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TECHNOLOGY COMPETENCE AND LEARNING ACTION CELL ENGAGEMENT ON PEDAGOGICAL ADAPTABILITY OF TEACHERS

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ABSTRACT

The study examined the relationship of technology competence and Learning Action Cell (LAC) Engagement on pedagogical adaptability of teachers. This study used a descriptive-correlational design and involved 250 elementary teachers selected from the three districts in Pangantucan during school year 2025–2026. Data were gathered using validated questionnaires on teachers' technology competence, LAC engagement, and pedagogical adaptability, and were analyzed using descriptive statistics, Pearson correlation, and multiple regression.

Results showed that teachers have high level of technology competence, LAC engagement, and pedagogical adaptability. The technology competence on Technology knowledge, technology skills, and technology integration had a very strong positive correlation with pedagogical adaptability, and regression analysis indicated that technology knowledge, technology integration, technology skills, and LAC coaching and instructional-materials development together explained the variance in pedagogical adaptability.

In general, these findings suggest that deep understanding and active use of technology, combined with hands on, coaching based LAC activities, are critical for strengthening teachers' adaptive practices in rural public schools.

Keyword: Technology Competence, Learning Action Cell, Pedagogical Rural Education, Digital Resources

1. INTRODUCTION

Teaching is a complex professional practice that requires teachers to design meaningful learning experiences, manage diverse classrooms, and continuously adjust strategies to meet learners' needs in changing educational contexts (Van Geel et al., 2019). Teachers in the Philippine basic education system are expected not only to deliver content but also to demonstrate high levels of pedagogical adaptability, or the ability to flexibly modify instruction, classroom activities, and assessment based on learners' progress, abilities, and circumstances (Andres et al., 2021; Van Geel et al., 2019). This adaptability includes self-awareness, personal management, problem solving and decision making, attitude, and knowledge of competencies that enable teachers to respond to MATATAG curriculum reforms, learner diversity, and post-pandemic learning gaps (Baldoza, 2026; Leswell, 2025). In many public schools, particularly in rural and last-mile areas such as the districts of Pangantucan in Bukidnon, teachers continue to face challenges related to limited resources, unstable connectivity, and increased accountability, making their role more demanding and highlighting the need to strengthen their adaptive teaching capacities (Department of Education; Orbigoso & Pontillas, 2026).

International studies report that while digital reforms and inclusive policies have pushed schools to innovate, many teachers struggle to sustain pedagogical adaptability due to insufficient training, workload pressures, and uneven access to technology, which can limit differentiated and responsive instruction in diverse classrooms (Abbasi et al., 2021; Carpenter & Munshower, 2020; Ngaya et al., 2024). In the Philippine context, recent research notes that teachers often display only moderate levels of

adaptability, with gaps in real-time adjustment of strategies, problem-solving, and decision-making, especially during transitions to blended or hybrid learning (Baldoza, 2026; Munda, 2023). Locally, evidence from Mindanao and neighboring regions such as Camiguin, Siargao, and Davao suggests that teachers' adaptive practices are constrained by resource shortages, heavy administrative tasks, and inconsistent professional development support, resulting in difficulties in meeting learners' varied needs and maintaining effective classroom engagement (Juanite & Ardiente, 2025; Orbigoso & Pontillas, 2026). In Pangantucan Districts of Bukidnon, these challenges may be more pronounced because many schools are geographically distant and resource-poor, potentially weakening teachers' capacity to remain flexible, reflective, and responsive in their day-to-day teaching.

Technology competence is increasingly recognized as a critical requirement for teachers, referring to their knowledge, skills, and integration of digital tools in lesson planning, instruction, assessment, and communication with learners. Studies show that teachers who possess strong technological competence can design interactive digital lessons, use online platforms to monitor learner progress, and employ multimedia resources to clarify concepts, all of which support adaptive instruction and more personalized learning experiences. However, research in Philippine public schools indicates that many teachers, particularly in rural areas, still have limited training in advanced ICT integration and face difficulties in troubleshooting devices, selecting appropriate applications, and aligning technology with pedagogy and content. Strengthening teachers' technology knowledge, skills, and integration practices may therefore help improve the status of pedagogical adaptability by enabling them to quickly modify activities, provide differentiated tasks, and respond to learner feedback through digital means.

