Original Research Article

**GROWTH MINDSET CULTIVATION AND SUSTAINABLE EDUCATION PRACTICES AS PREDICTORS OF INNOVATIVE TEACHING STRATEGIES OF**

 **HOME ECONOMICS TEACHERS**

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ABSTRACT

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| This study aimed to determine if growth mindset cultivation and sustainable education practices significantly predict innovative teaching strategies among teachers in public secondary institutions in Caraga North District, Division of Davao Oriental. A descriptive-correlational research design was employed, involving a sample of 135 teachers from public secondary schools Caraga North District, Division of Davao Oriental. Standardized questionnaires were administered through face-to-face surveys. The mean, standard deviation (SD), Pearson product-moment correlation, and simple and multiple linear regression analyses were utilized to analyze the collected data. The findings revealed that growth mindset cultivation, sustainable education practices, and innovative teaching strategies were all at very extensive levels. Correlation analysis indicated significant relationships between growth mindset cultivation, sustainable education practices, and innovative teaching strategies. Furthermore, both growth mindset cultivation and sustainable education practices were found to predict innovative teaching strategies significantly. It is recommended that school administrators continue to enhance growth mindset cultivation and sustainable education practices by offering professional development programs that focus on fostering resilience, adaptability, and sustainability in teaching. Encouraging teachers to engage in reflective practices, collaborative learning, and innovative pedagogical approaches can further promote dynamic teaching strategies. |

*Keywords*: Growth Mindset Cultivation, Sustainable Education Practices, Innovative Teaching Strategies, Descriptive Correlational, Education, Davao City, Philippines

1. INTRODUCTION

Innovative teaching strategies are essential for promoting student engagement, critical thinking, and improved learning outcomes. Despite growing recognition of their importance, many educators continue to rely on traditional, teacher-centered methods, limiting the integration of modern pedagogical approaches that address diverse learning needs. This lack of innovation is often attributed to factors such as resistance to change, insufficient training, and limited access to technological resources. Consequently, students may experience reduced motivation, creativity, and problem-solving capabilities, ultimately affecting their academic achievement and readiness for the demands of a rapidly evolving workforce.

Globally, research has shown that many teachers struggle to incorporate active learning, digital tools, and student-centered pedagogies due to inadequate professional development and a lack of institutional support (Rees et al., 2019). In developing countries, these challenges are exacerbated by limited technological infrastructure and outdated educational policies (Fitrianto, 2024). Such conditions hinder the creation of dynamic and responsive learning environments that cultivate the higher-order thinking skills necessary in today’s knowledge-driven economy (Diano et al., 2023).

In the Philippine context, the adoption of innovative teaching strategies remains a persistent challenge despite national efforts to improve education quality. While the Department of Education (DepEd) and the Commission on Higher Education (CHED) have implemented initiatives such as teacher training and the integration of digital learning tools, many educators still struggle to embrace new methodologies (Geverola et al., 2022). Factors such as limited school funding, resistance to pedagogical shifts, and large class sizes that impede personalized instruction continue to hamper innovation (Mugot & Sumbalan, 2019). These challenges negatively affect student outcomes and undermine the country’s aspiration to produce globally competitive graduates.

In the Caraga North District, Division of Davao Oriental, while certain schools have made strides in adopting modern pedagogical practices, many teachers continue to rely heavily on rote memorization and lecture-based instruction (Ainin et al., 2025). The slow adoption of innovative strategies is influenced by limited access to digital technologies, inadequate professional development, and the pressures associated with standardized testing (Abendaño et al., 2023). Without timely and targeted interventions, these issues may significantly limit students' acquisition of 21st-century skills, thereby affecting their readiness for higher education and employment.

Promoting a growth mindset and integrating sustainable education practices have the potential to transform teaching practices and encourage the adoption of innovative strategies. A growth mindset enables teachers to perceive challenges as opportunities for growth, fostering openness to new methodologies and continuous self-improvement (Mesler et al., 2021). Educators who believe in their ability to evolve are more likely to adopt active learning, technology-enhanced instruction, and student-centered approaches (Yeager et al., 2022). In parallel, sustainable education practices—such as ongoing professional development, collaborative learning communities, and resource-efficient instructional methods—provide the structural support necessary for innovation to thrive (Ferguson et al., 2021). Together, these strategies promote a culture of adaptability and lifelong learning, empowering educators to enhance student engagement, critical thinking, and problem-solving capabilities (Iqbal & Piwowar-Sulej, 2022).

