

EDUCATIONAL TECHNOLOGY STANDARDS AND ATTITUDES TOWARDS THE USE OF MULTIMEDIA AMONG TEACHERS

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DOI: <https://doi.org/10.56293/IJMSSSR.2025.5514>

IJMSSSR 2025

VOLUME 7

ISSUE 2 MARCH – APRIL

ISSN: 2582 – 0265

Abstract: This study aimed to determine which domain of educational technology standards best influences attitudes towards the use of multimedia. This study utilized the non-experimental quantitative research design using descriptive technique involving teachers in one District of Davao Occidental Division, Philippines. The study was conducted on the second semester of school year 2021-2022. Research instruments on educational technology standards and attitudes towards the use of multimedia 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 educational technology standards is very high, the level of attitudes towards the use of multimedia is very high, there is a significant relationship between educational technology standards and attitudes towards the use of multimedia, and the domain of educational technology standards best influence attitudes towards the use of multimedia are Assessment and Evaluation and Planning and Designing Learning Environments.

Keywords: Educational Technology Standards, Attitudes towards the Use of Multimedia, Educational Management, Quantitative Research, Philippines

1. Introduction

The demands in the work of teachers today are seemingly increasing as the The education landscape has changed over the years, and it has become more technology-oriented than long time ago. Teachers especially those who are not tech savvy were given trainings and workshops to cope with the demands of the new teaching and learning environment. The success of the use of multimedia in teaching lies greatly on the attitude of teachers to embrace the change and eventually apply the knowledge they learned from the trainings and transform their classroom into computer-based teaching and learning (Utama, 2021).

The one thing that holds back some teachers to utilize multimedia in teaching is the inconvenience it brings by learning new ways to adhere to computer-aided instruction. Likewise, when teachers have a deeper knowledge on educational technology standards, they can navigate a computer-aided instruction without hesitation. Hence, teachers need to equip with relevant skills that will allow them to improve their attitudes towards the use of multimedia to bring necessary change in the classroom setting (Chen & Wang, 2021).

One vital issue that needs to be addressed in improving teacher's attitude towards the use of multimedia is their incompetence to use multimedia. For some teachers, they feel that it is a burden to learn another computer skill just to keep abreast with the demands. The trainings and workshops sometime give them stress since they feel that they are too old to learn new skills. Also, these teachers do not see the ease of use of the computer tools as easy as other think (Erbas, Çipuri & Joni, 2021).

Another burdensome on part of teachers in using multimedia is designing lessons. Many teachers complain that they lack technical skills in making instructional materials that they can use in their class. Likewise, some teachers admit that they find it difficult to use in their class some available social media. They require ample time to be familiar with how the materials will be used and they need to exactly know how it works to their students (Zhang & Huang, 2021). In the local context, there are teachers who were forced to teach online due to the options that students wanted to have in the time of the pandemic. These teachers experience pressures in learning different

online learning tools so they can use them with ease in their class. They also spend more time designing lessons using available tools in favor of the students. These tasks for them do not come easy and they feel the challenge that is at hand. Having no choice but to continue using multimedia materials, these teachers are slowly learning to navigate their lessons with enough ease.

The problem-situations mentioned are the experiences of teachers regarding their attitudes towards the use of multimedia. The need to address the problem will essentially help teachers navigate their work with confidence. 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 educational technology standards and attitudes towards the use of multimedia among teachers 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 educational technology standards best influences attitudes towards the use of multimedia among teachers. Specifically, this study sought to answer the following objectives:

1. To describe the level of educational technology standards in terms of:
 - 1.1 Technology Operations and Concepts;
 - 1.2 Planning and Designing Learning Environments;
 - 1.3 Assessment and Evaluation;
 - 1.4 Productivity and Professional Practice, and
 - 1.5 Planning of Teaching.
2. To ascertain the level of attitudes towards the use of multimedia among teachers in terms of:
 - 2.1 Perceived Usefulness;
 - 2.2 Perceived Ease of Use;
 - 2.3 Attitudes towards Use, and
 - 2.4 Intention to Use.
3. To determine the significant relationship between educational technology standards and attitudes towards the use of multimedia among teachers.
4. To determine which domains of educational technology standards best influences attitudes towards the use of multimedia among teachers.