The Learning Action Cell (LAC) is an institutionalized school-based professional learning mechanism in Philippine public schools that brings teachers together to reflect on classroom problems, share best practices, and collaboratively design solutions through regular meetings, coaching, and group discussions. Empirical studies have found that active engagement in LAC sessions enhances teachers' self-reflection, peer mentoring, and collaborative problem solving, which in turn contribute to improved pedagogical practices and more adaptable classroom strategies. Despite DepEd Order No. 35, s. 2016 mandating LAC implementation, some schools report irregular meetings, limited documentation, and low participation due to time constraints, competing tasks, and logistical issues, especially in remote districts. When teachers are meaningfully engaged in LAC activities—such as lectures and orientations, coaching and instructional materials development, and group discussions—they are more likely to refine their teaching approaches, experiment with new strategies, and address learner difficulties, thereby potentially improving the current level of pedagogical adaptability.

Given the persistent challenges in teachers' pedagogical adaptability and the observed gaps in both technology competence and LAC engagement in rural public schools, there is a need to systematically examine how these two factors relate to, and possibly predict, the adaptability of teachers in Pangantucan North, South, and West Districts. Conducting this research will provide empirical evidence on the levels of technology competence, the extent of LAC engagement, and their combined influence on teachers' adaptive practices, which can guide DepEd officials, school heads, and teacher leaders in designing targeted professional development programs and support mechanisms. By clarifying which dimensions of technology competence and LAC engagement are most strongly associated with pedagogical adaptability, the study intends to inform local policy decisions and capacity-building initiatives that can strengthen teachers' ability to respond to diverse learner needs and improve instructional quality in the municipality of Pangantucan and similar rural contexts.

This study primarily aims to assess levels of technological competence and LAC mobility, their relationships, and predictive influence on teachers' pedagogical adaptability in public school teachers, informing targeted professional development.

This study aimed to address the connection by exploring the interplay between technology competence and learning action cell engagement on pedagogical adaptability of teachers in basic education teachers in Pangantucan North, South,

West Districts, Division of Bukidnon for school year 2025-2026. Specifically, this study sought to answer the following;

1. Determine the level of Technology Competence of teachers in terms of:

a. technology knowledge;

b. technology skills;

c. technology integration; and

d. using digital resources.

2. Determine the level of Learning Action Cell Engagement among teachers in

terms of:

a. lectures and orientation;

b. coaching, development, and usage of instructional materials; and

c. group discussions?

3. Assess the level of Pedagogical Adaptability of teachers in terms of:

a. self-awareness;

b. personal management;

c. problem solving and decision making;

d. attitude; and

e. knowledge of competencies.

4. Ascertain the relationship between pedagogical adaptability and:

a. digital competence; and

b. school resources.

5. Determine the variable/s that best predict teachers' pedagogical adaptability.

2. METHODOLOGY

This section outlines the methodologies that were employed for collecting and analyzing data, encompassing the research design, participant selection, study location, tools used for data collection, procedures for gathering data, ethical considerations, and statistical methods applied to treat the data.

2.1. Research Design

The research employed a descriptive-correlational approach to analyze the associations between teachers' technology competence, learning action cell engagement, and pedagogical adaptability among public school educators in Pangantucan District, Division of Bukidnon. This design allowed for the observation and quantification of relationships between these variables without experimental manipulation, utilizing methods such as surveys to gather data on participants' experiences and attitudes. By applying statistical techniques like regression analysis, the study aimed to identify patterns and connections, though it did not infer causation.

The descriptive component of the research design aimed to thoroughly outline the key variables of interest, including teachers' technological competence, learning action cell mobility, and pedagogical adaptability. The data were analyzed using descriptive statistics such as means, frequencies, and percentages to provide a clear summary of the findings. designed to measure perceptions of teachers' technology competence, learning action cell engagement, and pedagogical adaptability of teachers.

2.2. Locale of the study

This study was conducted in the Municipality of Pangantucan, Bukidnon, within Region X – Northern Mindanao, under the jurisdiction of the Department of Education, Division of Bukidnon. The study focused on public elementary school teachers from the Pangantucan North, South, and West Districts, whose technology competence, Learning Action Cell (LAC) engagement, and pedagogical adaptability were examined during the academic year 2025–2026.

