the test-retest was conducted in two (2) weeks by distributing the hard copy of the questionnaire. Using statistical software, the test-retest answers were processed. Items that were not significant either at 0.01 or 0.05 levels were removed.

The survey administration process was done in two distribution periods. In total, 383 responses were accepted and included in the analysis coming from 76 private and public HEIs in the four provinces. Filled-up questionnaires from unqualified respondents were rejected, including those questionnaires that are mostly unanswered. In this case, 40 survey questionnaires were rejected. The statistical tools employed in the data processing are the weighted mean for measuring the competency level and chi-square for testing the relationships.

3. THE RESULTS AND DISCUSSION

3.1. ICT Social and Ethical Competency Level

The use of ICT in the social and ethical domain includes competencies related to social, ethical, legal and human issues and community linkages. As shown in Table 3, the level of skills of the social and ethical use of ICT is described as good with a total mean of 2.93. Surprisingly, all skills from four provinces in the region are described as good by the respondents. This entails that the teacher educators in the region have the ability to interpret and discuss the use of ICT socially and ethically. On the contrary, the result may imply that the respondents have not experienced the actual integration of the tools. Top of all skills described as good is the respondents' advocacy of the responsible use of various technologies ($\bar{x}$ = 3.20) shown in Table 3 while the lowest is the ability of helping reduce the effects of the digital divide by providing access to digital materials for all students ($\bar{x}$ = 2.74). The Cebu respondents perceived higher social and ethical use ($\bar{x}$ = 3.01) than Siquijor ($\bar{x}$ = 2.98), Negros Oriental ($\bar{x}$ = 2.92) and Bohol ($\bar{x}$ = 2.81).

The result shows that the teacher educators in the region have the ability to explain and discuss the use of ICT socially and ethically but have not experienced the actual integration of it. In particular, the result suggests, based on NICS-Teachers, that the teachers do not have experience in observing some legal practices in using technology. This result is understandable considering that ICT-related laws – e.g. Cybercrime Prevention Act of 2012) - in the country are only given attention in the recent days. The result also implies that the teachers do not actually practice recognizing the ethical use of technology in professional and individual levels. This may suggest that the teachers utilize or use office-owned technologies like computers and the Internet for personal use. It also denotes that the teachers are only aware of promoting a safe and reliable technology-supported learning environment. This result is expected considering that the respondents are educators and they are expected to promote safety and reliability of learning.

Table 3.

Competency Level of ICT in Social and Ethical Domain

Social and Ethical Skills	Total	
	($\bar{x}$)	Description
understanding the legal implications of Software Licenses & Fair Use;	2.85	Good
understanding & explaining the basic concepts of Intellectual Property Rights;	2.97	Good
differentiating & identifying the Cybercrime, Copyright, Trademark, Patent of various products;	2.82	Good
detecting plagiarism in student work;	3.04	Good
advocating the responsible use of various technologies;	3.20	Good
monitoring how students use the computer specifically for software, hardware, computer games, and internet activities;	2.90	Good
promoting & implementing rules & regulations on properly using computers; and	3.02	Good
accurately reporting malfunctions & problems with software & hardware;	2.84	Good
helping minimize the effects of the digital divide by providing access to digital materials for all students.	2.74	Good
Aggregate Mean	2.93	Good

Further, the result indicates the teachers do not have experiences in facilitating reasonable access to technology that addresses learning, social and cultural diversity. It is worth noting that the Philippines is experiencing a problematic Internet connectivity. Thus accessibility to theonline world is also a problem. Specifically, the result implies that the respondents have a good theoretical background in software licenses & fair use; intellectual property rights; cybercrime, copyright, trademark, patent of various products; and plagiarism in student work; digital divide, and other related ICT social and ethical skills. This result is a positive indicator that the teachers have the basic understanding of important aspects of ethics in education.

