INSTRUCTIONAL USE OF ICT AND LEARNER READINESS FOR ONLINE LEARNING

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Abstract: This study aimed to determine which domains of instructional use of information and computer technology best influences readiness for online learning among the students. This study utilized the non-experimental quantitative research design using descriptive technique involving teachers in Sarangani District, Davao Occidental Division, Philippines. The study was conducted on the second semester of school year 2020-2021. Research instruments on instructional use of information and computer technology and readiness for online learning among the students were used as source of data. Using mean, pearson-r, and regression as statistical tool to treat the data, the study showed the following results: level of instructional use of information and computer technology is high, the level of learner readiness for online learning is moderate, there is a significant relationship between instructional use of information and computer technology and learner readiness for online learning, and the domain of information and computer technology which best influences learner readiness for online learning is Analytical/Programming.

Keywords: Instructional Use of Information and Computer Technology, Readiness for Online Learning, Educational Management, Quantitative Research

1. Introduction

The health crisis does not only reduced mobility but also redesigned the educational learning milieu. With the growing needs to offer relevant education despite the health situations, education must continue and serve its purpose. To achieve the learning continuity plan amidst the pandemic, remote learning has become a byword among teachers and learners. This situation gives realization to online learning modality among the students (Adams, 2008).

Teachers in the online learning classroom must possess a good grasp of how learning shall take place in the virtual setting. This means that teachers need to be experts in the utilization of information and communication technology to better deliver the lesson to the students. The expertise of teachers in computer technology will help teacher maximize learning opportunities to the advantage of the students (Al-ruz & Khasawneh, 2011).

However, despite the skills of teachers in utilizing computer technology in remote learning, there are students who struggle in terms of their readiness to online learning. Although students are exposed to computers and gadgets, they still have difficulty to navigate the online learning modality to connect with the teacher and their classmates (Brush, Glazewski & Hew, 2008).

There are some students who lack the skills in performing the basic functions of Microsoft Office programs such as MS Word, MS Excel, and MS PowerPoint. This deprives them to fully appreciate the technology and eventually hamper their learning. On the other hand, there are also students who are not confident in their knowledge and skills of how to manage software for online learning. This paved the way to the declined of interest of some students to engage in the online learning environment (Chai, Hong & Teo, 2009).

In the local context, the online learning environment has increased the disparity between engagement to the lessons and mastery of the competencies among the students. This is brought by the distraction of other online activities when learning online like that of instant messages and internet surfing. In the same manner, students lack the necessary confidence in posting questions in online discussions.

The problem-situations mentioned are the realities of the students' experiences in an online learning environment. The need for the students to improve their readiness in online learning will help them advance academically. Hence, the researcher is prompted to conduct this study to address the knowledge gap in terms of finding relevant evidence in the local context regarding the instructional use of information and computer technology among the teachers and the readiness for online learning among the students as the researcher has rarely come across with the same study on the same topic in the local setting.

Research Objectives

This study aims to find out which domain of instructional use of information and computer technology best influences readiness for online learning among the students. Specifically, this study sought to answer the following objectives:

1. To describe the level of instructional use of information and computer technology in terms of:
   1.1. instructional;
   1.2. communicative;
   1.3. organizational, and
   1.4. analytical/programming.
2. To ascertain the level of readiness for online learning among the students in terms of:
   2.1 computer/internet self-efficacy;
   2.2 self-directed learning;
   2.3 learner control;
   2.4 motivation for learning, and
   2.5 online communication self-efficacy
3. To determine the significant relationship between instructional use of information and computer technology and learner readiness for online learning
4. To determine which domains of instructional use of information and computer technology significantly influence learner readiness for online learning.

Hypothesis

The following hypothesis will be treated at 0.05 level of significance.

1. There no significant relationship between instructional use of information and computer technology and learner readiness for online learning.
2. No domains of instructional use of information and computer technology significantly influence learner readiness for online learning.

2. Methods

This study used a correlational approach to conduct non-experimental quantitative research. A major portion of quantitative educational research is non-experimental because many critical factors of interest are uncontrollable. Because non-experimental research is such an important strategy for many researchers, it is necessary to establish a classification system for non-experimental methods that is both highly descriptive of what we do and allows us to communicate effectively in an interdisciplinary research context. Correlational research designs determine the type and extent of a relationship between two naturally occurring variables.