The public elementary schools across these three districts represented a mix of rural and semi-urban educational settings, providing a more comprehensive picture of the relationships among teachers' technological competence, LAC participation, and pedagogical adaptability within the Pangantucan context. By including teachers from all three districts, the study captured diverse experiences in using technology and engaging in collaborative LAC activities, which enhanced the generalizability of the findings within the Division of Bukidnon.

2.3. Respondents of the Study

This study's respondents were randomly selected 250 school teachers, teachers from the different schools under Pangantucan North, South, and West District, Division of Bukidnon for the academic year 2025 – 2026.

This study focuses on public elementary school teachers in in the Municipality of Pangantucan, examining the connections between their teachers' technological competence, learning action cell mobility, and pedagogical adaptability of teachers. Total enumeration was applied to determine the sample size. The study's respondents were the public elementary schools in the school districts of Pangantucan, Bukidnon. However, only those who agreed to participate are given the questionnaire. An informed consent form is also provided, outlining the research objectives, assuring their privacy, and requesting voluntarily participation. Table 1 shows the sample size of the distribution.

Table 1. Distribution of Respondents by Districts

Name of District	No. of Teachers (N)	No. of Actual Respondents (n)
Pangantucan North	250	125
Pangantucan South	120	50
Pangantucan West	210	75
TOTAL	580	250

2.4. Research Instruments

A survey questionnaire used to gather data pertinent to the variables of the study which are the teacher's technology competence, learning action cell engagement, and pedagogical adaptability of teachers. Three instruments were derived and modifies from previous researchers. Pilot testing was conducted for the validity and reliability of the research instruments. Also, letters asking permission to use the questionnaires will be sent to each proponent.

First, Technology Competence Instrument was used to determine the level of well-being of teachers in three dimensions: Teachers Technology Knowledge, Technology Skills, and Technology Integration, with a total of 30 items. The researcher adopted questionnaire of Borja (2025) utilized her master's thesis entitled, The Relationship of Holistic Well-Being and Technological Competence of Teachers in Integrated Schools with 0.94 Chronbach Alpha, indicating a high reliability. The following limits, descriptive rating, and qualitative interpretation were employed in analyzing the data.

In analyzing the data, the following limits, descriptive rating, and qualitative interpretation will be employed:

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.21-5.00	Strongly Agree (SA)	Very High Competence
4	3.42-4.20	Agree (A)	High Competence
3	2.61-3.40	Neutral (N)	Moderate Competence
2	1.81-2.60	Disagree (D)	Low Competence
1	1.00-1.80	Strongly Disagree (SD)	Very Low Competence

Second, the Learning Action Cell Engagement among teachers was assessed in terms of their involvement in LAC activities, specifically Lectures and Orientation, Coaching, Development, and Usage of Instructional Materials, as well as Group Discussions, comprising a total of 18 items. The researcher adopted the questionnaire from Dela Torre, which was originally developed by Bibon for her master's thesis titled 'Learning Action Cell Engagement and Technology Integration Effectiveness on Instructional Delivery Practices of Public School Teachers.' The following limits, descriptive ratings, and qualitative interpretations were employed in analyzing the data.

To ascertain the teachers Pedagogical Adaptability of Teachers, the instrument for pedagogical adaptability of teachers was standardized

questionnaire adapted from the study of the researcher employed Morgan's (2011) adaptation survey. Subject matter experts evaluated the instrument's content validity. The questionnaire's Cronbach's alpha (α = 0.90) showed "Excellent reliability" (Munda and Tamban, 2019).. The instrument is composed of five (5) items for Self-awareness, five (5) items for Personal Management, five (5) items for Problem Solving and Decision Making, six (6) items for Attitude, and six (6) items for Knowledge of Competences. The scale and qualitative descriptions provided below were used to interpret data, with higher scores indicating a very high- level commitment teacher who can support another teacher's improvement.

