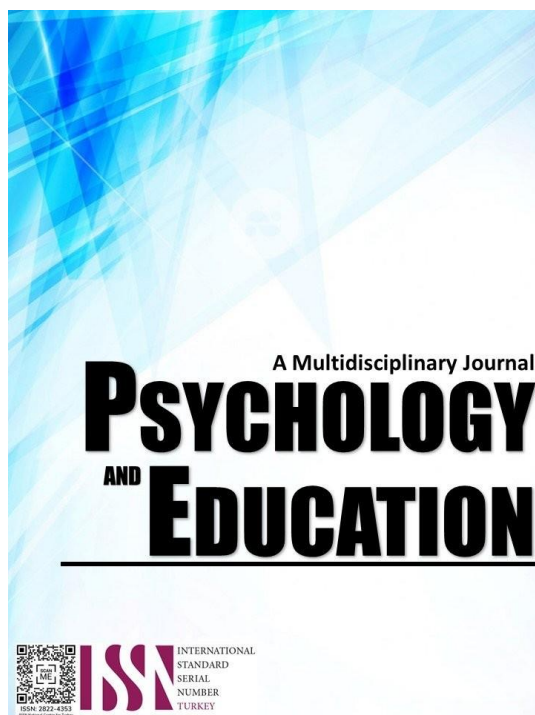


# **THE MEDIATING EFFECT OF PEDAGOGICAL LITERACY ON THE RELATIONSHIP BETWEEN TECHNOLOGY PROFICIENCY AND CREATIVITY IN LEARNING ENVIRONMENT AMONG KCAST INSTRUCTORS**



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## The Mediating Effect of Pedagogical Literacy on the Relationship Between Technology Proficiency and Creativity in Learning Environment among KCAST Instructors

Joanna B. Gemina,\* Kristy Jane R. Muegna

For affiliations and correspondence, see the last page.

### Abstract

The purpose of this study was to determine the mediating effect of pedagogical literacy on the relationship between technology proficiency and creativity in the learning environment among KCAST instructors. In this quantitative, non-experimental study, descriptive correlational techniques and mediation analysis were used. A sample of 87 randomly selected KCAST instructors answered the surveys on the three variables. Results showed that the level of technology proficiency, creativity in the learning environment, and pedagogical literacy are all high. Results also revealed that there is a significant relationship between technology proficiency and creativity in the learning environment of KCAST instructors. Likewise, there is also a significant relationship between technology proficiency and the pedagogical literacy of the instructors. Moreover, there is also a significant relationship between pedagogical literacy and creativity in the learning environment of instructors. Overall, the results revealed that pedagogical literacy partially mediates the relationship between technology proficiency and creativity in the learning environment among respondents.

**Keywords:** *pedagogical literacy, technology proficiency, creativity in learning environment, Philippines*

### Introduction

A creative learning environment encourages teachers to impart knowledge to their students through the use of creativity, and thinking critically to solve a problem in a class. Creativity in the learning environment is an important component of teaching as it empowers them to tackle challenges, acquire fresh skills, communicate with efficacy, and facilitate collaborative endeavors with others. There's a growing consensus that fostering students' creativity should be a key goal of modern education. Yet, many teachers encounter challenges when trying to teach in a way that encourages creativity. While creativity is fundamental to the learning process itself, it's not always prioritized in formal education. In addition, the more established and structured an educational system becomes, the less incentive there is for teachers to be creative, as they are often confined to pre-determined plans. Conversely, in less developed or more challenging teaching environments, the need for creative solutions is more apparent, making the drive for innovation more pronounced (Bullard & Bahar, 2023).

Malaysian Islamic education teachers are facing a significant gap in their preparedness for 21st-century teaching practices. They often lack the skills and mindset needed to foster creativity in the learning environment. Creative teaching methods are not widely implemented, and many schools and teachers do not prioritize this approach. Furthermore, teachers struggle to fully grasp the concept of 21st-century skills, particularly the importance of creativity. Adding to these challenges is a deficiency in training that equips teachers to effectively integrate technology into their Islamic education lessons (Zulkifli et al., 2022).

In addition, teachers in the Philippines hinder their ability to promote creativity in the learning environment because of various challenges in terms of limited resources, such as access to technology and reliable internet connection that stop their ability to promote creativity in the classroom. Public school teachers were unfamiliar with this new teaching approach and needed to acquire the necessary skills. The transition to this style now relies heavily on technology, adding an extra layer of complexity and challenge for teachers already burdened with their existing responsibilities (Macabenta et al., 2020).