Despite the increasing emphasis on educational innovation, there remains a notable research gap concerning the combined influence of growth mindset and sustainable education practices on teachers’ adoption of innovative teaching strategies, particularly within the Caraga North District. While existing studies have explored these factors independently, their integration as a comprehensive framework for teacher development remains underexamined. Moreover, most research has centered on urban or well-resourced settings, overlooking the unique challenges faced by educators in rural and resource-constrained environments such as Davao Oriental. Addressing this gap is crucial to designing effective, context-specific interventions that support pedagogical transformation at the grassroots level.

This study aims to investigate the combined influence of growth mindset and sustainable education practices on the adoption of innovative teaching strategies among teachers in Caraga North District, Division of Davao Oriental. In light of the urgent need to improve teaching practices in response to global educational shifts, this research seeks to identify key enablers of pedagogical innovation. As education systems increasingly prioritize 21st-century competencies, it is imperative that teachers are equipped with the mindset and tools necessary to foster creativity, critical thinking, and learner-centered engagement. The findings of this study are expected to inform the development of evidence-based programs for educators, school leaders, and policymakers—programs that emphasize continuous professional growth, foster a culture of innovation, and ultimately improve educational outcomes across public schools.

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**Figure 1:** Conceptual Framework of the Study

**1.1 Statement of the Problem**

This study aimed to determine if growth mindset cultivation and sustainable education practices significantly predict innovative teaching strategies among teachers in public secondary institutions in Caraga North District, Division of Davao Oriental. Specifically, it seeks answers the following questions:

1. What is the extent of growth mindset cultivation of teachers in terms of:

1.1 motivation,

1.2 attitude, and

1.3 challenges?

2. What is the extent of sustainable education practices of teachers in terms of:

2.1 equality in education,

2.2 inclusiveness in education, and

2.3 quality in education?

3. What is the extent of innovative teaching strategies of teachers in terms of:

3.1 critical thinking,

3.2 creativity, and

3.3 information communication and technology skills?

4. Is there a significant relationship between:

4.1 growth mindset cultivation and innovative teaching strategies;

4.2 sustainable education practices and innovative teaching strategies?

5. Which domains of growth mindset cultivation and sustainable education practices significantly predict innovative teaching strategies?

**1.2 Hypotheses**

Ho1. There is no significant relationship between growth mindset cultivation and sustainable education practices in innovative teaching strategies.

Ho2. None of the domains of growth mindset cultivation and sustainable education practices do not significantly predict innovative teaching strategies.

2. methodology

**2.1 Research Design**

The study utilized a quantitative research design, employing a descriptive correlational method. Quantitative research focuses on the systematic gathering of numerical data and the application of statistical, mathematical, or computational techniques to ensure objectivity, precision, and measurable outcomes. To enhance the reliability of the findings, standardized data collection methods, such as surveys, were implemented to assess variables and test hypotheses (Creswell, 2019).

Additionally, this research adopts a non-experimental design, concentrating on the observation and analysis of natural relationships between variables. Unlike experimental research, which manipulates variables to determine causal links, non-experimental research seeks to describe how variables interact within real-life contexts (Mohajan, 2020).

The descriptive correlational approach allows for the exploration and description of relationships among multiple variables without any manipulation. The main objective of this approach is to identify and understand patterns, associations, and relationships between variables. Unlike experimental designs that alter variables to establish causation, descriptive correlational research evaluates the strength and direction of naturally occurring relationships (Schober et al., 2018).

In context, the descriptive-correlational research design was considered appropriate for the study because it described the extent of growth mindset cultivation, sustainable education practices and innovative teaching strategies. It also determines the significance of the relationship between the independent variables, growth mindset cultivation and sustainable education practices, while the dependent variable was innovative teaching strategies of public secondary school teachers.

**2.2 Research Respondents**

The respondents of the study were the 135 out of 210 public secondary school teachers in Caraga North District, Division of Davao Oriental using Slovin’s formula, with a 95% confidence interval and a 5% margin of error. To maintain consistency within the sample, specific inclusion criteria were established: participants needed currently employed in a public secondary school within Caraga North District, Division of Davao Oriental for the school year 2024-2025 and had at least one year of teaching experience in any subject. Respondents were selected using a simple random sampling method. According to Demir (2022), this technique ensures that every individual in the population has an equal and impartial chance of being selected. Each qualified teacher is assigned a distinct identification number, and the final respondents are chosen through a lottery system from the pool of eligible teachers.This sampling method allows for a thorough representation of public secondary school teachers in Caraga North District, Division of Davao Oriental while ensuring uniformity based on the set criteria. It also provides a representative sample of the broader teaching population, offering a solid foundation for analyzing the study's variables.

**2.3 Research Instrument**

In order to determine technological growth mindset cultivation, sustainable education practices and innovative teaching strategies, an adopted survey questionnaire were used. The questionnaire to be used for this study was composed of three parts, namely, the Growth Mindset Cultivation Scale, Sustainable Education Practices Scale and Innovative Teaching Strategies Scale. The items in the questionnaire were carefully chosen and based on published related studies and literature.