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.21-5.00	Strongly Agree (SA)	Very High Adaptability
4	3.42-4.20	Agree (A)	High Adaptability
3	2.61-3.40	Neutral (N)	Moderate Adaptability
2	1.81-2.60	Disagree (D)	Low Adaptability
1	1.00-1.80	Strongly Disagree (SD)	Very Low Adaptability

2.5. Data Gathering Procedure

To explore the relationship between teachers' technology competence, learning action cell engagement, and pedagogical adaptability of teachers among public school teachers in Pangantucan District, a combination of quantitative methods was employed. The researcher first prepared a letter requesting permission to conduct the study, which will be reviewed and noted by the subject professors. This letter will then be submitted to every school's head of the office and public school district supervisors. Once approved, the letter will serve as official authorization to distribute the survey questionnaire to public school teachers.

The participants received a letter informing them of their selection. The letter will also explain the purpose of the study, and the participants will be given one week to answer the questionnaire. The study will also utilize digital platforms like Google Forms to streamline and accelerate the data collection process.

Survey questionnaires was used to gather quantitative data on teachers' technology competence, learning action cell engagement, and pedagogical adaptability of teachers. These tools provided measurable insights into the variables under study. Additionally, survey questionnaires were conducted to collect quantitative data, allowing for a deeper understanding of teachers' experiences and perspectives in their unique rural teaching contexts, which address the specific challenge.

Scale	Range	Descriptive Rating	Qualitative Interpretation
5	4.21-5.00	Strongly Agree (SA)	Very High Engagement
4	3.42-4.20	Agree (A)	High Engagement
3	2.61-3.40	Neutral (N)	Moderate Engagement
2	1.81-2.60	Disagree (D)	Low Engagement
1	1.00-1.80	Strongly Disagree (SD)	Very Low Engagement

Then, the data was organized, tailored, and categorized according to the research questions. The gathered information will undergo thorough analysis, discussion, and interpretation. Multiple regression analysis will be applied to determine how technology competence and learning action cell engagement influence the pedagogical adaptability of teachers.

2.6. Statistical Treatment

Descriptive statistics, including mean and standard deviation, will be used to determine the level of technology competence, learning action cell engagement, and pedagogical adaptability of the teachers.

To examine the relationship of these variables, Pearson product-moment correlation (Pearson r) will be employed to assess the significance of the association between technology competence, learning action cell engagement, and pedagogical adaptability of teachers.

Moreover, multiple regression analysis will be conducted to identify the best predictor of teachers' pedagogical adaptability.

2.7. Ethical Considerations

The researcher adhered to ethical standards throughout the study. To ensure the integrity of this research, several ethical considerations will be observed to protect the respndents rights and well-being. The researcher will secure the required permit from the Institutional Ethics Review Committee (IERC) of the University Research Office.

Before distributing and retrieving the questionnaires, the researcher will submit a formal letter to the respective district supervisor requesting permission to conduct the study.

Furthermore, all the participants will provide informed consent after being fully informed about the study's nature and purpose. Their voluntary participation will be valued and appreciated. The participants' anonymity will be ensured throughout the research process.

3. RESULTS AND DISCUSSION

This section presents the interpretation and analysis of the data gathered, a discussion of the results, and the studies that support the results of the recent study. The findings are examined in relation to the study's objectives on Technology Competence, Learning Action Cell Engagement, and Pedagogical Adaptability, highlighting patterns and relationships among the variables. Relevant literature is used to contextualize the results, explain possible reasons for the observed relationships, and situate the current findings within the broader discourse on teacher adaptability and technology-based professional development.

Technology Competence of Teachers

Table 2 presents the mean scores and qualitative interpretations of the technology competence of teachers across three indicators: technology knowledge, technology skills, and technology integration. These results reveal varying proficiency levels, with technology knowledge scoring highest, followed by skills, while integration lags, highlighting key areas for targeted professional development.

Table 2. Mean Scores of Technology Competence of

Teachers

INDICATORS	MEAN	DESCRIPTIVE RATING	QUALITATIVE INTERPRETATION
Technology Knowledge	3.77	Agree (A)	High Competence
Technology Skills	3.75	Agree (A)	High Competence
Technology Integration	3.88	Agree (A)	High Competence
OVERALL MEAN	3.80	Agree (A)	High Competence

The data reveal that teachers possess high competence in technology, as evidenced by an overall mean of 3.80. This suggests that the respondents are well-equipped with the necessary digital literacy to function effectively in a modern educational environment. This high level of competence indicates that teachers are not only familiar with technological tools but are also capable of applying them to enhance their professional practices and pedagogical adaptability.