On the other hand, the study needs urgent research attention since there have been pressing concerns regarding how teachers show their process as this aspect impacts their technology proficiency and pedagogical literacy. With these urgent concerns at hand, conducting this study would help in determining whether the teacher's technology proficiency helps in mitigating creativity in the learning environment. Also, to determine whether the teacher's technology proficiency could affect the creativity in a learning environment as mediated by the pedagogical literacy of teachers in Kapalong College of Agriculture, Sciences and Technology. In addition, the study holds social relevance as it addresses an important educational issue, and conducting this study is crucial as it can provide significant insights that would give new perspectives to the school regarding the impact of pedagogical literacy on the relationship between technology proficiency and creativity in the learning environment. Furthermore, the results of this study offer valuable insights that can help raise awareness among teachers and enable them to develop effective pedagogic interventions that facilitate enhancing student learning and formulating effective application of learning strategies in improving the academic outcome of students.

Numerous research studies have been undertaken to identify causes, conclude, and propose solutions in response to the significance of the situation. The researcher aims to analyze the importance of pedagogical literacy as a mediator between technology proficiency and creativity in the learning environment. There were some studies conducted such as the study entitled "How does a creative learning environment foster student creativity? An examination on multiple explanatory mechanisms" by Fan & Cai (2020); "Learning environments that support student creativity: Developing the SCALE" of Richardson & Mishra (2018). However, none of these studies

focused on examining the various challenges in creativity in the learning environment and did not explore how the integration of technology influenced pedagogical literacy in the learning-teaching process. Additionally, the recent research did not include teachers as part of the study participants. Hence, the study seeks to explore how pedagogical literacy mediates the connection between technology proficiency and creativity in the learning environment. This study has substantial implications for the field of education.

## Research Objectives

This study aimed to determine the mediating effect of pedagogical literacy on the relationship between technology proficiency and creativity in the learning environments of instructors at Kapalong College of Agriculture Sciences and Technology. Specifically, this attempts to achieve the following objectives:

1. To determine the level of perceived pedagogical literacy in terms of:
  - 1.1. learning-teaching process;
  - 1.2. class management;
  - 1.3. measurement and evaluation; and
  - 1.4. counseling.
2. To determine the level of technology proficiency in terms of
  - 2.1. design, create, and model learning with technology;
  - 2.2. communicate and collaborate using technology; and
  - 2.3. extending learning beyond the classroom with technology
3. To ascertain the level of creativity in the learning environment in terms of:
  - 3.1. learner engagement;
  - 3.2. physical environment; and
  - 3.3. learning climate.
4. To determine the significant relationship of:
  - 4.1. technology proficiency and creativity in a learning environment;
  - 4.2. technology proficiency and pedagogical literacy, and
  - 4.3. pedagogical literacy and creativity in the learning environment.
5. To determine the mediating effect of pedagogical literacy on the relationship of technology proficiency and creativity in the learning environment among KCAST instructors.

## Literature Review

### *Pedagogical Literacy*

Pedagogical literacy is the ability of teachers to make informed choices about teaching methods, based on a deep understanding of how learning and teaching work together. It's a crucial skill that helps teachers effectively guide the learning process. It involves the ability to comprehend and acknowledge the significance of pedagogy in education, utilizing a teacher's pedagogical thinking and decision-making abilities as a thoughtful, creative, and critical individual in resolving challenges encountered within and outside the school environment. Pedagogical literacy becomes particularly prominent in educational programs that incorporate easily accessible textual materials and engaging, comprehensible activities. These components effectively influence the evolution of teachers' behaviors in the educational process, emphasizing the importance of pedagogical literacy in shaping teaching methods (Kocoglu, 2021).

In addition, pedagogical literacy is essential for effective classroom management, as it helps teachers understand how different students learn best. This knowledge allows teachers to create lessons that cater to a variety of learning styles, ultimately improving the quality of education for all students. In teaching, pedagogy involves an educator's grasp of students' learning processes. Teachers concentrate on delivering the curriculum in a manner that is tailored to meet the students' requirements and is relevant to their learning needs. Pedagogy requires meaningful interactions in the classroom between teachers and students, leading to a profound influence on the learner's mindset. Pedagogy allows teachers to identify the most effective practices for a classroom environment. It equips them with insights into diverse learning styles, enabling them to customize their lessons according to students' individual needs (Shirke, 2021).