3.2 Relationships between ICT Social and Ethical Competency Level and the Respondent's Demographic and Technological Profile

Table 4 shows the results of chi-square computation for determining if significant relationships exist between the ICT social and ethical competency and demographic profile among the respondents. The study indicates that there is a significant association between the ICT social and ethical competency and the respondent's age (x^2 (8, N = 383) = 45.30, p < .01). Age category is based on Erikson's stages of development, such as young adulthood (19-40), middle adulthood (41-65), and maturity (66-death). Like with the existing literature, this study reveals that the young adult teachers garnered highest mean ($\bar{x}$ = 3.10) of social and ethical integration of ICT and the mature teachers got the lowest ($\bar{x}$ = 1.95). Interestingly, respondent's highest educational attainment and sex are not significantly related to the level of competency in social and ethical use of ICT. There is a strong evidence of significant relationship between the respondent's number of years in teaching and level of ICT social and ethical competency (x^2 (16, N = 383) = 41.20, p < .01).

There is no evidence of significant relationship between the respondent's sex and level of ICT social and ethical competency (x^2 (4, N = 383) = 2.48, p < .05). The study also shows that there is a significant relationship between the ICT social and ethical competency and the respondent's status (x^2 (8, N = 383) = 23.50, p < .01). Single respondents are higher in terms of the level of ICT competency ($\bar{x}$ = 3.18). Similarly, the data shows also that type of institution is correlated with the level of ICT social and ethical competency (x^2 (4, N = 383) = 9.76, p < .05). Respondents coming from the private schools are better ($\bar{x}$ = 3.02) in their social and ethical integration of ICT compared to those who are coming from the public schools ($\bar{x}$ = 2.77).

Table 4.

Test of Significance between ICT Social and Ethical Domain and the Respondent's Demographic Profile

ICT Competency Level in Social and Ethical Skill and	x^2 Value	P value	df	Remarks
Age	45.30	0.000	8	Significant
Highest educational attainment	5.36	0.718	8	Not Significant
No. of years in teaching	41.20	0.001	16	Significant
Sex	2.48	0.648	4	Not Significant
Status	23.50	0.003	8	Significant
Type of Institution	9.76	0.045	4	Significant

In the same manner, Table 5 shows the results of chi-square computation for determining if significant relationships exist between the social and ethical use of ICT and respondent's technology ownership. The study shows that there is a strong evidence of a significant relationship between ICT social and ethical skill and the respondent's ownership of desktop (x^2 (4, N = 383) = 20.70, p < .01). Social and ethical use of ICT is affected also by smartphone ownership (x^2 (4, N = 383) = 13.20, p < .01) and laptop ownership (x^2 (4, N = 383) = 26.90, p < .01). Respondents who have computers like desktop ($\bar{x}$ = 3.05), smartphone ($\bar{x}$ = 3.10) and laptop ($\bar{x}$ = 3.08) have higher competency compared to those who have not ($\bar{x}$ = 2.67), ($\bar{x}$ = 2.73) and ($\bar{x}$ = 2.64). Further, Internet accessibility is also a factor that may affect the social and ethical use of ICT in teaching and learning. Respondents with Internet access at school have higher levels of ICT social and ethical skills ($\bar{x}$ = 3.01) compared to those who have not ($\bar{x}$ = 2.27). On the other hand, tablet ownership has no correlation with the social and ethical use of ICT. The result of the test of relationship between the profile of the respondents and all ICT competencies entails that demographic profile and techno graphic profile play a critical role in ICT use in the social and ethical aspects.

Table 5.

Test of Significance between ICT Social and Ethical Domain and the Respondent's Technologic Profile

ICT Competency Level in Social and Ethical Skill and	x^2 Value	*p* value	df	Remarks
Desktop ownership	20.70	0.000	4	Significant
Smartphone ownership	13.20	0.010	4	Significant
Tablet ownership	7.65	0.105	4	Not Significant
Laptop ownership	26.90	0.000	4	Significant
Internet accessibility in school	16.70	0.002	4	Significant

4. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

ICT integration in teacher education particularly the social & ethical aspects is multifaceted, and it is affected by many related variables. The level of ICT competency in the social and ethical use of ICT is influenced by the respondent's age, status, type of institution, number of years in teaching. Desktop, Smartphone, laptop ownership, and Internet accessibility also affect the level of this competency. ICT integration in terms of the social and ethical domain is still in the applying stage which means learning process (Shyamal Majumdar, cited in Oliva, 2008). Teacher educators are not necessarily expert in the operations of the tool, but they are knowledgeable enough in terms of its concepts.