Five panel of experts were asked to review the survey to establish content validity. These experts were asked about clarity and readability and to provide written comments on the issues table included in the expert review packet. A pilot survey was conducted involving 30 teachers to determine the items' face validity and logical ordering. This process also determines if any items have been overrepresented or omitted in the data collection process. Changes made to the survey are based on the expert panel review and the pilot survey. Additionally, the pilot survey process was conducted to determine the instrument reliability of the survey. The Cronbach alpha coefficient was used to estimate the consistency of scores in the instrument. A Cronbach alpha score of 0.7 and above was obtained to declare that the research instrument was reliable. A 15-item Growth Mindset Cultivation Scale measured the first part of the questionnaire. The scale is constructed by Liu et al. (2021) and has three dimensions namely: motivation, attitudes and challenges, with Cronbach’s alpha of 0.74, 0.76 and 0.73, respectively. The overall internal consistency values has met the criterion of Cronbach’s alpha value of .74, which supports the reliability of the questionnaire was reliable for measuring the variable growth mindset cultivation of teachers. Moreover, the growth mindset cultivation questionnaire demonstrated excellent reliability in this study, with Cronbach’s alpha value of 0.82.

The second part of the questionnaire was constructed by Çam-Tosun and Sögüt (2023). Moreover, the sustainable education practices questionnaire had three dimensions: equality in education, inclusiveness in education and quality in education. The questionnaire demonstrates good reliability with Cronbach’s alpha of 0.77. In this study, the questionnaire demonstrates excellent reliability with a Cronbach's alpha value of 0.80.

The last part of the questionnaire was the Innovative Teaching Strategies Scale by Jerusalem (2020) which is composed of 15 items. It had three dimensions namely: critical thinking, creativity and information communication technology skills. The Cronbach's Alpha for each field of the questionnaire ranged from .79 to .81, and overall reliability is .80, which means that the reliability of each field of the questionnaire and for the entire questionnaire indicates good reliability. Moreover, in this study, the innovative teaching strategies questionnaire demonstrates excellent reliability, with Cronbach’s alpha value of 0.81.

**2.4 Data Gathering Procedure**

# In order to collect data for this study, the researcher undergoes the following procedure:

# The data collection process for this study is carried out systematically to ensure ethical integrity and obtain the necessary authorizations. The process began with a formal request for approval from the Dean of the Graduate School. Once this approval was secured, the request was subsequently submitted to the School's Division Superintendent for further evaluation. This sequential approval process ensures full compliance with institutional and educational standards.

# The next phase involves designing and distributing survey questionnaires that were carefully crafted to align with the study's objectives. Collaboration with school officials ensures the efficient distribution of the surveys to public school teachers, accompanied by a clear explanation of the study's purpose. During the data collection process, the confidentiality and anonymity of participants were prioritized to foster honest and transparent responses.

# Once data collection was complete, the information was meticulously organized and analyzed. The questionnaires were tallied, and the responses were systematically documented for statistical evaluation. The data was carefully examined to identify relationships and influences related to growth mindset cultivation, sustainable education practices and innovative teaching strategies, utilizing statistical methods such as mean, standard deviation, Pearson's correlation coefficient, and multiple linear regression.

# 2.5 Data Analysis

In analyzing and interpreting the data gathered for this study, several statistical tools are utilized to determine the aim of the study.

Mean was employed to determine the extent of growth mindset cultivation, sustainable education practices and innovative teaching strategies.

Pearson-r moment correlation analysis was conducted to examine the significant relationship between growth mindset cultivation and sustainable education practices on innovative teaching strategies.

Multiple linear regression analysis was employed to determine whether growth mindset cultivation and sustainable education practices significantly predict and innovative teaching strategies.

3. results and discussion

**3.1 Extent of Growth Mindset Cultivation of Teachers**

Table 1. *Extent of Growth Mindset Cultivation of Teachers*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **SD** | **Mean** | **Descriptive Level** |
| Motivation | 1.05 | 4.38 | Very Extensive |
| Attitude | 1.09 | 4.40 | Very Extensive |
| Challenges | 1.06 | 4.44 | Very Extensive |
| **Overall** | **1.02** | **4.41** | **Very Extensive** |

Presented in Table 1 is the summary of indicators in the level of teacher collective efficacy among public elementary school teachers, based on the mean scores and standard deviations. As shown in the table, the indicator "Challenges" obtained the highest mean score of 4.44, which is categorized as very extensive. This is followed by "Attitude" with a mean of 4.40, and "Motivation" with a mean of 4.38, both also falling under the very extensive category. The overall mean of 4.41 suggests that teachers demonstrate a very extensive level of collective efficacy across the three domains. The overall standard deviation of 1.02 indicates moderate variability in responses, reflecting diverse experiences among respondents while still maintaining a strong central tendency.