Among the indicators, Technology Integration yielded the highest mean of 3.88, interpreted as High Competence. This signifies that teachers are most proficient in the actual application of

technology within the teaching-learning process, such as using digital tools to deliver lessons and engage students. This is a critical finding, as it shows that teachers prioritize the functional use of technology to improve instructional delivery. Conversely, Technology Skills obtained the lowest mean of 3.75, though it still falls under the High Competence category. This suggests that while teachers are highly capable, there may be a relatively lower level of mastery in specific technical operations or troubleshooting compared to their ability to integrate technology into their lessons.

The findings imply that teachers have successfully transitioned into digital-age educators who can bridge the gap between traditional teaching and technology-enhanced learning. The high mean in technology integration suggests that the teachers' focus is on the pedagogical utility of technology, using it to make learning more interactive and accessible. The slightly lower score in technology skills suggests that while they are effective users, there remains room for technical professional development to further solidify their foundational digital troubleshooting and advanced software management.

Research indicates a positive and significant relationship between teachers' technology proficiencies and their ability to integrate technology into lessons (Eskici & Çayak, 2023), as higher self-perceived proficiency leads to linearly increased classroom integration (Eskici & Çayak, 2023). Moreover, high competence significantly boosts learning by enabling effective digital planning, presentation, and assessment (Pittas & Adeyemi, 2019), since such teachers find technology simplifies instruction, speeds processes, and improves student performance (Pittas & Adeyemi, 2019). Consequently, consistently high teaching competence and ICT integration stem from professional development and positive tech attitudes (Septimo & Cancio, 2024), which supports that this study's findings reflect successful adaptation to digital workplace demands (Celeste & Osias, 2024).

Learning Action Cell Engagement

Table 3 displays the mean scores of teachers' engagement in Learning Action Cell sessions, categorized into three key indicators: lectures and orientation; coaching, development, and usage of instructional materials; and group discussions.

Table 3. Mean Scores of Learning Action Cell Engagement

INDICATORS	MEAN	DESCRIPTIVE RATING	QUALITATIVE INTERPRETATION
LECTURES AND ORIENTATION	3.66	Agree (A)	High Engagement
COACHING, DEVELOPMENT, AND USAGE OF INSTRUCTIONAL MATERIALS.	4.42	Strongly Agree (SA)	Very High Engagement
GROUP DISCUSSIONS	3.84	Agree (A)	High Engagement
OVERALL MEAN	4.05	Agree (A)	High Engagement

The overall mean score of 4.05 indicates that teachers demonstrate High Engagement in Learning Action Cell sessions. This suggests that LAC serves as a vital platform for professional growth, where teachers actively participate in collaborative activities designed to improve their teaching practices. The high level of engagement implies that the LAC policy is being effectively implemented at the school level, fostering a culture of continuous learning and professional accountability.

The highest indicator is Coaching, Development, and Usage of Instructional Materials, with a mean of 4.42, interpreted as Very High Engagement. This finding highlights that teachers are most engaged when professional development involves hands-on, practical activities that directly result in tangible classroom resources. It suggests that coaching and the collaborative creation of materials provide immediate value to their daily instruction, making these sessions the most impactful for the respondents. On the other hand, Lectures and Orientation received the lowest mean of 3.66, though it still falls under High Engagement. This indicates that while teachers still value foundational knowledge and policy

updates, they find passive learning modes slightly less engaging than more active, output-oriented sessions like coaching or peer discussions.

The results imply that teachers prioritize job-embedded professional development that offers direct instructional support. The very high engagement in coaching and material development suggests that teachers prefer "learning by doing" over traditional top-down lecture formats. This shift indicates a move toward a more collaborative and constructive model of professional learning, where the focus is on solving classroom-specific challenges through collective effort and expert guidance.