The study suggests that there is a need to improve ICT social and ethical competencies among teacher educators. Augmenting these competencies must be a concerted effort among administrators and faculty members, schools and government, and other stakeholders. There is a need to revisit & review, educate & train, and evaluate & reflect ethical issues, as well as

social responsibility in these un-endless and enabling changes in technological innovation in education. Specifically, the government through its ministry of education must revise the national competency standards incorporating the latest trends of ICT. Schools need to develop an ICT policy that details its standards, norms, and acceptable practices. Teachers must upgrade their competency level by attending more training and immersion exercises. It is also recommended to conduct a further study that will evaluate social and ethical skills in the areas of mobile technologies, online and social media, which are not part of the standards being used in this study. Other future studies may include persistence of ageism, the values associated with different ethical principles, given their implications for accountability to teachers (McLean, 2011).

ACKNOWLEDGEMENT

The funding support provided by the Commission on Higher Education through the Philippine Higher Education Research Network (PHERNet), facilitated by Silliman University through Research and Development Center is gratefully acknowledged. The research expertise of Dr. Enrique Oracion and the involvement of Dr. Pablito de la Rama are very much appreciated. The assistance of JeambeRendal, Kristel Puno, Ms. Dawn Iris Calibo, Dr. Jonathan Etcuban, and Gereo Patrimonio, are deeply appreciated. Moreover, the authors would also like to recognize the 13th National eLearning Congress for the comments and suggestions in improving this article.

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Text of the article was accepted by Editorial Team 04.12.2016

ІКТ СОЦІАЛЬНА ТА ЕТИЧНА КОМПЕТЕНТНІСТЬ ВИКЛАДАЧІВ ПЕДАГОГІЧНИХ НАВЧАЛЬНИХ ЗАКЛАДІВ НА ФІЛІППІНАХ

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Анотація. У статті представлені результати емпіричного дослідження рівня соціальної та етичної компетентності з використання ІКТ викладачів педагогічних навчальних закладів в Центральній Вісайя, Філіппіни. У дослідженні було використано анкетування засноване на Філіппінському Національному стандарті з ІКТ компетентності вчителів. В цілому було проаналізовано 383 відповіді від 76 приватних і державних вищих навчальних закладів. Дослідження показує, що рівень соціальної та етичної ІКТ-компетентності серед вчителів педагогів оцінюється як "добре". Отриманий результат означає, що респонденти можуть пояснити і обговорити завдання, але не мають практичного досвіду з формування соціальної та етичної компетентності у сфері ІКТ. Крім того, існує значущий зв'язок між рівнем ІКТ компетентності з точки зору соціальних і етичних аспектів і віку респондента, його статусу, типу установи, кількості років навчання, доступності Інтернету, а також наявності власного комп'ютера, смартфона або ноутбука.

Ключові слова: електронне навчання; інформаційні системи; онлайн система консультування; ІКТ в освіті.

ИКТ СОЦИАЛЬНАЯ И ЭТИЧЕСКАЯ КОМПЕТЕНТНОСТЬ ПРЕПОДАВАТЕЛЯ ПЕДАГОГИЧЕСКИХ УЧЕБНЫХ ЗАВЕДЕНИЙ НА ФИЛИППИНАХ

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Аннотация. В статье представлены результаты эмпирического исследования уровня социальной и этической компетентности по использованию ИКТ преподавателей педагогических учебных заведений в Центральной Висайе, Филиппины. В исследовании было использовано анкетирование, основанное на Филиппинском Национальном стандарте ИКТ компетентности учителей. В целом было проанализировано 383 ответа от 76 частных и государственных высших учебных заведений. Исследование показывает, что уровень социальной и этической ИКТ-компетентности среди учителей педагогов оценивается как "хорошо". Полученный результат означает, что респонденты могут объяснить и обсудить задачи, но не имеют практического опыта по формированию социальной и этической компетентности в сфере ИКТ. Кроме того, существует значимая связь между уровнем ИКТ компетентности с точки зрения социальных и этических аспектов и возраста респондента, его статуса, типа учреждения, количества лет обучения, доступности Интернета, а также наличия собственного компьютера, смартфона или ноутбука.

Ключевые слова: электронное обучение; информационные системы; онлайн система консультирования; ИКТ в образовании.

Conflict of interest. The author has declared no conflict of interest.