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Technological Proficiency and Instructional Environment Management on the Attitudinal Commitment to E-Learning of Secondary School Teachers

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Abstract

This study aimed to determine the influence of Technological Proficiency and Instructional Environment Management on the Attitudinal Commitment to E-Learning of Secondary School Teachers in Don Carlos Districts, Don Carlos, Bukidnon, Division of Bukidnon for the School Year 2025-2026. Three Hundred teachers were randomly chosen as participants in the study. Descriptive - correlational were employed in the study involving mean, correlation, regression analysis to test the goodness of fit of the hypothesis.

The study showed that teacher's technological proficiency highly observed. Also, instructional environment management was moderately observed. All indicators of technology proficiency and instructional environment management were significantly correlated to the attitudinal commitment to e-learning of secondary school teachers. Teachers who engage in technological proficiency and practice effective instructional environment management tend to have better attitudinal commitment to e-learning. Furthermore, technology integration and innovation in teaching, basic operation skills, discipline and classroom Management, use of educational software and applications were the predictors of the attitudinal commitment to e-learning of secondary school teachers.

Keywords: technological proficiency, instructional environment management, attitudinal commitment to e-learning.

Introduction

In an era where technological innovations are continuously reshaping education, the essential role of secondary school educators in utilizing e-learning platforms highlights the principles of contemporary teaching methods (Frontiers in Psychology, 2022). The emergence of advanced digital resources and engaging instructional settings has created significant opportunities for enhancing both engagement and commitment levels among teachers (ScienceDirect, 2024). Nevertheless, complex challenges continue to exist. Educators frequently face difficulties regarding their technological skills and their ability to oversee their teaching environments, both of which are closely linked to their dedication and effectiveness in delivering e-learning (ScienceDirect, 2022; ERIC, 2021). This study explores these complex relationships to shed light on the state of secondary education in the Philippines and elsewhere (ScienceDirect, 2024).

Recent research indicates that being proficient with technology is not just a skill but a crucial asset for teachers operating within dynamic digital landscapes (JIP Publication, 2023). Effectively managing the instructional environment, which includes controlling the classroom and leveraging technological tools, is vital for encouraging a positive mindset towards e-learning (RSIS International, 2025). Additionally, the research seeks to identify the predictors and obstacles related to these elements, outlining how they affect educators' readiness to fully adopt technology-enhanced teaching methods

Although there has been significant advancement, there is a notable lack of research focusing on how technological skills and the management of instructional environments influence Filipino secondary teachers' commitment to e-learning (E-Journals PH, 2024). While global studies have highlighted the transformative role of technology in educational settings, there are relatively few studies that capture the specific circumstances of schools in the Philippines (IJMRA, 2025). This gap serves as a clear call for further exploration. Therefore, drawing from both local and international viewpoints, this research aims to provide fresh insights into the successful implementation of e-learning (ERIC, 2021; E-Saliksik DepEd, 2022).

The researcher aims to undertake this study to examine how technological proficiency and instructional environment management influence the attitudinal commitment to e-learning of teachers. While previous studies have explored these two factors individually in various contexts, there remains a gap in understanding their combined impact. To address this, the study focuses on teachers in the Don Carlos Districts, Division of Bukidnon. The findings are expected to offer valuable insights into policy development aimed at enhancing teachers' attitudinal commitment to e-learning, thereby promoting quality education and enriching existing literature on the subject.

Objectives:

This study aimed to find out the influence of Technological Proficiency and Instructional Environment Management on the Attitudinal Commitment to E-Learning of Secondary School Teachers of Don Carlos I-III Districts, Don Carlos, Bukidnon for the school year 2025-2026. Specifically, it sought to answer the following:

1. to determine is the level of teachers' technological proficiency in terms of:
a. basic operational skills;
b. use of educational software and applications;
c. information and communication technology (ICT) literacy; and
d. technology integration and innovation.
2. ascertain the level of teachers' instructional environment management in terms of:
a. classroom organization;
b. teacher-student relationship;
c. student engagement and motivation; and
d. discipline and classroom management.
3. identify the level of teachers' attitudinal commitment to E-learning in terms of:
a. positive perception and acceptance;
b. emotional and psychological engagement; and
d. commitment to continuous improvement and support.
4. assess the significant relationship of teachers' attitudinal commitment to E-learning and,
a. technological proficiency; and

b. instructional environment management.
5. identify the variables that best predicts the attitudinal commitment to E-learning of secondary school teachers.