### *Learning-Teaching Process*

The learning-teaching process involves the transfer of knowledge from educators to learners, incorporating elements such as setting learning goals, developing teaching materials, and employing successful techniques for implementation. Learning, a fundamental aspect, must be considered by teachers. The study evaluated academic journals, pedagogical methods, and inclusive practices to gauge teaching effectiveness in higher education. The research aimed to assess teaching effectiveness within this context and employed experimental methods, primarily reflection, and literary analysis supported by practical experiences from university settings. The findings indicated that providing constructive feedback and incorporating activities like role-play significantly boosted students' confidence and self-esteem. Additionally, an active learning environment enhanced inclusivity and improved both faculty and student academic performance (Munna & Kalam, 2021).

Additionally, as technology continues to advance, higher education must adapt its methods of teaching and learning. Teaching plays a

crucial role in educational planning and significantly influences the direction of educational strategies. Teaching refers to the actions, practices, or profession of educators. It involves guiding individuals' thoughts and actions through instructions and practical activities, ultimately resulting in new behaviors and skills in students. The teaching process can vary, employing different methods tailored to the subject and customized according to the student's needs and preferences (Tripathi & Kumar 2018).

### ***Class Management***

Classroom management refers to the strategies employed by an instructor to establish and sustain a learning atmosphere conducive to effective teaching. These strategies involve decisions related to the arrangement, organization, and activities of the course, all aimed at managing students' expectations and behaviors to facilitate successful instruction. Effective classroom management fosters a positive learning environment that supports students' academic, social, and emotional development. By creating a structured and organized space, it allows students to focus on learning. It also builds trust and positive relationships between teachers and students, as well as among peers. This, in turn, helps to maintain focus, increase motivation and engagement, and minimize disruptions, ultimately leading to a more rewarding learning experience for everyone (Foster, 2022).

Further, effective classroom management is essential for creating a positive learning atmosphere for my students and an efficient work environment for myself. It involves the strategies teachers use to support student learning and guarantee effective instruction. A well-managed classroom implements straightforward processes that grant students some independence within established routines. At the beginning of the school year, it was purposefully taught these procedures to the students. Consequently, these classroom routines become ingrained in students' habits, ensuring smooth operations even when a substitute teacher is in charge. Establishing clear and simplified classroom routines and procedures benefits teachers as well. These systems enable classrooms to function seamlessly and enhance our enjoyment of teaching (Meredith, 2023).

### ***Measurement and Evaluation***

Measurement involves a methodical approach to identifying the characteristics of an object, such as its speed, height, density, weight, or width. However, measurements are limited to physical attributes that can be quantified using tools. When it comes to evaluating attributes that cannot be measured directly, the need for evaluation arises. Evaluation allows for value judgments to be made about teaching policies, performances, methods, techniques, strategies, effectiveness, and other aspects of education (Surbhi, 2021).

In addition, the significance of educational measurement and evaluation lies in its vital role within the educational system. Educational measurement assesses students' abilities, identifies their interests and aptitudes during the admission process, and admits them based on these assessments. Evaluation evaluates the effectiveness of educational administrators, staff, and guardians' activities periodically, aiming to identify areas for improvement in the educational system. Educational measurement and evaluation assess students' educational accomplishments regularly, offering feedback on their performance. These processes identify obstacles hindering students' progress and work to address and overcome them (Kolluri, 2021).

### ***Counseling***

School counselors play a crucial role in supporting students' well-being and academic success. They provide guidance and assistance in areas of social development, emotional health, and academic achievement. They are equipped to help students overcome obstacles that hinder their progress in school. These counselors offer one-on-one counseling, group sessions, educational guidance, and extra services to support students, teachers, and staff members. A teacher, administrator, or parent may refer students to a counselor, or students can refer themselves. School counselors work closely with teachers, staff, administrators, and parents/guardians, consulting and collaborating with them. This collaboration enables them to assist other adults in generating ideas and identifying solutions to fulfill students' needs (King-White & Saleh 2023).

Moreover, counseling is often provided to individuals who are mentally well but need additional support to navigate specific situations. In many cases, parents and children struggle with effective communication, making it challenging for children to cope with everyday issues. For example, a school counselor might need to assist a child who is upset about a classmate but finds it difficult to discuss the matter with their parents. At the school level, counseling aims to address the emotional, social, and behavioral requirements of children. It also strives to create an inclusive and supportive atmosphere where each child can receive diverse forms of assistance. Student counseling can aid teenagers in managing the pressures they face, but parents must recognize its significance (Lancehgs, 2022).