3. Results

Level of Instructional Use of Information and Computer Technology

Presented in Table 1 is the level of instructional use of information and computer technology with an overall mean of 3.58 with a descriptive equivalent of high, indicating that all enumerated indicators were always observed. The overall mean was the results obtained from the mean of the indicators for the specific items from the questionnaire intended for this particular indicator as appended in this study. Among the enumerated indicators, *Communicative* obtained the highest mean of 4.12 with a descriptive level of *high*. As presented in the appended Table 1.2, the mean ratings of the following items under this indicator were as follows: Use e-mail to communicate with other teachers, use e-mail to communicate with students, create powerpoint presentations to use in class.

Organizational obtained a mean score of 4.10 or high. As depicted in the appended Table 1. 3, the *high* level of this indicator suggested that teachers keep track of student grades or marks, prepare handouts, tests/quizzes, and homework assignments for students, create lesson plans.

Instructional obtained a mean score of 3.08 or *moderate*. As presented in the appended Table 1.4, the moderate level of this indicator suggested that teachers *were* using WebQuests in your lessons, use tutorials for self-training, have students use tutorials for remediation (in class).

Table 1. Level of Instructional Use of Information and Computer Technology

Indicators	SD	Mean	Descriptive Level
Instructional	0.600	3.08	Moderate
Communicative	0.667	4.12	High
Organizational	0.622	4.10	High
Analytical/Programming	0.688	3.04	Moderate
Overall	**0.529**	**3.58**	**High**

Analytical/Programming obtained a mean score of 3.04, as appended in Table 1.1, the *moderate* level of this indicator suggested that teachers create charts or graphs, create a class/school website or put student work on-line, statistics or data analysis.

Level of Learner Readiness for Online Learning

Shown in Table 2 is the level of *Learner Readiness for Online Learning* of school head with an overall mean of 3.14 with a descriptive equivalent of *moderate* indicating that all enumerated indicators were oftentimes observed. The overall mean was the result obtained from the mean of the indicators for the specific items from the questionnaire intended for this indicator which was appended in this study.

Among the enumerated indicators, *Online Communication Self-Efficacy* ranked the highest with a mean score of 4.14 or *high*. As appended in Table 2. 3, the level of this indicator suggested that the teachers believe they feel confident

in using online tools (email, discussion) to effectively communicate with others, they feel confident in expressing myself (emotions and humor) through text, they feel confident in posting questions in online discussions.

Motivation for Learning obtained a mean score of 3.14 or *moderate*. This result is taken from the strands of the indicator as appended in this study which are the following: I am open to new ideas, I have motivation to learn, I like to share my ideas with others.

Table 2. Level of Learner Readiness for Online Learning

	SD	Mean	Descriptive Level
Computer/Internet Self-Efficacy	0.619	3.12	Moderate
Self-Directed Learning	0.626	3.02	Moderate
Learner Control	0.582	2.28	Moderate
Motivation for Learning	0.622	3.14	Moderate
Online Communication Self-Efficacy	0.614	4.14	High
Overall	**0.533**	**3.14**	**Moderate**

Computer/Internet Self-Efficacy obtained a mean score of 3.12 with a descriptive rating of *moderate*. As presented in the appended Table 2.4, this result is taken from the strands of the indicator which are the following: I feel confident in performing the basic functions of Microsoft Office programs (MS Word, MS Excel, and MS PowerPoint), I feel confident in my knowledge and skills of how to manage software for online learning, I feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning.

Self-Directed Learning had a mean score of 3.02 or moderate. As presented in the appended table, this result is taken from the strands of the indicator which are the following: I carry out my own study plan, I seek assistance when facing learning problems, I set up my learning goals.

Learner Control obtained a mean score of 2. 28 or moderate. As presented in the appended table, this result is taken from the strands of the indicator which are the following: I can direct my own learning progress, I am not distracted by other online activities when learning online (instant messages, Internet surfing), I repeated the online instructional materials on the basis of my needs.