Hypothesis

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

1. There is no significant relationship between educational technology standards and attitudes towards the use of multimedia among teachers.
2. No domains of educational technology standards best influences attitudes towards the use of multimedia among teachers.

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 Educational Technology Standards

Presented in Table 1 is the level of Educational Technology Standards with the overall mean of 4.36 with a descriptive equivalent of very 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, Planning and Designing Learning Environments obtained the highest mean score of 4.51 or very high. As presented in the appended table, the mean ratings of the following items under this indicator as follow: I can choose the technology appropriate to the teaching process by evaluating the present technological sources, I can state whether the electronic sources are suitable for the planning of learning activities, I can inform students about the benefits of using different technological devices in the process of teaching, I can use sources on the Internet in order to prepare different learning activities and teaching strategies, and I can make use of research findings about technology use for the planning of educational environments.

Table 1. Educational Technology Standards

Indicator	SD	Mean	Descriptive Level
Technology Operations and Concepts	0.52	4.48	Very High
Planning and Designing Learning Environments	0.61	4.51	Very High
Assessment and Evaluation	0.56	4.28	Very High
Productivity and Professional Practice	0.65	4.25	Very High
Planning of Teaching	0.58	4.23	Very High
Overall	0.53	4.36	Very High

Technology Operations and Concepts obtained a mean score of 4.48 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were: I can explain how technological devices operate, I can use technological devices in different ways, I can define the technological devices found in our faculty, I can do basic things regarding computer technologies, and I can explain general concepts related to computer technology.

The indicator *Assessment and Evaluation* obtained the highest mean of 4.28 with a descriptive rating of very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: In order to assess students in different respects, I can form an evaluation procedure that consists of various measurement techniques, I can plan teaching strategies that require the use of different technological sources, I can plan learning activities based on technology use in order for students to yield creative products, I can follow technology-based measurement and evaluation strategies which will help evaluate the performance of students via

such tools as portfolio and e-mail, and I can use technology for the purpose of developing appropriate strategies to solve the real life problems.

Productivity and Professional Practice obtained a mean score of 4.25 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: To become a more effective teacher, I can find information on the Internet, I can share ideas with experts and colleagues on an online basis to develop my teaching skills, To become a more effective teacher, I can evaluate myself in terms of my improvement in technology use, To become a more productive teacher, I can use software (such as Microsoft Word, Excel, PowerPoint) that will increase the quality of instructional applications, and I can explain how I will benefit from technology to keep lifelong learning.

Planning of Teaching obtained a mean score of 4.23 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: I can make a plan that will allow all the students to use the technological sources, I can prepare lesson plans that will allow using technology to meet the different needs of students, and with the help of technology, I can design learning environments for those who need special education due to their loss of hearing or their defect of vision.

Level of Attitudes Towards the Use of Multimedia

Presented in Table 2 is the level of *Attitudes Towards the Use of Multimedia*. Computations revealed an overall mean score of 4.68 or *very 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, *Perceived Ease of Use* obtained a mean score of 4.76 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: Using the multimedia material in my class helps me to control the pedagogy, Using the multimedia material in my class enhances the teaching performance, I find the multimedia material useful in my class, and Using multimedia materials makes it easier to catch individual students' needs.

Goal-oriented engagement obtained a mean score of 3.56 or high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: getting a good grade, doing all the homework,

Attitudes towards Use obtained a mean score of 4.74 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: Using multimedia material in class is good, My using multimedia material in class is favorable, It is a positive influence for me to use multimedia material in class, and I think it is valuable to use multimedia material in class.

Perceived Usefulness obtained a mean score of 4.65 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: Using the multimedia material in my class helps me to control the pedagogy, Using the multimedia material in my class enhances the teaching performance, I find the multimedia material useful in my class, and Using multimedia materials makes it easier to catch individual students' needs.