### ***Technology Proficiency***

Technology proficiency involves effectively using digital tools for professional communication, information management, creating high-quality materials, and fostering critical thinking. In education, it means educators can seamlessly integrate technology into teaching and learning, boosting productivity, performance, and student outcomes. These skills are crucial for navigating our increasingly digital world. Technology proficiency empowers teachers to explore and evaluate various tools and devices, selecting the most appropriate ones for their teaching and learning materials. Within the education sector, core technology skills encompass using electronic communication, organizing activities and information, and creating documents across all levels of education, from schools to universities (Saad & Sankaran, 2020).

Additionally, in today's rapidly evolving technological landscape, staying updated on digital skills is important. Basic tasks like managing emails and creating documents have become crucial in the workplace. To manage their workload effectively, employees must enhance their digital proficiency. Possessing digital proficiency encompasses diverse technological skills, such as understanding computer operating systems, collaborating effectively using digital tools, and selecting appropriate software for specific tasks. A digitally proficient individual can effortlessly carry out their work using online methods and technology (Rogers, 2022).

### ***Design, create, and model learning with technology***

Utilizing models and design processes is crucial for students' skill and knowledge development. However, there is limited research on how models and modeling are applied in classroom settings during design projects involving students and teachers across three diverse technology classrooms. These involved various problem-solving activities that required the use of models and modeling techniques. The projects differed in their specifications, leading to varying degrees of freedom for the students (Citrohn et al., 2022).

Moreover, the evolution of technology is reshaping the landscape of education, impacting the methods employed by teachers. Remote teaching has become more accessible, allowing educators to deliver knowledge to students from a distance. The incorporation of visual elements, such as PowerPoint presentations, simulations, and 3D visualization tools, adds an engaging dimension to learning, surpassing the traditional approach. Furthermore, technological advancements bridge the gap between theoretical concepts and practical applications, fostering a more meaningful connection with real-world subjects (Nain, 2022).

### ***Communicate and collaborate using technology***

Further, in this study teachers generally viewed digital technologies as valuable tools for communication and collaboration, leading to their widespread integration into daily classroom activities. However, the findings also suggest that although blended learning setups enable simultaneous collaboration in physical and digital spaces, there is a significant disparity in how teachers support their students in these interactions and utilize digital technologies. A comparison between proactive and reactive teaching approaches revealed that clear guidance in communication and collaboration processes can enhance students' group dynamics and effectiveness, emphasizing the importance of explicit instruction in these areas (Johler, 2022).

Additionally, this aims to illustrate a case study on collaborative learning (CL) within the context of higher education. Collaborative learning is an educational approach where students with varying skill levels work together in small groups to solve problems. This method not only enhances students' cognitive abilities but also develops essential soft skills such as communication and teamwork. As the job market demands well-rounded professionals, the Polytechnic Institute of Leiria has updated the curriculum of its Web and Multimedia Development (DWM) program to incorporate collaborative learning, creating a more interactive and collaborative learning environment. This initiative began in the academic year 2017/2018. The outcomes indicate that students engaged in collaborative environments demonstrate heightened motivation and commitment (Esteves et al., 2018).

### ***Extending learning beyond the classroom with technology***

The shift from traditional printed textbooks to digital formats, driven by technological advancements, has made learning materials readily available to students regardless of their location, potentially enhancing academic outcomes. This aligns with the principles of sustainable learning, where digital textbooks support online learning and provide students with anytime, anywhere access to educational resources. This research aims to understand the factors that influence elementary school teachers' willingness to adopt digital textbooks in their classrooms (Hermita et al., 2023).

Also, virtual and distance learning can be seen as trends in modern education rather than disruptive technologies. This implies that learners should have the chance to take control of their learning and establish collaborative connections with both educators and fellow students online. However, the constraints on teachers' digital skills and organizational barriers to technology adoption, hinder the complete integration of ICT as a neural network capable of facilitating full personalization and, consequently, a comprehensive learning ecosystem. Digital technologies should no longer be viewed merely as tools for accessing, organizing, and communicating information (Rodriguez, 2021).

### ***Creativity in Learning Environment***

Many schools prioritize fostering learner creativity as a primary goal. Teachers and school leaders view nurturing creativity as a fundamental aspect of their responsibilities. Creative teaching does not conflict with imparting essential knowledge, skills, and subject-specific understandings. It does not mean lowering expectations for challenges or behavior. Instead, creative teaching entails presenting subjects in imaginative contexts that actively encourage learners to engage creatively, this encourages them to think creatively, analyze ideas critically, and work together effectively (Cremin & Barnes, 2018).