Methodology

Research Design

This study employed a quantitative research design, specifically a descriptive-correlational design, to assess the relationship between and among two or more variables. The descriptive design was used in describing the level of technological proficiency, instructional environment management, and attitudinal commitment to E-learning of secondary school teachers. A correlational design was used to examine the relationship between the independent variables, technological proficiency and instructional environment management, and the dependent variable, attitudinal commitment to E-learning of secondary school teachers.

Research Setting

The study was conducted at Don Carlos Districts I-III, Don Carlos, Bukidnon. This setting provided a diverse environment reflective of the educational landscape in the region, making it suitable for exploring the research topic.

Research Instrument

A structured survey questionnaire was composed of three (3) parts was distributed to the respondents to collect the data for the study. There were three (3) adapted questionnaires. The consent of the authors to utilize the instrument was requested. Furthermore, pilot testing was conducted to determine the reliability of the instrument. Part 1 of the instrument was adapted technology proficiency by Medrano (2017) to assess the level of technological proficiency of teachers. It consists of four (4) aspects: basic operational skills, educational software and applications, information and communication technology (ICT) literacy and technology integration and innovation in teaching with Cronbach's Alpha of 0.974. Part 2 of the instrument was the instructional environment management of the teachers. This was adapted from the work of Oreto, J. & Salazar, R. (2024). It consists of four (4) aspects; classroom organization, teacher-student relationship, student engagement and motivation, and discipline and classroom management with Cronbach's Alpha of 0. 918. Part 3 of the instrument was the attitudinal commitment to E-Learning of secondary school teachers. This instrument measured the level of the attitudinal commitment to E-Learning of secondary school teachers. The indicators of the questionnaire were adapted from Peralta, K. M. J. (2024). This instrument consisted of three (3) aspects, positive perception and acceptance, emotional and psychological engagement, and commitment to continuous improvement and support with Cronbach's Alpha of 0. 960.

Participants of the Study

The participants of this study were the random selected three hundred (300) secondary school teachers of Don Carlos Districts, Division of Bukidnon regardless of their specialization during the school year 2025-2026. The respondents rate themselves in their technological proficiency, instructional environment management and attitudinal commitment to E-learning.

Sampling Procedure

The researcher employed simple random samplings to select a representative sample of teachers from the entire target population. In this method, every member of the population has an equal chance of that will be selected for the sample. It is one of the most straightforward sampling techniques and ensures that the sample represents the population without bias.

Data Gathering Procedure

In gathering the necessary data, the researcher requested the Institutional Ethics Review Committee (IERC) permit from the university research office. Permission was given to conduct pilot testing of the questionnaires to establish reliability and validity. A letter addressed to the School Division Superintendent of the Division of Bukidnon was made for the approval to conduct the study within the division. The approved request served as the basis for endorsement to the Public Schools District Supervisors and District-in-Charge of the three (3) districts in the Municipality of Don Carlos, Don Carlos, Bukidnon, Division of Bukidnon to launch the questionnaire to the study's respondents.

Respecting the autonomy of the participants, the researcher was ensured anonymity by instructing public-school teachers not to write their names. The respondents demonstrated their commitment to this research, they were volunteer without any expectation of a reward. Then, if they agree to complete the questionnaire anonymously, they signed the inform consent form, which was placed in a box before completing the questionnaire. After giving the respondents one week to complete the survey, SMS and e-mail messages were sent as reminders to complete the survey and thank them for their utmost participation.

Data Analysis

The researcher statistically analysed the data responses according to the study's requirements. Descriptive statistics such mean, percentage, and standard deviation were used to determine the level of technological proficiency, instructional environment management, and attitudinal commitment to E-learning of secondary school teachers. Meanwhile, to find the relationship between technological proficiency and instructional environment management of attitudinal commitment to E-learning of secondary school teachers, the researcher used the Pearson Product Moment of Correlation Coefficient with a 0.05 level of significance. Furthermore, linear regression analysis was used to identify the variables that best predict attitudinal commitment to E-learning of secondary school teachers.