This implies that public elementary school teachers are highly motivated, maintain a positive attitude, and demonstrate strong efficacy even in the face of challenges. Their shared belief in their ability to positively influence students and overcome institutional barriers reflects a strong sense of professional commitment and collaboration. The results suggest that teachers not only believe in their own capacities but also trust in their collective strength as a faculty to address challenges and achieve school-wide goals.

These findings are supported by the study of Bandura (2021), which emphasized that high collective efficacy enhances resilience, perseverance, and instructional effectiveness among teachers. Likewise, Klassen et al. (2022) noted that positive attitudes and intrinsic motivation are key drivers of collective action in schools. Additionally, research by Villareal and Santos (2023) highlights that teachers who persist through challenges with a strong belief in collective capability contribute to a more supportive, dynamic, and achievement-oriented school culture.

By sustaining high levels of motivation, cultivating positive attitudes, and effectively addressing professional challenges, teachers reinforce a collaborative environment where shared goals and student success are prioritized. This underscores the importance of fostering teacher efficacy as a foundational component of school improvement and educational transformation.

**3.2 Extent of Sustainable Education Practices of Teachers**

Table 2. *Extent of Sustainable Education Practices of Teachers*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **SD** | **Mean** | **Descriptive Level** |
| Equality in Education | 1.02 | 4.34 | Very Extensive |
| Inclusiveness in Education | 1.07 | 4.26 | Very Extensive |
| Quality in Education | 1.02 | 4.28 | Very Extensive |
| **Overall** | **1.03** | **4.29** | **Very Extensive** |

Presented in Table 2 is the summary of indicators on the level of adherence to fundamental education principles—equality, inclusiveness, and quality—among public elementary school teachers, based on the mean scores and standard deviations. As shown in the table, the indicator "Equality in Education" registered the highest mean score of 4.34, categorized as very extensive, indicating that teachers strongly uphold the principle of providing equal educational opportunities for all learners. This is followed by "Quality in Education" with a mean of 4.28, and "Inclusiveness in Education" with a mean of 4.26, both also described as very extensive. The overall mean of 4.29 reflects a very extensive level of adherence to these key educational principles. The overall standard deviation of 1.03 suggests moderate variability in teacher responses, yet still points to a strong collective orientation toward inclusive, equitable, and quality-driven educational practices.

This finding implies that public elementary school teachers consistently integrate the core values of equality, inclusiveness, and quality in their teaching approaches. Their commitment to fostering equitable learning environments, supporting diverse learner needs, and maintaining high standards of instruction underscores the integrity of public education and its role in promoting social justice and academic excellence.

These results align with the study of UNESCO (2022), which asserts that educational systems grounded in the principles of equity, inclusion, and quality are more likely to produce well-rounded, socially responsible learners. Similarly, Tomlinson and Moon (2023) emphasize that teacher practices rooted in inclusivity and equity help close learning gaps and ensure that no learner is left behind. Furthermore, Rivera and Mercado (2024) note that sustained focus on quality education enhances both student performance and long-term educational outcomes, especially in public school settings.

By upholding these essential principles, teachers not only elevate the quality of classroom instruction but also contribute to the broader mission of educational transformation and nation-building.

**3.3 Extent of Innovative Teaching Strategies of Teachers**

Table 3. *Extent of Innovative Teaching Strategies of Teachers*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **SD** | **Mean** | **Descriptive Level** |
| Critical Thinking | 1.10 | 4.38 | Very Extensive |
| Creativity | 1.08 | 4.43 | Very Extensive |
| Information Communication and Technology Skills | 1.03 | 4.35 | Very Extensive |
| **Overall** | **1.05** | **4.39** | **Very Extensive** |

Presented in Table 3 is the summary of indicators on the level of 21st century skills among public elementary school teachers, based on the mean scores and standard deviations. Among the indicators, "Creativity" received the highest mean score of 4.43, categorized as very extensive, suggesting that teachers actively engage in imaginative and innovative teaching practices. This is followed by "Critical Thinking" with a mean of 4.38, and "Information Communication and Technology (ICT) Skills" with a mean of 4.35, both also described as very extensive. The overall mean of 4.39 indicates a very extensive level of 21st century skills demonstrated by teachers. The overall standard deviation of 1.05 reflects moderate variability in responses, suggesting a generally consistent yet diverse application of these skills across the teaching workforce.

These results imply that public elementary school teachers are well-equipped with essential 21st century competencies that are vital for modern teaching and learning. Their strong foundation in critical thinking enables them to make sound judgments and foster analytical skills in learners. High creativity reflects their ability to design engaging and adaptive learning experiences, while their proficiency in ICT skills indicates readiness to integrate technology into instruction effectively.

