INSTRUCTIONAL USE OF ICT OF TEACHERS AND ENGAGEMENT STRATEGIES IN AN ONLINE LEARNING ENVIRONMENT AMONG THE STUDENTS

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Abstract: This study aimed to determine which domain of instructional use of ICT best influences engagement strategies in an online learning environment. This study utilized the non-experimental quantitative research design using descriptive technique involving teachers in one District Davao Occidental Division, Philippines. The study was conducted on the second semester of school year 2021-2022. Research instruments on instructional use of ICT and engagement strategies in an online learning environment were used as source of data. Using mean, pearson-r, and regression as statistical tools to treat the data, the study showed the following results: the level of instructional use of ICT is high, the level of engagement strategies in an online learning environment is high, there is a significance in the relationship between instructional use of ICT of teachers and engagement strategies in an online learning environment, and domain of instructional use of ICT best influences engagement strategies in an online learning environment are Communicative and Analytical.

Keywords: Instructional Use of ICT Strategies in an Online Learning Environment, Educational Management, Quantitative Research

1. Introduction

The offering of online class modality is one of the options among the students in the time of the pandemic. While there are few students enjoy this learning modality, there are also some who have difficulty in their adjustment while attending a virtual classroom. The online class is entirely different from face-to-face learning. It has become more different when students have it for the first time. Major adjustments are necessary for students to get along quickly in an online learning environment (Morita, Ohmoto & Hayashi, 2021).

The success of online learning is also dependent on the teacher's competence to navigate the activities with the students. As a tool to efficiently carry the online teaching tasks, teachers must be good at using information and communication technology for instruction. The ability of teachers to utilize technology in online learning will surely help students accomplish more and learn better than when teachers do not utilize them (Wiyono, Wedi, Ulfa & Putra, 2021).

While students are taking time to adjust in the online learning environment, they are confronted with many challenges in various forms. Among these are their issues in engagement. Many students find it difficult to engage with their classmates. As a result, their interactions are limited that it hampers them to share their ideas or have the chance to discuss them with their classmates (Landrum, Bannister, Garza & Rhame, 2021).

Another issue that students experience in the online learning environment is their difficulty to work collaboratively using online communication tools to complete case studies, projects, reports, and others with their classmates. This problem has been raised since students have different gadgets use in the online class and not all of them are able to perfectly interface with their online learning tools. Also, students feel the difference between actual interaction and the virtual engagement that they become limited with their interactions because of the hesitations to do so (Mahmood, 2021).

In the local context, there are teachers in the online teaching complain that students are less responsive in online learning than in face-to-face discussions. This makes them more creative in designing lessons that can capture students' interest. Also, teachers think on how to use various features in synchronous sessions to interact with students in order to maximize the benefit of online teaching.

The problem-situations mentioned are some of the experiences of the students on student in online learning environment. The need to address the problem will ensure greater learning opportunities for the students. 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 instructional use of information and communication technology of teachers and engagement strategies in an online learning environment 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 ICT of teacher's best influences engagement strategies in an online learning environment among the students. Specifically, this study sought to answer the following objectives:

1. To describe the level of instructional use of ICT of teachers in terms of:
   1.1. instructional;
   1.2. communicative;
   1.3. organizational, and
   1.4. analytical.
2. To ascertain the level of engagement strategies in an online learning environment among the students in terms of:
   2.1 Learner-to-Learner Engagement;
   2.2 Learner-to-Teacher, and
   2.3 Learner-to-Content.
3. To determine the significant relationship between instructional use of ICT of teachers and engagement strategies in an online learning environment among the students.
4. To determine which domains of instructional use of ICT of teacher's best influences engagement strategies in an online learning environment among the students.

Hypothesis

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

1. There is no significant relationship between instructional use of ICT of teachers and engagement strategies in an online learning environment among the students.
2. No domains of instructional use of ICT of teacher's best influences engagement strategies in an online learning environment among the students.

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 ICT of Teachers

Presented in Table 1 is the level of *Instructional Use of ICT of Teachers* with the overall mean of 3.83 with a descriptive equivalent of *high* indicating that all enumerated indicators were oftentimes manifested. 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 which is appended in this study. Among the enumerated indicators, *Organizational* obtained the highest mean score of 4.18 or high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: keep track of student grades or marks, prepare handouts, tests/quizzes, and homework assignments for students, and create lesson plans.

The indicator Analytical obtained the highest mean of 4.03 with a descriptive rating of high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: create charts or graphs, create a class/school website or put student work on-line, and solve statistics or data analysis through computer

Communicative obtained a mean score of 3.95 or high. As presented in the appended table, 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, and create powerpoint presentations to use in class.

Instructional obtained a mean score of 3.28 or high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: Use WebQuests in lessons, use tutorials for self-training, and have students use tutorials for remediation (in class).