Results and Discussions

Table 1: Summary of teachers' mean scores of technological proficiency

Technological Proficiency	Mean	Qualitative Interpretation
Basic Operation Skills	4.40	Engaged
Educational Software and Applications	4.39	Engaged
Information and Communication Technology (ICT) Literacy	4.50	Engaged
Technology Integration and Innovation in Teaching	4.48	Engaged
Overall mean	4.44	Engaged

Legend:

Mean Interval	Descriptive Rating	Qualitative Interpretation
4.51 – 5.00	Strongly Agree	Highly Engaged
3.51 – 4.50	Agree	Engaged
2.51 – 3.50	Neutral	Moderately Engaged
1.51 – 2.50	Disagree	Low Engaged
1.0 – 1.50	Strongly Disagree	Very Low Engaged

Table 1 provides a summary of the average scores of teachers on their technological proficiency, demonstrating consistently high values across all evaluated areas. In detail, teachers achieved a score of 4.40 in Basic Operation Skills, 4.39 in Educational Software and Applications, 4.50 in Information and Communication Technology (ICT) Literacy, and 4.48 in Technology Integration and Innovation in Teaching, yielding an overall average of 4.44. All of these scores reside within the "Engaged" qualitative interpretation, suggesting that teachers are not only proficient but also actively employing technology in their professional responsibilities.

This competency reflects worldwide trends where educators are increasingly incorporating digital tools into their teaching practices, as noted by Eskici (2024), who found a strong connection between high engagement in technology integration and enhanced teaching results along with innovation in instructional approaches. Similarly, Santos (2019) highlighted that a solid level of ICT literacy among educators enhances their confidence and effectiveness in the classroom. These observations are supported by Pasayloon (2023), whose research revealed a high level of technological capability among mathematics instructors, and by the UNESCO GEM Report (2023), which advocates for ongoing development of teachers' digital skills to align with evolving educational demands (Eskici, 2024; Santos, 2019; Pasayloon, 2023; UNESCO, 2023).

While these scores are impressive, research indicates that ongoing professional development is crucial for transitioning from "engaged" to "highly engaged," enabling educators to utilize technologies not just for efficiency but also to revolutionize learning spaces (UniversePG, 2021; UNESCO, 2023). The information suggests that educators in this setting are adequately equipped for such growth, yet continuous training and collaboration with peers are vital for additional advancement.

Table 2: Summary of teachers' mean scores of instructional environment management

Financial Management	Mean	Qualitative Interpretation
Classroom Organization	4.52	Exceptionally Practiced
Teacher-Student Relationship	4.50	Highly Practiced
Student Engagement and Motivation	4.51	Exceptionally Practiced
Discipline and Classroom Management	4.53	Exceptionally Practiced
Overall mean	4.51	Exceptipnally4 Practiced

Legend

Mean Interval	Descriptive Rating	Qualitative Interpretation
4.51 - 5.00	Strongly Agree	Exceptionally Practiced
3.51 – 4.50	Agree	Highly Practiced
2.51 – 3.50	Neutral	Moderately Practiced
1.51 – 2.50	Disagree	Seldom Practiced
1.0 – 1.50	Strongly Disagree	Not Practiced

Table 2 presents the summary of teachers' mean scores in instructional environment management, showing exceptionally high levels of practice across critical domains. Teachers scored 4.52 in Classroom Organization, 4.50 in Teacher-Student Relationship, 4.51 in Student Engagement and Motivation, and 4.53 in Discipline and Classroom Management, resulting in an overall mean of 4.51. According to the scale, these scores are interpreted as "Exceptionally Practiced," demonstrating that teachers in this setting adopt highly effective strategies in managing their instructional environment.

Moreover, this high level of proficiency is consistent with recent research, which has found that classroom management, positive teacher-student relationships, and practices that promote engagement and discipline are linked to both student achievement and a positive classroom climate. Marzano and Pickering (2010) emphasized that good classroom organization and discipline boost academic achievement while also creating supportive learning environments. Positive teacher-student interactions, referred to here as "Highly Practiced," have been extensively validated by research such as those conducted by Wentzel (2012), who discovered that stronger bonds contribute to both engagement and motivation.

Furthermore, highly practiced classroom engagement and management reinforce Dörnyei's (2020) recommendations, which relate active student participation and structured discipline to improved learning experiences and fewer classroom disruptions. These findings are consistent with international research that shows that teachers with great management skills generate ideal environments for both teaching and learning (UNESCO, 2023). Thus, the statistics indicate that the teachers in this context are not only well-qualified in instructional management, but also setting benchmarks that are consistent with worldwide best practices.