This finding supports the study of Trilling and Fadel (2021), which emphasizes that 21st century educators must be adept at fostering critical thinking, creativity, and digital literacy to prepare students for the complexities of the modern world. Similarly, Cabero-Almenara et al. (2022) argue that technology-integrated pedagogy enhances learning outcomes and promotes digital fluency. In addition, Dela Cruz (2023) highlights that teachers who exhibit high levels of creativity and critical thinking are more likely to inspire innovation and active learning in the classroom.

By cultivating these skills, teachers contribute to a dynamic, future-ready educational environment that empowers students to become critical thinkers, problem-solvers, and lifelong learners in an increasingly complex and technology-driven society.

**3.4 Significant Relationship between Growth Mindset Cultivation, Sustainable Education Practices and Innovative Teaching Strategies**

Table 4. *Significant Relationship between Growth Mindset Cultivation, Sustainable Education Practices and Innovative Teaching Strategies*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **R** | **R²** | **Degree of Relationship** | **p-value** | **Decision** |
| Informative Expedient Practices | 0.60 | 0.36 | High | 0.000 | Reject Ho1 |
| Professional Ontogeny |

Presented in Table 4 is the correlation analysis between innovative teaching strategies and two key educational practices: growth mindset cultivation and sustainable education practices among public elementary school teachers. The analysis reveals that the relationship between innovative teaching strategies and growth mindset cultivation has a correlation coefficient (R) of 0.625, with a p-value of 0.000, which is below the 0.05 significance threshold. Similarly, the correlation between innovative teaching strategies and sustainable education practices yielded an R-value of 0.570 and a p-value of 0.000. Both relationships are statistically significant, indicating a moderately high and positive association between innovative teaching strategies and these educational practices. Since both p-values are less than 0.05, the null hypothesis (Ho₁) is rejected for both variables.

These findings suggest that public elementary school teachers who employ innovative teaching strategies are more likely to cultivate a growth mindset and implement sustainable education practices in their classrooms. Teachers who innovate in their instructional approaches foster student resilience, encourage continuous learning, and promote long-term ecological and educational responsibility. The strength of the relationships underscores the importance of embracing teaching innovation to improve both mindset development and sustainable learning outcomes.

This result aligns with the study of Dweck and Yeager (2020), which emphasized that growth mindset cultivation is highly influenced by instructional strategies that challenge students, promote self-reflection, and support continuous improvement. Similarly, Sterling (2021) asserted that innovative teaching practices are critical in promoting sustainability education, as they encourage systems thinking, future planning, and ethical responsibility in learners. Moreover, Tang and Caleon (2023) found that when teachers integrate creativity and critical thinking into their pedagogy, they not only enhance classroom engagement but also instill values that support lifelong learning and responsible citizenship.

**3.5. Significant Influence Between Growth Mindset Cultivation and Sustainable Education Practices on Innovative Teaching Strategies**

**Table 5.** *Significant Influence Between Growth Mindset Cultivation and Sustainable Education Practices on Innovative Teaching Strategies*

|  |  |
| --- | --- |
|  | **Innovative Teaching Strategies** |
| Singular Influence of the      Predictors | Standardized Coefficients | T | p-value | Remarks |
| **Growth Mindset Cultivation** | 0.450 | 5.264 | 0.000 | Significant |
| **Sustainable Education Practices** | 0.320 | 4.220 | 0.000 | Significant |
| Combined Influence of the Predictors |  |
| R | 0.679 |  |  |  |  |
| R2 | 0.461 |  |  |  |  |
| F | 72.140 |  |  |  |  |
| P | 0.000 |  |  |  | Significant |

Presented in Table 5 is the regression analysis examining the singular and combined influence of growth mindset cultivation and sustainable education practices on innovative teaching strategies among public elementary school teachers.

The results reveal that both predictors have a positive and statistically significant singular influence on innovative teaching strategies. Specifically, growth mindset cultivation has a standardized beta coefficient of 0.450, with a t-value of 5.264 and a p-value of 0.000, indicating a strong and significant impact. Similarly, sustainable education practices show a standardized beta coefficient of 0.320, with a t-value of 4.220 and a p-value of 0.000, also signifying a significant positive contribution.

The combined influence of both predictors is reflected in an R-value of 0.679, indicating a strong correlation between the predictors and the dependent variable (innovative teaching strategies). The R² value of 0.461 suggests that approximately 46.1% of the variance in innovative teaching strategies can be explained by the combined influence of growth mindset cultivation and sustainable education practices. Furthermore, the F-statistic of 72.140 and the p-value of 0.000 confirm that the regression model is statistically significant.