Further, educators understand the importance of a stimulating and creative learning environment in nurturing student creativity. However, we still need a deeper understanding of how to create classrooms that truly unleash students' creative potential. Creativity is increasingly valued in today's world, and universities around the globe are committed to fostering creative thinking and developing innovative individuals, recognizing their vital role in societal progress (Beghetto & Kaufman 2014; Richardson & Mishra 2018; Yeh et al., 2012; Fan & Cai, 2020).



## ***Learner Engagement***

Learner engagement means students are actively involved, enthusiastic, and committed to their learning. It extends beyond mere presence and encompasses an emotional attachment to the subject matter, nurturing a sense of inquisitiveness and a longing to go deeper into learning. Engaged learners are internally driven and assume responsibility for their educational path, resulting in better retention of knowledge and an increased likelihood of applying it effectively in practical situations. Learners who are engaged actively pursue chances to gain fresh skills and knowledge, which in turn enhances their professional development and progress in their careers (Harve, 2023).

The fundamental goal of education can be summarized as promoting learning and personal development in students, enabling them to lead fulfilling and purposeful lives. Although this goal is straightforward, it is undeniably complex and demanding to achieve. Research demonstrates that student engagement is a vital component of accomplishing this educational mission. Establishing meaningful connections between students and teachers serves as a source of inspiration for students to foster a positive atmosphere. Within such an environment, students feel motivated and supported, enabling them to actively engage and thrive. Building a teacher-student relationship begins with acknowledging each student by name and understanding that a student is more than just a physical presence in the classroom (Bernstein, 2022).

## ***Physical Environment***

The classroom's physical learning environment encompasses the arrangement of furniture, walls, ceilings, chalkboards, lighting, and other elements that facilitate teaching and learning. A conducive physical setting catalyzes intellectual stimulation and plays a crucial role in enhancing a child's educational development. Many existing studies primarily concentrate on concrete factors such as teacher salaries, school resources, and curriculum design, which impact academic performance. However, equally significant, yet often overlooked, are intangible factors like the school environment. These aspects can influence academic performance, particularly in low and middle-income countries, and may have been underexplored by researchers on a global scale (Baafi, 2020).

Moreover, the school environment plays a crucial role in shaping students' lives by instilling discipline. Being in a classroom environment fosters a keen interest in studies and enhances interpersonal skills. Prioritizing discipline in schools is vital because it significantly improves academic achievements. Maintaining discipline enables students to study effectively, reducing stress and enhancing their overall performance. The educational setting has the potential to inspire students to actively participate in learning, shaping their behavior and aiding in the enhancement of their skills and cognitive understanding (Varthana, 2022).

## ***Learning Climate***

Additionally, the learning climate in schools plays a crucial role in enabling individual learners to achieve their educational goals. Creating a friendly atmosphere for students and implementing efficient methods of communication both contribute significantly to minimizing obstacles in enhancing the learning environment for teachers and students. As the learning climate encompasses diverse relationships within and between schools, this study illustrates that parental engagement is a fundamental aspect of school leadership and the process of enhancing schools (Alinsunurin, 2020).

Also, this study explores how school climate affects teacher job satisfaction, examining both direct and indirect influences. The research finds that school climate has a direct impact on teacher job satisfaction, with a positive influence from strong teacher-student relationships and stakeholder participation, and a negative influence from perceived disciplinary challenges. Additionally, the study reveals that self-efficacy, a teacher's belief in their abilities, plays a mediating role, with all dimensions of school climate indirectly impacting job satisfaction through their effect on self-efficacy (Turker & Kahraman, 2021).

## **Methodology**

### **Research Design**

In this quantitative, non-experimental study, descriptive correlational techniques and mediation analysis were used. Mediating variables, which are behavioral, biological, psychological, or social constructs, transmit the effect of one variable to another. A mediator can be used by a researcher to explain the process or method by which one variable influence another (Price et al., 2014).

### **Respondents**

The respondents in this study were teachers who are currently teaching at Kapalong College of Agriculture, Sciences, and Technology, situated in the Municipality of Kapalong, Province of Davao del Norte. The criteria for selecting these respondents were as follows: (a) they must be working and teaching at Kapalong College of Agriculture, Sciences, and Technology: (b) must be using technology in teaching.

### **Instrument**

In this study, a Likert scale was used to gauge respondents' frequency with each statement, allowing for the gathering of quantitative data on technology proficiency, creativity in the learning environment, and pedagogical literacy. By analyzing the data collected using

the Likert scale, the researcher was able to examine the mediating effect of pedagogical literacy on the relationship between technology proficiency and creativity in the learning environment, given that the scales underwent expert validation.