Table 3: Summary of the mean scores of attitudinal Commitments to E-Learning of teachers exhibited

Attitudinal Commitment to E-Learning	Mean	Qualitative Interpretation
Positive Perception and Acceptance	3.78	Observed
Emotional and Psychological Engagement	4.19	Observed
Commitment to Continuous Improvement and Support	4.14	Observed
Overall mean	4.03	Observed

Legend:

Mean Interval	Descriptive Rating	Qualitative Interpretation
4.51 - 5.00	Strongly Agree	Highly Observed
3.51 – 4.50	Agree	Observed
2.51 – 3.50	Neutral	Moderately Observed
1.51 – 2.50	Disagree	Seldom Observed
1.0 – 1.50	Strongly Disagree	Not Observed

Table 3 presents teachers' attitudinal commitment to e-learning, showing "Observed" ratings in all measured domains. Positive Perception and Acceptance (M = 3.78), Emotional and Psychological Engagement (M = 4.19), and Commitment to Continuous Improvement and Support (M = 4.14) all reflect that teacher are displaying consistent and active engagement toward online education, with an overall mean score of 4.03. This indicates that while teachers are not at the "Highly Observed" level, the majority are positively oriented and emotionally invested in the ongoing transition to digital teaching.

The literature confirms these findings, indicating that instructor acceptability and positive perception are critical for successful e-learning implementation. Alraimi et. al (2015) claim that positive attitudes and psychological involvement considerably improve the chance of teacher participation and technology adoption. Hung and Chou (2015) underline that emotional involvement and a desire to develop promote the long-term viability of e-learning methods. Recent UNESCO (2023) publications emphasize the importance of spiritual growth and continual improvement in promoting teacher resilience and flexible learning environments. Overall, these engaged scores indicate a significant preparedness among teachers to adopt

digital teaching modalities; nevertheless, additional professional development may smooth the transition to "Highly Engaged" status and enhance the impact of e-learning.

Table 4: Correlation on the Teachers Technological Proficiency, Instructional Environment Management and Attitudinal Commitment to E-Learning

INDICATOR	CORRELATION VALUE	PROBABILITY
Technological Proficiency	.471	0.000**
Basic Operation Skills	.421	0.000**
Use of Educational Software and Applications	.327	0.000**
Information and Communication Technology (ICT) Literacy	.404	0.000**
Technology Integration and Innovation in Teaching	.438	0.000**
Instructional Environment Management	.364	0.000**
Classroom Organization	.308	0.000**
Student Engagement and Motivation	.264	0.000**
Credit Practices	.195	0.000**
Discipline and Classroom Management	.301	0.000**

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table 4 demonstrates significant positive correlations between teachers' technological proficiency, instructional environment management, and attitudinal commitment to e-learning. The overall correlation coefficient for Technological Proficiency is .471 ($p < 0.001$), indicating a moderate and meaningful relationship with attitudinal commitment. Subdomains such as Basic Operation Skills (.421), Use of Educational Software and Applications (.327), ICT Literacy (.404), and Technology Integration and Innovation (.438) all exhibit significant positive associations, as do aspects of Instructional Environment Management, with overall correlation at .364 ($p < 0.001$). Classroom Organization (.308), Student Engagement and Motivation (.264), Credit Practices (.195), and Discipline and Classroom Management (.301) also display significant but varying strengths of correlation.

Moreover, the data shows that teachers who possess stronger technological proficiency and employ effective classroom management practices are more likely to exhibit higher attitudinal commitment toward e-learning. This pattern supports the findings of Alraimi et. al, (2015), who underscore that the integration of ICT and positive teaching practices jointly enhance teachers' openness and willingness to engage with online learning platforms. Hung and Chou (2015) further highlight that ICT literacy and technology integration bolster teacher engagement and adaptability, while the quality of instructional environment management such as organization, motivation, and discipline contributes to sustained commitment.

In addition, the moderate correlation values also reflect the research of UNESCO (2023), which reports that the interplay of digital competency, pedagogical management, and positive attitudes is integral to effective and resilient e-learning implementation in schools. Collectively, these results reinforce the importance of holistic teacher development integrating technological, environmental, and attitudinal domains to maximize the outcomes of digital education.

Table 5 Variables that Best Predict the attitudinal commitment of secondary public school Teachers.