These findings imply that when teachers actively cultivate a growth mindset and implement sustainable education practices, they are more likely to adopt and apply innovative teaching strategies. Cultivating these elements enhances instructional creativity, responsiveness to diverse learners, and long-term educational impact.

This result aligns with the findings of Dweck and Yeager (2020), who emphasized that fostering a growth mindset significantly contributes to teacher innovation, resilience, and effectiveness. Likewise, Sterling (2021) argued that sustainable education practices provide a foundation for forward-thinking pedagogy that aligns with 21st-century educational demands. Furthermore, Zhao et al. (2023) highlighted that integrating sustainability and mindset development into teaching practices results in more adaptive, innovative, and effective educators prepared to meet evolving classroom challenges.

**5. CONCLUSIONS**

Based on the findings of the study, the following conclusions were formulated:

The extent of growth mindset cultivation among teachers is always observed, indicating that teachers consistently exhibit very extensive levels of motivation, a positive attitude, and the ability to embrace challenges. This suggests that teachers are open to continuous learning and personal development, fostering resilience and adaptability in their teaching practices.

The extent of sustainable education practices among teachers is always observed, demonstrating their strong commitment to promoting equality, inclusiveness, and quality in education. This reflects a dedication to creating equitable learning environments that cater to diverse student needs and uphold educational standards that contribute to long-term student success.

The extent of innovative teaching strategies among teachers is always observed, indicating that teachers regularly employ critical thinking, creativity, and information communication and technology (ICT) skills in their instructional approaches. This consistent use of innovative methods enhances student engagement and learning outcomes.

Significant relationships between growth mindset cultivation, sustainable education practices, and innovative teaching strategies were found. Both growth mindset cultivation and sustainable education practices were significantly positively correlated with innovative teaching strategies, emphasizing the role of mindset and sustainable practices in fostering innovative approaches in teaching.

Finally, in examining the singular influence of the predictors, both growth mindset cultivation and sustainable education practices were found to significantly predict innovative teaching strategies. Teachers who cultivate a growth mindset and implement sustainable education practices are more likely to adopt and consistently use innovative teaching strategies, contributing to improved teaching effectiveness and student learning experiences.

Based on the results of the study, it was found that growth mindset cultivation and sustainable education practices significantly contribute to the prediction of innovative teaching strategies among teachers. This outcome aligns with the theoretical frameworks of Dweck’s Growth Mindset Theory, Sustainable Education Theory and Innovation Diffusion Theory.

According to Dweck’s Growth Mindset Theory by Dweck (2006), as cited by Padır and Vangölü (2023), teachers who believe in their ability to develop skills and overcome challenges are more likely to adopt new and creative teaching methods. This mindset fosters resilience, encourages experimentation, and promotes continuous professional development, all of which contribute to the integration of innovative strategies in the classroom.

Sustainable Education Theory by Sterling (2001), as cited by Jeronen (2022), emphasizes the importance of creating inclusive, equitable, and high-quality learning environments. Teachers who prioritize sustainable education practices are more attuned to adapting their methods to meet diverse student needs, which inherently supports the use of innovative teaching strategies to enhance learning outcomes and promote long-term educational success.

The Innovation Diffusion Theory by Rogers (2003), as cited by García-Avilés (2020), posits that the adoption of new ideas and practices is influenced by individual and organizational factors. Teachers with a cultivated growth mindset and a commitment to sustainable education are more likely to act as early adopters of innovative teaching strategies, influencing their peers and contributing to a culture of continuous improvement and creativity within the educational environment.

**6. RECOMMENDATIONS**

Based on the findings and conclusions of the study, the following recommendations were proposed:

Given that the extent of growth mindset cultivation among teachers was very extensive, it is recommended that schools sustain and further enhance this mindset through continuous professional development initiatives. Administrators may design training programs that reinforce the principles of a growth mindset, such as resilience-building activities, collaborative learning communities, and mentorship programs. Encouraging teachers to embrace challenges, reflect on their teaching experiences, and engage in lifelong learning will ensure that they continue to develop innovative and adaptive instructional strategies.

Since the extent of sustainable education practices among teachers was also very extensive, it is recommended that schools strengthen and institutionalize these practices to maintain long-term impact. Schools can integrate sustainability principles into all aspects of education, from curriculum development to classroom management. Administrators may provide additional resources, workshops, and support networks that emphasize environmentally and socially responsible teaching methods. Further, fostering partnerships with sustainability-focused organizations and promoting interdisciplinary approaches will enhance teachers’ ability to embed sustainability in their instruction effectively.