The Likert Scale is a widely used method to measure people's attitudes and opinions. Developed by psychologist Renis Likert in 1932, it presents respondents with a series of statements and asks them to indicate their level of agreement or disagreement. While the traditional scale uses "agree" and "disagree" options, variations exist, allowing respondents to express their feelings on themes such as frequency, quality, or importance. Likert scale frequency refers to how often participants select a particular response option on a scale. These options usually range from "strongly agree" to "strongly disagree," with varying levels of intensity in between (Zakharenko, 2023).

## Procedure

In collecting, the researcher took the following steps:

**Questionnaire Development.** The researcher searched for questionnaires drawn from journal articles which are related to the three variables.

**Revision and Validation of Questionnaires.** After it was formed, the questionnaire was submitted and presented to a panel of experts for assessment and contextualization. The researcher heeded the guidance of the experts until it was deemed suitable for utilization.

**Requesting Approval to Carry out the Study.** The researcher sought authorization to carry out this study by sending a formal letter to the Vice President of Academic Affairs. The letter was signed first by the researcher, endorsed by her research adviser, and acknowledged by the Director for Research and Development.

**Distribution and Retrieval of the Questionnaire.** Survey questionnaires in printed forms were distributed individually to the respondents who were inside the campus.

**Collection and Tabulation of the Data.** After the survey was conducted, the researcher took and analyzed the research instrument to record the collected data from the respondents. The researcher analyzed the collected data using statistical methods. The results were then interpreted to understand the patterns and insights revealed by the data. Based on these findings, the researcher concluded and provided recommendations for improvement.

## Ethical Considerations

Ethical considerations encompass a framework of guidelines that shape the design and conduct of studies. These guidelines encompass principles such as voluntary participation, obtaining informed consent, ensuring anonymity and confidentiality, minimizing the potential for harm, and responsibly communicating research findings.

Instructors at Kapalong College of Agriculture, Sciences, and Technology took part in this study. The researcher ensured that the safety, rights, and trust of the respondents, along with the study's objectives, were handled equitably and ethically.

Ethical considerations were diligently acknowledged and appropriately taken into account to ensure the ethical conduct of the study. Considerable ethical concerns exist, and they have implications for this quantitative investigation. These problems and worries can be caused solely by the study's approach.

## Results and Discussion

Presented in the section below are the discussions of the data on the mediating effect of pedagogical literacy on the relationship between technology proficiency and creativity in the learning environment. The chapter presents the data on the following: level of technology proficiency; level of creativity in the learning environment; the level of pedagogical literacy; the significant relationship between pedagogical literacy towards technology proficiency; pedagogical literacy towards creativity in the learning environment; technology proficiency towards creativity in learning environment; and the mediating effect of pedagogical literacy on the relationship between technology proficiency and creativity in learning environment among KCAST instructors.

### Summary on the Level of Technology Proficiency

Presented in Table 1 is the overall level of Technology Proficiency of Instructor teaching at Kapalong College of Agriculture, Sciences, and Technology in terms of design, creating and modeling learning with technology, communicating and collaborating using technology, and extending learning beyond the classroom with technology. The data revealed that the level of technology proficiency of KCAST instructors has a total mean of 4.48 described as very high. This means that the level of technology proficiency of KCAST instructors is always evident.

The highest mean is 4.58 with a descriptive equivalent of very high. This indicates that the level of technology proficiency of KCAST instructors in terms of design, creation, and model learning with technology is always evident.

Moreover, the lowest mean is 4.39 with a descriptive equivalent of very high. This indicates that the level of technology proficiency of KCAST instructors in terms of extending learning beyond the classroom with technology is always evident.

Lastly, the indicator communicates and collaborates using technology obtained a mean of 4.48 which means very high. This indicates that the level of technology proficiency of KCAST instructors in terms of communicating and collaborating using technology is always evident.

Table 1. *Summary on the Level of Technology Proficiency*

<i>Indicators</i>	<i>Mean</i>	<i>Description</i>
Design, Create, and Model Learning with Technology	4.58	Very High
Communicate and Collaborate Using Technology	4.48	Very High
Extending Learning Beyond the Classroom with Technology	4.39	Very High
Overall	4.48	Very High

### Summary on the Level of Creativity in Learning Environment

Presented in Table 9 is the overall level of Creativity in Learning Environment of Instructors teaching at Kapalong College of Agriculture, Sciences, and Technology in terms of learner engagement, physical environment, and learning climate. The data revealed that the level of creativity in the learning environment of KCAST instructors has a total mean of 4.69 described as very high. This indicates that the level of creativity in the learning environment of KCAST instructors is always observed.