Predictor Variables	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
(Constant)	2.076	.9191		10.889	.000
Technology Integration and Innovation in Teaching	.206	.038	.302	5.369	.000
Basic Operation Skills	.338	.067	.416	5.054	.000
Discipline and Classroom Management	.096	.026	.173	3.362	.001
Use of Educational Software and Applications	-.136	.062	-.184	-2.170	.031
R=.547	r2 = .300	f-value = 31.533		p value = 0.000	

$Y1=2.076 + .206X_1 + .338X_2 + .096X_3 + (-.136)\ X_4$

Where:

Y1 = Attitudinal Commitment to E-Learning

X1 = Technology Integration (Technology Proficiency)

X2 = Teaching Basic Operation skills (Technology Proficiency)

X3 = Discipline and Classroom Management (Technology Proficiency)

X4 = Use of Educational Software and Applications (Instructional Environment Management)

The data presents a multiple regression analysis examining the impact of various predictor variables, related to technology proficiency and instructional environment management, on students' attitudinal commitment to e-learning. The model reveals an R-squared value of .300, indicating that approximately 30% of the variance in attitudinal commitment (Y1) is explained by the four predictors: technology integration and innovation in teaching, basic operation skills, discipline and classroom management, and use of educational software and applications ($F = 31.533$, $p < .001$).

The unstandardized coefficients show that technology integration ($B = 0.206$, $p < .001$), basic operation skills ($B = 0.338$, $p < .001$), and discipline and classroom management ($B = 0.096$, $p = .001$) positively influence students' attitudes toward e-learning, suggesting that higher proficiency in these areas correlates with greater commitment. Conversely, the use of educational software and applications negatively predicts attitudinal commitment ($B = -0.136$, $p = .031$), implying that increased reliance on such tools without effective management might be associated with lower engagement or commitment.

The standardized coefficients (Beta) reinforce the relative importance of each predictor: basic operation skills ($\beta = 0.416$) have the most substantial effect, followed by technology integration ($\beta = 0.302$) and discipline and classroom management ($\beta = 0.173$). The negative Beta for the use of educational software ($\beta = -0.184$) further substantiates the inverse relationship observed in the unstandardized data. These findings align with recent literature emphasizing that competency in foundational technology skills and classroom management positively influence students' engagement in digital learning environments (Reyes et al., 2020; Hernandez &

Gomez, 2022). However, the counterintuitive negative association with software use suggests that over-reliance or improper implementation of educational applications may hinder student engagement, a concern highlighted in studies about technology integration challenges (Martinez & Lopez, 2019).

Thus, this analysis highlights the significance of comprehensive technology proficiency in fostering positive attitudes towards e-learning, advocating for training programs that strengthen basic operation skills and effective classroom management strategies to optimize the instructional environment and enhance student commitment (Abad, 2021; Santos & Cruz, 2023).

Conclusion

Based on the result of the study, the following conclusions were derived:
Teachers are highly practiced in technological proficiency across all measured domains. Basic Operation Skills, Technology Integration and Innovation in Teaching and Applications, Information and Communication Technology (ICT) literacy show particularly high engagement levels. While Educational Software and Applications has a slightly lower mean score, but it still falls within the "Engaged" category.
Teachers' instructional environment management are exceptionally practiced. Discipline and Classroom Management stands out as the most highly practiced area, indicating that teachers generally exhibit responsible classroom management. Classroom organization, student engagement and motivation also show exceptionally practiced. Also, teacher student relationship shows highly practiced. It indicates that teachers were mindful in instructional environment management for learning.
The attitudinal commitment to e-learning of teachers exhibited a commendable level in various aspects. Notably, areas such as emotional and psychological engagement, commitment to continuous improvement, and positive perception and acceptance show that teachers are actively engaged in terms of attitudinal commitment to e-learning.
In addition, teachers highly observe on their attitudinal commitment to e-learning. Among the different aspects, emotional and psychological engagement is the most highly engaged, suggesting that teachers prioritize building positive relationships with colleagues, students, and the community.
The data reveals significant positive correlations between various dimensions of technological proficiency and instructional environment management with correlation values. All of which are statistically significant. The strongest correlation is observed with technological proficiency, indicating a substantial relationship between teachers' technological proficiency and their instructional environment management practices, suggesting that enhanced technological expertise may contribute positively to instructional schoolroom management.

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