Table 1. Instructional Use of ICT of Teachers

Indicator	SD	Mean	Descriptive Level
Instructional	0.57	3.28	High
Communicative	0.63	3.95	High
Organizational	0.55	4.08	High
Analytical	0.55	4.03	High
Overall	**0.46**	**3.83**	**High**

Level of Engagement Strategies in an Online Learning Environment

Presented in Table 2 is the level of *Engagement Strategies in an Online Learning Environment*. Computations revealed an overall mean score of 4.15 or *high,* indicating that all enumerated indicators were oftentimes manifested. 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 which is appended in this study.

Among the enumerated indicators, *Learner-to-Teacher* obtained a mean score of 4.18 or high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: provides students with an opportunity to reflect posts grading rubrics for all assignments, uses various features in synchronous sessions to interact with students, refers to students by name in discussion forums, and creates a forum for

students to contact the instructor with questions about the course.

Learner-to-Learner Engagement obtained a mean score of 4.15 or high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: use a virtual lounge where they can meet informally to share common interests, interact with peers through student presentations, work collaboratively using online communication tools to complete case studies, projects, reports, and others, peer-review classmates' work, and are required to rate individual performance of team members on projects.

Learner-to-Content obtained a mean score of 4.12 or high. As presented in the appended table, the mean ratings of the following items under this indicator

Table 2. Engagement Strategies in an Online Learning Environment

Indicator	SD	Mean	Descriptive Level
Learner-to-Learner Engagement	0.84	4.15	High
Learner-to-Teacher	0.86	4.18	High
Learner-to-Content	0.75	4.12	High
Overall	**0.73**	**4.15**	**High**

were as follows: interact with content in more than one format (e.g., text, video, audio, interactive games, or simulations), Students work on realistic scenarios to apply content (e.g., case studies, reports, research papers, presentations, client projects), Discussions are structured with guiding questions and/or prompts to deepen their understanding of the content, Students research an approved topic and present their findings in a delivery method of their choice (e.g., discussions forum, chat, web conference, multimedia presentation), and Students have an opportunity to reflect on important elements of the course (e.g., use of communication tools, their learning, team projects, and community).

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 0.298 with a probability value of 0.006 which is significant at 0.05 level. Doing an in-depth analysis, it could be gleaned that the indicators of *Instructional Use of ICT and Engagement Strategies in an Online Learning Environment* revealed a computed r-value ranging from .128 to .417 with probability values of 0.01 which is lesser than .05 level of significance.

The significant relationship between the two variables is an indication that the increase in the level of Instructional Use of ICT led to the increase in Engagement Strategies in an Online Learning Environment.

Table 3. Significance of the Relationship between Instructional Use of ICT and Engagement Strategies in an Online Learning Environment

Instructional Use of ICT	Engagement Strategies in an Online Learning Environment		
	R	**p-value**	**Remarks**
Instructional	.328	.001	Significant
Communicative	.128	.015	Significant
Organizational	.326	.001	Significant
Analytical	.417	.000	Significant
Overall	**.298**	**.006**	**Significant**

*Significant at 0.05 significance level.

Significance of the Influence of the Domain of Instructional Use of ICT on Engagement Strategies in an Online Learning Environment

Presented in Table 4 is the regression analysis showing the predictive ability of *Instructional Use of ICT* on *Engagement Strategies in an Online Learning Environment*.

Table 4. Regression Analysis Showing the Extent of the Influence of Predictor Variables on Engagement Strategies in an Online Learning Environment

Engagement Strategies in an Online Learning Instructional Use of ICT	**β (Standardized Coefficients)**	**B (Unstandardized Coefficients)**	**t**	**Sig.**
Constant	1.3948	0.2739	5.16	0.000
Instructional	-0.02495	0.08394	-0.2	0.864
Communicative	0.42983	0.08361	4.25	0.001
Organizational	0.08346	0.08374	0.31	0.978
Analytical	0.73891	0.09372	2.83	0.002
R	0.835			
R^2	0.872			
F	58.26			
p	0.000			

The analysis shows that when *Instructional Use of ICT* was regressed on *Engagement Strategies in an Online Learning Environment*, it generated an F-value of 58.26 with 0.01. The value of this regression is 58.26 with 0.01. It can be stated that *Instructional Use of ICT* influenced *Engagement Strategies in an Online Learning Environment. Among the indicators of Instructional Use of ICT, there are to indicators gave significant influence on Engagement Strategies in an Online Learning Environment, which are Communicative, t=4.25, P-001 and Analytical, t=2.83, P=0.002.*

Conclusion

The results of this study revealed that the level of instructional use of ICT of teachers is high. The researcher recommends that the District where the study is conducted in Schools Division Office of Davao Occidental may conduct training that will help improve the aspects of Communicative.

Meanwhile, the study revealed a high level of engagement strategies in an online learning environment. The researcher recommends that the district office may provide Learning Action Cell among the teachers on the topic Learner-to-Content.

The study found a significant relationship between instructional use of ICT of teachers and engagement strategies in an online learning environment. The researcher therefore recommends that the District Office 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 indicators of domains of instructional use of ICT of best influences engagement strategies in an online learning environment are Communicative and Analytical. The researcher recommends that school heads may provide sessions in Learning Action Cell among teachers for improvement.

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