The highest mean is 4.80 with a descriptive equivalent of very high. This indicates that the level of creativity in the learning environment of KCAST instructors in terms of learning climate is always observed. Moreover, the lowest mean is 4.62 which basically means very high. This indicates that the level of creativity in the learning environment of KCAST instructors in terms of the physical environment is always observed.

Lastly, learner engagement obtained a mean of 4.66 which means very high. This indicates that the level of creativity in the learning environment of KCAST instructors in terms of learner engagement is always observed.

Table 2. *Summary on the Level of Creativity in Learning Environment*

<i>Indicators</i>	<i>Mean</i>	<i>Description</i>
Learner Engagement	4.66	Very High
Physical Environment	4.62	Very High
Learning Climate	4.80	Very High
Overall	4.69	Very High

### Summary on the Level of Pedagogical Literacy

Presented in Table 14 is the overall level of Pedagogical Literacy of Instructors teaching at Kapalong College of Agriculture, Sciences, and Technology in terms of learning-teaching process, class management, measurement and evaluation, and counseling. The data revealed that the level of pedagogical literacy of KCAST instructors has a total mean of 4.51 which is described as very high. This means that the level of pedagogical literacy of KCAST instructors is always manifested.

The highest mean is 4.77 with a descriptive equivalent of very high. This indicates that the level of pedagogical literacy of KCAST instructors in terms of the learning-teaching process is always manifested.

Moreover, the lowest mean is 4.06 which means high. This indicates that the level of pedagogical literacy of KCAST instructors in terms of counseling is oftentimes manifested.

In addition, class management obtained a mean of 4.62 which means very high. This indicates that the level of pedagogical literacy of KCAST instructors in terms of class management is always observed.

Lastly, indicator measurement and evaluation obtained a mean of 4.60 which means very high. This indicates that the level of pedagogical literacy of KCAST instructors in terms of measurement and evaluation is always observed.

Table 3. *Summary on the Level of Pedagogical Literacy*

<i>Indicators</i>	<i>Mean</i>	<i>Description</i>
Learning-teaching process	4.77	Very High
Class management	4.62	Very High
Measurement and evaluation	4.60	Very High
Counseling	4.06	High
Overall	4.51	Very High

### Conclusions

Based on the findings, revealed that there is a significant relationship between technology proficiency and creativity in the learning environment. Also, technology proficiency and pedagogical literacy does also have a significant relationship. As such, pedagogical literacy and creativity in the learning environment have a significant relationship among KCAST instructors.



Overall, the findings also show that pedagogical literacy partially mediates the relationship between technology proficiency and creativity in the learning environment. Pedagogical literacy serves as a connecting element that explains how technology proficiency affects creativity in the learning environment among KCAST instructors.