Research has shown that the quality and frequency of Learning Action Cell sessions are directly related to teachers' professional competence (Conde et al., 2023). Specifically, studies indicate that the more teachers engage in these sessions, the more they are empowered with methodologies to deliver effective teaching (Conde et al., 2023). On the other hand, emphasis on developing instructional materials is supported by evidence that the creation and distribution of learning materials are key components that positively impact instructional improvement (Reimers, 2020). Collaborative environments that allow teachers to exchange feedback and best practices have been found to disseminate effective teaching strategies rapidly (Reimers, 2020). Engagement in School Learning Action Cells is recognized as a critical platform for teachers to share creative and innovative strategies, allowing them to adapt to 21st-century instructional needs (Culajara, 2023). Furthermore, systematic coaching within these cells has been proven to significantly enhance teachers' instructional capacities (Elfarargy et al., 2022).

Pedagogical Adaptability of Teachers

Table 4 presents the mean scores and qualitative interpretations of the pedagogical adaptability of teachers, evaluated across five indicators: self-awareness, personal management, problem solving and decision making, attitude, and knowledge of competences. These findings indicate moderate to high proficiency levels, with knowledge of competences emerging as the strongest area, underscoring its foundational role in fostering adaptive teaching practices.

Table 4. Mean Scores of Pedagogical Adaptability of Teachers

INDICATORS	MEAN	DESCRIPTIVE RATING	QUALITATIVE INTERPRETATION
SELF-AWARENESS	3.89	Agree (A)	High Adaptability
PERSONAL MANAGEMENT	3.88	Agree (A)	High Adaptability
PROBLEM SOLVING AND DECISION MAKING	3.87	Agree (A)	High Adaptability
ATTITUDE	3.84	Agree (A)	High Adaptability
KNOWLEDGE OF COMPETENCES	3.85	Agree (A)	High Adaptability
OVERALL MEAN	3.87	Agree (A)	High Adaptability

The results show that teachers possess a High Adaptability in their pedagogical practices, with an overall mean of 3.87. This indicates that the respondents can adjust their instructional strategies, emotional responses, and professional behaviors to meet the evolving demands of the classroom. A high level of pedagogical adaptability is essential in modern education, as it allows teachers to remain effective even when faced with unexpected instructional challenges or diverse student needs.

Among the indicators, Self-Awareness obtained the highest mean of 3.89, interpreted as High Adaptability. This suggests that teachers are highly reflective; they have a strong understanding of their own teaching strengths and areas for improvement, which allows them to consciously modify their approach to better suit their students. Conversely, Attitude received the lowest mean of 3.84. While still categorized as High Adaptability, this lower score suggests that

while teachers are competent in adapting, there may be occasional internal resistance or mindset-related challenges when navigating rapid educational changes or shifting policies.

The findings imply that teachers are not merely "rule-followers" but are proactive professionals who use reflection (self-awareness) to drive their instructional decisions. The high scores in personal management and problem solving suggest a high level of resilience and autonomy. However, the slightly lower mean in attitude indicates that for adaptability to be sustainable, school administrators should focus on fostering a positive "change culture" to ensure that teachers' mindsets remain as flexible as their technical skills.

Research emphasizes that reflective practices are the most important factor in developing teacher adaptability (Davis et al., 2024). By engaging in a cycle of thinking about teaching before, during, and after instruction, teachers become better prepared to solve classroom problems and adapt in real time (Weaver, 2022). Adaptability, defined as the capacity of individuals to adjust their thoughts, feelings, and behaviors in response to new, uncertain, or changing situations (Granziera et al., 2019). Effective teachers demonstrate high cognitive flexibility, which allows them to handle the difficulties of modern education, such as distance or hybrid learning, more efficiently by modifying their lesson plans on the fly (Özen & ÜÇÜNCÜ, 2022). Moreover, the ability to adapt reasoning and subject matter delivery is rooted in a teacher's knowledge of competences and pedagogical content knowledge (Alarba, 2023). Studies suggest that teachers with a strong grasp of their professional competencies are more capable of generating alternative teaching approaches to represent content in ways that meet diverse learner needs (Alarba, 2023; Toraeva, 2022).

Correlational Analysis Between Technology Competence, Learning Action Cell Engagement, and Pedagogical Adaptability

Table 5 presents the results of the Pearson correlation analysis performed to determine the relationship between the independent variables and the dependent variable.