Correlations between Measures

Illustrated in Table 3 were the results of the test of relationship between the variables involved in the study. The overall correlation had a computed r- value of 0.855 with a probability value of $p<0.01$ which is significant at 0.05 level. Doing an

Table 3. Correlations Between Measures

Instructional Use of Information and Computer Technology	Readiness for Online Learning					
	Computer/Internet Self-Efficacy,	Self-Directed Learning	Learner Control	Motivation for Learning	Online Communication Self-Efficacy	**Overall**
Instructional	.584* (.000)	.576* (.000)	.564* (.000)	.525* (.000)	.576* (.000)	.658* (.000)
Communicative	.666* (.000)	.588* (.000)	.566* (.000)	.552* (.000)	.588* (.000)	.713* (.000)
Organizational	.566* (.000)	.523* (.000)	.527* (.000)	.540* (.000)	.523* (.000)	.649* (.000)
Analytical/ Programming	.598* (.000)	.574* (.000)	.467* (.000)	.615* (.000)	.467* (.000))	.778* (.000)
Overall	**.737* (.000)**	**.689* (.000)**	**.645* (.000)**	**.682* (.000)**	**.689* (.000)**	**.855* (.000)**

*Significant at 0.05 significance level.

in-depth analysis, it could be gleaned that the indicators of instructional use of information and computer technology and learner readiness for online learning revealed a computed r- values ranging from .649 to .778 with probability values of $p<0.01$ which is lesser than .05 level of significance.

The highest r-value and p-value for the correlation between instructional use of information and computer technology and learner readiness for online learning was Analytical/Programming with 0.778 and $p<0.01$ probability value. The data implied that Analytical/Programming was considered an important attribute of learner readiness for online learning.

Communicative was also significantly related to learner readiness for online learning with a computed r-value of 0.713 and p-value of $p<0.01$. Meanwhile Instructional was also significantly related to learner readiness for online learning with r-value of 0.658 and p-value of $p<0.01$. The other important predictor of learner readiness for online learning was Organizational as evidenced by the computed r-value of 0.649 with p-value of $p<0.01$.

Significance of the Influence of Instructional Use of Information and Computer Technology **on Learner Readiness for Online Learning**

In Table 4 is presented the regression analysis showing the predictive ability of instructional use of information and computer technology on learner readiness for online learning. The analysis shows that when instructional use of information and computer technology was regressed on learner readiness for online learning, it generated an F-value of 170.099 with $p<0.001$. The F value of this regression is 170.099 at 0.05. It can be stated that instructional use of

Table 4. Regression Analysis Showing the Extent of the Influence of Predictor Variables on Learner Readiness for Online Learning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860[a]	.739	.735	.2742553

a. Predictors: (Constant), Instructional, communicative, organizational, and analytical/programming

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	51.177	4	12.794	170.099	.000[a]
Residual	18.052	240	.075		
Total	69.229	244			

b. Predictors: (Constant), Instructional, communicative, organizational, and analytical/programming
a. Dependent Variable: Learner Readiness for Online Learning

Coefficients[a]

Model	Standardized Coefficients (Beta)	T	Sig.
1 (Constant)		4.701	.000
Instructional	.213	5.002	.000
Communicative	.241	5.203	.000
Organizational	.180	4.184	.000
Analytical/Programming	.399	8.320	.000

b. Dependent Variable: Learner Readiness for Online Learning

information and computer technology is significantly influenced learner readiness for online learning. All four indicators of instructional use of information and computer technology gave a significant influence on learner readiness for online learning. The domain of information and computer technology which best influences learner readiness for online learning is Analytical/Programming.

Conclusion

With considerations on the findings of the study, conclusions are drawn in this section. The level of instructional use of information and computer technology is high, the level of learner readiness for online learning is moderate, there is a significant relationship between instructional use of information and computer technology and learner readiness for online learning, and the domain of information and computer technology which best influences learner readiness for online learning is Analytical/Programming.

The results of this study revealed that level of instructional use of information and computer technology is high. The researcher recommends that the Schools Division Office of Davao Occidental may conduct training that will help improve the aspects of Organizational among the teachers to improve on this field.

Meanwhile, the study revealed that the level of learner readiness for online learning is moderate. The researcher recommends that the district office may provide Learning Action Cell among the teachers on the topic Instructional and Analytical/Programming to help teachers improve in this indicator.

The study found a significant relationship between significant relationship between instructional use of information and computer technology and learner readiness for online learning. The researcher therefore recommends that the Department of Education may consider the provision of trainings or activities relative to the variables under study to help the school heads and teachers enhance on the indicators which are among the lowest in the indicators of the variables under study.

The study found that Analytical/Programming as indicator of instructional use of information and computer technology best influences learner readiness for online learning. The researcher recommends that school heads may provide sessions in Learning Action Cell on this topic among teachers for improvement.

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