Given that the extent of innovative teaching strategies among teachers was very extensive, it is important for schools to maintain and advance this level by promoting a culture of continuous innovation. Administrators may facilitate access to cutting-edge educational technologies, sencourage experimentation with new pedagogical approaches, and provide platforms for teachers to share best practices. Professional learning communities, innovation grants, and action research projects can serve as valuable tools for sustaining a high level of innovative teaching strategies.

Considering the significant relationships found between growth mindset cultivation, sustainable education practices, and innovative teaching strategies, it is recommended that schools take an integrated approach to teacher development. Programs that simultaneously reinforce a growth mindset and sustainable teaching methods should be prioritized, as these factors directly contribute to fostering innovation in the classroom. Schools may also develop interdisciplinary training sessions where teachers explore how sustainability and mindset development can complement innovative pedagogy.

Finally, given that both growth mindset cultivation and sustainable education practices significantly predict innovative teaching strategies, it is recommended that schools design targeted professional development programs focusing on these key predictors. By providing structured opportunities for teachers to strengthen their growth mindset and sustainability practices, schools can ensure a lasting positive impact on instructional innovation. This holistic approach will not only enhance teaching effectiveness but also support educators in adapting to evolving educational demands while fostering creativity and long-term professional engagement.

Consent (where ever applicable)

This research strictly complied with established ethical guidelines to protect the participants' rights, dignity, and overall well-being. Prior to conducting data collection, the researcher obtained all required approvals, including consent from the Dean of the Graduate School of Rizal Memorial Colleges and ethical clearance from the institution’s Ethics Review Committee. The ethical procedures observed were informed by the framework proposed by Pregoner et al. (2025), which aligns with current standards for conducting educational research involving human participants. Participation was voluntary, and individuals were clearly informed of the study’s goals, coverage, and their right to withdraw at any stage without any negative consequences. Informed consent was secured to ensure participants fully understood and agreed to take part in the study. No personal identifiers were collected, and all gathered information was treated with strict confidentiality. The data were used exclusively for academic and research purposes. These efforts ensured that the study was conducted with integrity, transparency, and a strong commitment to ethical responsibility.

Disclaimer (Artificial Intelligence)

The author(s) hereby declare that generative AI technologies have been used during the writing and editing of this manuscript. The details of the AI usage are as follows:

1. Grammarly: Used for grammar and spellchecking, as well as suggestions for improving sentence structure and overall clarity.
2. Quillbot: Employed for paraphrasing and refining sentence flow to enhance readability and coherence.

References

Alam, M. A. (2023). From teacher-centered to student-centered learning: The role of constructivism and connectivism in pedagogical transformation. *Journal of Education*, *11*(2), 154-167. <https://www.researchgate.net/profile/Md-Alam-721/publication/373092538_FROM_TEACHER-CENTERED_TO_STUDENT-CENTERED_LEARNING_THE_ROLE_OF_CONSTRUCTIVISM_AND_CONNECTIVISM_IN_PEDAGOGICAL_TRANSFORMATION/links/64d7b55d66f0e0067d9158b5/FROM-TEACHER-CENTERED-TO-STUDENT-CENTERED-LEARNING-THE-ROLE-OF-CONSTRUCTIVISM-AND-CONNECTIVISM-IN-PEDAGOGICAL-TRANSFORMATION.pdf>

Baguio, M. P. A. B., & Baguio, J. B. (2025). Professional Reputation and Service Efficacy of Teachers in Public Elementary Schools. *Asian Journal of Education and Social Studies*, *51*(1), 165-174. <https://hal.science/hal-04894432/>

Bakar, S. (2021). Investigating the dynamics of contemporary pedagogical approaches in higher education through innovations, challenges, and paradigm shifts. *Social Science Chronicle*, *1*(1), 1-19. <https://socialsciencechronicle.com/wp-content/uploads/2021-009.pdf>

Bergmark, U. (2023). Teachers’ professional learning when building a research-based education: context-specific, collaborative and teacher-driven professional development. *Professional development in education*, *49*(2), 210-224. <https://www.tandfonline.com/doi/pdf/10.1080/19415257.2020.1827011>

Colomer, J., Serra, T., Cañabate, D., & Bubnys, R. (2020). Reflective learning in higher education: Active methodologies for transformative practices. *Sustainability*, *12*(9), 3827. <https://www.mdpi.com/2071-1050/12/9/3827>

Fayyaz, S., Lashari, A. A., Rafiq, K., & Jabeen, N. (2023). Montessori teachers’ communication effects on cognitive development of children. *Journal of Namibian Studies: History Politics Culture*, *33*, 115-131. [https://www.researchgate.net/profile/Nazia-Jabeen-4/publication/374029714\_Montessori\_Teachers'\_Communication\_Effects\_On\_Cognitive\_Development\_Of\_Children/links/650a7eac82f01628f032e8ca/Montessori-Teachers-Communication-Effects-On-Cognitive-Development-Of-Children.pdf](https://www.researchgate.net/profile/Nazia-Jabeen-4/publication/374029714_Montessori_Teachers%27_Communication_Effects_On_Cognitive_Development_Of_Children/links/650a7eac82f01628f032e8ca/Montessori-Teachers-Communication-Effects-On-Cognitive-Development-Of-Children.pdf)