Table 5. Correlational Analysis Between Technology Competence, Learning Action Cell Engagement, and Pedagogical Adaptability

INDEPENDENT VARIABLE	R-Value	Probability
Technology Knowledge	.841	.000**
Technology Skills	.297	.000**
Technology Integration	.230	.000**
Technology Competence	.683	.000**
Lectures and Orientation	-.111	.079
Coaching, Development, and Usage of Instructional Materials	.374	.000**
Group Discussion	.202	.001**

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

The correlational analysis reveals a Significant Positive Relationship between Technology Competence and the Pedagogical Adaptability of teachers (r = .683, p = .000). This indicates that as teachers become more competent in using technology, their ability to adapt their pedagogical strategies to changing educational environments increases. Similarly, specific components of Learning Action Cell engagement, particularly coaching and group discussions, show a significant positive correlation with adaptability.

The indicator with the Highest Correlation is Technology Knowledge (r = .841, p = .000). This very strong positive correlation suggests that a teacher's theoretical understanding and conceptual grasp of digital tools are the strongest predictors of their adaptability. When teachers "know" the technology deeply, they feel more confident and capable of pivoting their instructional methods. On the other hand, the Lowest Correlation among the significant indicators is Group Discussion (r = .202, p = .001). While still significant, its lower r-value suggests that while peer talk is helpful, it is less influential on adaptability than technical knowledge or hands-on coaching. Notably, Lectures and Orientation showed a non-significant relationship (r = -.111, p = .079), implying that passive attendance in informational sessions does not

necessarily translate into improved pedagogical flexibility.

The findings imply that pedagogical adaptability is heavily driven by "cognitive readiness" (knowledge) and "practical support" (coaching). The strong link between technology knowledge and adaptability suggests that training programs should focus on deep conceptual understanding rather than just surface-level skills. Furthermore, the lack of significance in "Lectures and Orientation" implies that for professional development like LAC to effectively enhance a teacher's ability to adapt, it must move away from top-down lectures and toward more active, job-embedded coaching and material development.

Research supports that as teachers' technology proficiency increases, their level of actual classroom integration and adaptability also rises (Eskici & Çayak, 2023), and studies show that high self-perception of this competence makes them more flexible in instructional planning while boosting resilience to technical changes (Eskici & Çayak, 2023; Septimo & Cancio, 2024). Furthermore, professional learning communities like LAC foster adaptability through collaborative development that empowers flexible teaching methodologies (Conde et al., 2023), particularly via systematic coaching which enhances instructional capacities for 21st-century needs (Culajara, 2023; Elfarargy et al., 2022). Thus, adaptive competence, rooted in professional knowledge like TPACK, equips teachers to adjust reasoning and generate alternatives for diverse students in hybrid environments (Toraeva, 2022; Alarba, 2023).

Regression Analysis Between Technology Competence, Learning Action Cell Engagement and Pedagogical Adaptability

Table 6 illustrates the regression analysis results to determine which indicators of Technology Competence and Learning Action Cell Engagement significantly predict the Pedagogical Adaptability of teachers.

	Unstandardized Coefficients		Standardized Coefficients		
Predictor Variables	B	Std. Error	Beta	t	Sig.
Technology Knowledge	.736	.048	.725	15.212	.000
Technology Integration	.459	.051	.295	9.020	.000
Coaching, Development, and Usage of Instructional Materials	.189	.055	.187	3.452	.001
Technology Skills	.094	.038	.114	2.433	.016
R = .884 R2 =.782 F-value = 219.273 Probability=.001					

Table 6. Regression Analysis Between Technology Competence, Learning Action Cell Engagement and Pedagogical Adaptability

The regression model yielded an R2 value of .782, indicating that the combined predictors, Technology Knowledge, Technology Integration, Coaching, and Technology Skills, account for 78.2% of the variance in the Pedagogical Adaptability of teachers. The F-value of 219.273 (p = .001) confirms that the model is a highly significant predictor of adaptability. This suggests that a vast majority of a teacher's ability to adjust their pedagogy is influenced by their technological mastery and the practical support they receive through LAC sessions.