## References

- Alinsunurin, J. (2020). School learning climate in the lens of parental involvement and school leadership: lessons for inclusiveness among public schools. *Springer Open*. <https://slejournal.springeropen.com/articles/10.1186/s40561-020-00139-2>
- Baafi, R. (2020). School Physical Environment and Student Academic Performance. *ScientificResearch*. [https://www.scirp.org/journal/paperinformation.aspx?paperid=100189#:~:text=The%20physical%20environment%20of%20a,et%20al.%2C%202012\)](https://www.scirp.org/journal/paperinformation.aspx?paperid=100189#:~:text=The%20physical%20environment%20of%20a,et%20al.%2C%202012)).
- Bernstein, L. (2022). What is Student Engagement and Why Does it Matter? *Xello Blog*. <https://xello.world/en/blog/student-engagement/what-is-student-engagement/>
- Bullard, A., & Bahar, K. (2023). Common Barriers in Teaching for Creativity in K-12 Classrooms: A Literature Review. *ResearchGate*. [https://www.researchgate.net/publication/368560820\\_Common\\_Barriers\\_in\\_Teaching\\_for\\_Creativity\\_in\\_K12\\_Classrooms\\_A\\_Literature\\_Review](https://www.researchgate.net/publication/368560820_Common_Barriers_in_Teaching_for_Creativity_in_K12_Classrooms_A_Literature_Review)
- Citrohn, B., Stolpre, K., & Svensson, M. (2022). The use of models and modeling in design projects in three different technology classrooms. *Springer Link*. <https://link.springer.com/article/10.1007/s10798-022-09730-9>
- Cremin, T., & Barnes J. (2018) Creativity and Creative Teaching and Learning. *Consensus*. <https://consensus.app/papers/creativity-creative-teaching-learningcremin/1ebd62e3f02951e78882d0ade41a52f1/?q=teachers+creativity+in+learning+environment>
- Esteves, M., Matias, R., & Pereira, A. (2018) Collaborative Learning Environment in Higher Education: A Case Study. *Census*. <https://consensus.app/papers/learning-environment-higher-education-case-study-esteves/60606cc0a7645267958de6c27d74c9b6/>
- Fan, M., & Cai, W. (2020). How does a creative learning environment foster student creativity? An examination of multiple explanatory mechanisms. *Springer Link*. <https://link.springer.com/article/10.1007/s12144-020-00974-z>
- Foster, S. (2022). Classroom management for learning. *University of Colorado Boulder*. <https://www.colorado.edu/center/teachinglearning/2022/02/07/classroommanagementlearningbehaviors>.
- Harve, A. (2023). What is Learner Engagement: Definition, Strategies, and Challenges. *Hurix Digital*. <https://www.hurix.com/what-is-learner-engagement-definition-strategies-and-challenges/>
- Hermita, N., Wijaya, T., Yusron, E., Abidin, Y., Alim, J., & Putra, Z. (2023) Extending the Unified Theory of Acceptance and Use of technology to Understand the acceptance of digital textbook for elementary school in Indonesia. *Frontiers*. <https://www.frontiersin.org/articles/10.3389/feduc.2023.958800/full>
- Johler, M. (2022). Collaboration and communication in blended learning environments. *Frontiers*. <https://www.frontiersin.org/articles/10.3389/feduc.2022.980445/full>
- King-White, D., & Saleh, N. (2023). School Counseling: Definition, Techniques, and Examples. *Choosing Therapy*. <https://www.choosingtherapy.com/school-counseling/>
- Kocoglu, E. (2021). Evaluation of Pedagogical Literacy in Education. *The Eurasia Proceedings of Educational and Social Sciences*. <http://www.epess.net/en/pub/issue/67511/1071428>
- Kolluri, E. (2021). Educational Measurement And Evaluation. *International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)* 03, No. 04(I), pp.12-20. <https://www.inspirajournals.com/uploads/Issues/238312462.pdf>
- Lancehgs, (2022). Why is Counselling Important in Schools. *Lancers Army Schools*. <https://lancersarmyschools.com/about-us/>
- Macabenta, J., Manubag, C., Tabanag, J., Villegas, N., Villegas, T., & Cabanilla, A. (2023). Inclusive Education: Lived Experiences of 21st Century Teachers in the Philippines. *Ijrasnet*. <https://www.ijrasnet.com/research-paper/lived-experiences-of-21st-century-teachers-in-the-philippines>
- Meredith, T. (2023). Why Is Classroom Management Important. *HMH*. <https://www.hmhco.com/blog/why-is-classroom-management-important>
- Munna, A., & Kalam, M. (2021). Teaching and learning process to enhance teaching effectiveness: a literature review. *International Journal of Humanities and Innovation (IJHI)* 4, 1-4. <https://files.eric.ed.gov/fulltext/ED610428.pdf>
- Nain, V. (2022) Impact of Technology in the Education Sector. *Linkedin*. <https://www.linkedin.com/pulse/impact-technology-education-sector-vikas-nain>

Saad, N., & Sankaran, S. (2020). Technology Proficiency in Teaching and Facilitating. Oxford Research Encyclopedias. <https://oxfordre.com/education/education/abstract/10.1093/acrefore/9780190264093.001.0001/acrefore9780190264093e591>

Surbhi, S. (2021), Difference Between Measurement and Evaluation. Key Differences. <https://keydifferences.com/difference-between-measurement-and-evaluation.html#:~:text=Measurement%20refers%20to%20the%20process,Observations>

Turker, Y., & Kahraman, U. (2021) School Climate and Self-Efficacy as Predictor of Job Satisfaction. Kuramsal Egitimbilim. <https://consensus.app/papers/school-climateselfefficacypredictorsatisfaction%C3%BCrker/55a9374eeefb5a96bb9a4333f984e8a2/>

Zulkifli, H., Tamuri, A., & Azman, N. (2022). Understanding creative teaching in twenty-first-century learning among Islamic education teachers during the COVID-19 pandemic. *Frontiers*. <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.920859/full#B40>

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