The indicator Intention to Use obtained a mean score of 4.54 or very high. As presented in the appended table, the mean ratings of the following items under this indicator were as follows: I tend to use multimedia materials in my class, I increase the occurrences of using multimedia materials in class, using multimedia materials in my class to enhance students' learning interest, and I use multimedia materials to provide multi-approaches on teaching.

Table 2. Attitudes Towards the Use of Multimedia

Indicator	SD	Mean	Descriptive Level
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Perceived Usefulness	0.73	4.65	Very High
Perceived Ease of Use	0.71	4.76	Very High
Attitudes towards Use	0.64	4.74	Very High
Intention to Use	0.90	4.54	Very High
Overall	0.78	4.68	Very High

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 0.438 with a probability value of 0.05 which is significant at 0.05 level. Doing an in-depth analysis, it could be gleaned that the indicators of *Educational Technology Standards and Attitudes Towards the Use of Multimedia* revealed a computed r-value ranging from .153 to .384 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 *Educational Technology Standards* led to the increase in *Attitudes Towards the Use of Multimedia*. There are only two gave significant influence on Attitudes Towards the Use of Multimedia, which are Assessment and Evaluation, t=2.05, P=0.001 and Planning and Designing Learning Environments, t=1.78, P=0.001.

Table 3. Significance of the Relationship between Educational Technology Standards and Attitudes Towards the Use of Multimedia

Educational Technology Standards	Attitudes Towards the Use of Multimedia		
	R	p-value	Remarks
Technology Operations and Concepts	.384	.001	Significant
Planning and Designing Learning Environments	.261	.016	Significant
Assessment and Evaluation	.234	.000	Significant
Productivity and Professional Practice	.203	.001	Significant
Planning of Teaching	.153	.013	Significant
Overall	.438	.005	Significant

*Significant at 0.05 significance level.

Significance of the Influence of the Domain of Educational Technology Standards on Attitudes Towards the Use of Multimedia

Presented in Table 4 is the regression analysis showing the predictive ability of Educational Technology Standards on Attitudes Towards the Use of Multimedia. The analysis shows that when Educational Technology Standards was regressed on Attitudes Towards the Use of Multimedia it generated an F-value of 48.91 with 0.01. The value of this regression is 48.91 with 0.01. It can be stated that Educational Technology Standards influenced Attitudes Towards the Use of Multimedia. Among the indicators of Educational Technology Standards

Table 4. Regression Analysis Showing the Extent of the Influence of Predictor Variables on Attitudes Towards the Use of Multimedia

<i>Attitudes Towards the Use of Multimedia</i>					
Educational Standards	Technology	β (Standardized Coefficients)	B (Unstandardized Coefficients)	t	Sig.
Constant		1.4738	0.8704	2.28	0.000
Technology Operations and Concepts		-0.09783	0.08791	-0.2	0.432
Planning and Designing Learning Environments		0.54781	0.08468	1.78	0.001
Assessment and Evaluation		0.08975	0.08421	2.05	0.765
Productivity and Professional Practice		0.32496	0.08594	0.27	0.001
Planning of Teaching		0.08546	0.07986	0.31	0.682
R		0.685			
R²		0.872			
F		48.91			
p		0.000			

Conclusion

With considerations on the findings of the study, conclusions are drawn in this section. The level of educational technology standards is very high, the level of attitudes towards the use of multimedia is very high, there is a significant relationship between educational technology standards and attitudes towards the use of multimedia, and the domain of educational technology standards best influence attitudes towards the use of multimedia are Assessment and Evaluation and Planning and Designing Learning Environments.

The results of this study revealed that the level of educational technology standards is very 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 Planning of Teaching.

Meanwhile, the study revealed a very high level of attitudes towards the use of multimedia. The researcher recommends that the district office may provide Learning Action Cell among the teachers on the topic Intention to Use.

The study found a significant relationship between educational technology standards and attitudes towards the use of multimedia. 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 attitudes towards the use of multimedia that best influence Assessment and Evaluation and Planning and Designing Learning Environments. The researcher recommends that school heads may provide sessions in Learning Action Cell among teachers for improvement.

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