The Highest Predictor in the model is Technology Knowledge (beta = .725, p = .000). This indicates that for every unit increase in technology knowledge, there is a substantial corresponding increase in pedagogical adaptability. This underscores that a deep conceptual understanding of technology is the most critical driver for teachers when they need to pivot their instructional methods. Conversely, the Lowest

Predictor among the significant variables is Technology Skills (beta = .114, p = .016). While still significant, this suggests that isolated technical skills (like knowing how to operate specific software) are less influential on overall adaptability than the broader ability to integrate those tools or the conceptual knowledge of how they function.

The findings imply that pedagogical adaptability is not merely a matter of technical training but is a "knowledge-heavy" and "collaboration-supported" process. Since Technology Knowledge and Integration are the strongest predictors, it implies that the most adaptable teachers are those who understand the why and how of digital tools rather than just the what. Furthermore, the significance of Coaching and Development as a predictor confirms that job-embedded, practical support is a necessary catalyst for converting technological competence into actual classroom flexibility.

The predictive power of these variables is backed by studies showing that teachers' professional knowledge, particularly their grasp of technology-pedagogy interactions, is the key driver of adaptive competence (Toraeva, 2022), while those with stronger cognitive flexibility generate alternative approaches when methods fail (Alarba, 2023; Özen & ÜÇÜNCÜ, 2022). Furthermore, technology proficiency linearly predicts instructional effectiveness, as basic skills alone fall short but integration enables responsive planning for learner needs (Eskici & Çayak, 2023; Pittas & Adeyemi, 2019). In addition, LAC coaching in PLCs boosts strategy implementation for adaptability (Elfarargy et al., 2022), and collaborative material development spreads innovations vital for 21st-century teaching (Culajara, 2023; Reimers, 2020).

4. CONCLUSIONS AND RECOMMENDATIONS

This section includes the summary of this research, the conclusions derived from the findings, and the recommendations.

Conclusions

Based on the results of the study, the following conclusions were drawn:

1. The level of technology competence is high competence, indicating that they are generally capable of using digital tools, applying technological knowledge, and integrating technology in their teaching practices.
2. The level of Learning Action Cell (LAC) Engagement of teachers showed strong & high engagement in Learning Action Cell activities, especially in collaborative and hands-on sessions that supported the development and use of instructional materials.
3. The level of pedagogical adaptability of teachers demonstrated a high level of pedagogical adaptability in terms of self-awareness, personal management, problem solving and decision making, attitude, and knowledge of competencies, showing their capacity to adjust to the demands of teaching.
4. There is a significant positive relationship between technology competence, Learning Action Cell (LAC) Engagement, and pedagogical adaptability of teachers. Teachers' pedagogical adaptability is positively associated with their digital competence and the available school resources, suggesting that both personal capability and institutional support contribute to adaptive teaching.
5. Technology competence and Learning Action Cell (LAC) Engagement positively predict technology knowledge, technology integration, coaching, development,and usage of instructional materials, and technology skills may serve as a basis for designing more focused professional development programs and school-based interventions.

4.1. Recommendations

Based on the findings of this study, the following recommendations were drawn:

1. The Department of Education, through the National Educators Academy of the Philippines, may prioritize the development of advanced professional development programs that shift from basic technical skills to deep technology knowledge.
2. School heads may continue strengthening teachers' technology competence by providing regular, needs-based training

focused on technology knowledge, technology skills, technology integration, and the effective use of digital resources in instruction. Since the results showed a high level in these areas, school heads may sustain this strength through continuous professional development, mentoring, and the provision of updated digital tools and resources.

3. Division supervisors and curriculum coordinators are encouraged to establish Pedagogical Innovation Hubs within districts. These hubs should serve as specialized centers where teachers can engage in technology integration workshops that mirror real-world classroom challenges.

4. School administrators may play a vital role by restructuring the weekly School Learning Action Cell (SLAC) schedule to maximize time for hands-on coaching and material development.

5. Teachers are encouraged to take a proactive role in their professional growth by seeking deep conceptual mastery of the digital tools they utilize. Teachers may actively seek out coaching opportunities and lead group discussions within their LAC sessions, sharing their successful integration strategies with colleagues.

6. Future researchers may conduct longitudinal studies to determine the long-term impact of coaching-based LAC sessions on actual student learning outcomes over several academic years. Further research into the variance not explained by this model, perhaps focusing on institutional culture or leadership styles, would provide a more holistic view of what makes a teacher truly adaptable.

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