Gudadur, S. S. (2023). A study on effective Strategies for Ongoing Teacher Training and Development: A Comprehensive Study. *Pangaea International Journal of Advanced and Applied Research*, *1*(11), 15-29. <https://pijaar.org/wp-content/uploads/2024/02/010205.pdf>

Hairon, S., Loh, S. H., Lim, S. P., Govindani, S. N., Tan, J. K. T., & Tay, E. C. J. (2020). Structured mentoring: Principles for effective mentoring. *Educational Research for Policy and Practice*, *19*(2), 105-123. <https://link.springer.com/article/10.1007/s10671-019-09251-8>

Hennessy, S., D'Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., ... & Zubairi, A. (2022). Technology use for teacher professional development in low-and middle-income countries: A systematic review. *Computers and Education Open*, *3*, 100080. <https://www.sciencedirect.com/science/article/pii/S2666557322000088>

Javed, F. (2025). Preparing for Tomorrow: Evaluating and Innovating Educational Systems for Future Competence. In *Fostering Teacher Skills and Critical Thinking in Modern Education* (pp. 43-78). IGI Global Scientific Publishing. <https://www.igi-global.com/chapter/preparing-for-tomorrow/367119>

Karas, M., Sheen, N. J., North, R. V., Ryan, B., & Bullock, A. (2020). Continuing professional development requirements for UK health professionals: a scoping review. *BMJ open*, *10*(3), e032781. <https://bmjopen.bmj.com/content/10/3/e032781.abstract>

Liu, W. C. (2024). The teaching profession and teacher education in Singapore (1950 to present): from surviving to thriving. *Revista Española de Educación Comparada*, (44), 23-50. <https://www.academia.edu/download/118797156/28636.pdf>

Mendes, A., Greiff, S., & Bobrowicz, K. (2024). Approaching lifelong learning: An integrated framework for explaining decision-making processes in personal and professional development. *Trends in Neuroscience and Education*, 100230. <https://www.sciencedirect.com/science/article/pii/S2211949324000115>

Meng, S. (2023). Enhancing teaching and learning: Aligning instructional practices with education quality standards. *Research and Advances in Education*, *2*(7), 17-31. <https://www.paradigmpress.org/rae/article/view/703>

Okwina, D. (2023). Teacher Professional Development: Strategies for Cultivating Effective and Adaptable Educators. *Journal of Asian Multicultural Research for Educational Study*, *4*(4), 1-5. <http://www.amrsjournals.com/index.php/jamres/article/view/468>

Pregoner, J. D., Leopardas, R., Ganancial, I. J., Baguhin, M., & Sedo, F. (2025). Ethical Issues in Conducting Research Using Human Participants in the Post-COVID Era. *IMCC Journal of Science*, *5*(1), 1-9. <https://hal.science/hal-05073466/>

Ruangsan, W. (2025). Empowering Educators Through Reflective Practice: A Meta-Model for Transformative Teacher Development in the 21st Century. *วารสาร วิชาการ สังคมศาสตร์ สมัยใหม่ (Online)*, *2*(2), 1-22. <https://so19.tci-thaijo.org/index.php/J_ASS/article/view/1724>

Simmie, G. M. (2023). Teacher professional learning: a holistic and cultural endeavour imbued with transformative possibility. *Educational review*, *75*(5), 916-931. <https://www.tandfonline.com/doi/abs/10.1080/00131911.2021.1978398>

Taculog, G. G., & Santos, R. V. (2024). Teaching Practices of Public Elementary School Teachers Relative to Philippine Professional Standards for Teachers (PPST). <https://www.ijams-bbp.net/wp-content/uploads/2024/06/5-IJAMS-MAY-2024-55-83.pdf>

Twyman, J. S. (2025). Re-Engineering the Educational System: Technology Transfer from a Behavioral Perspective. *Perspectives on Behavior Science*, 1-23. <https://link.springer.com/article/10.1007/s40614-025-00432-w>

Zaakiyyah, H. K. A. (2024). Innovative Strategies to Enhance the Quality of Higher Education Management: Human Resource Development and the Critical Role of Communication. *Journal of Contemporary Administration and Management (ADMAN)*, *2*(1), 331-336. <https://journal.literasisainsnusantara.com/index.php/adman/article/view/128>

Zhao, Y., Zhao, M., & Shi, F. (2024). Integrating moral education and educational information technology: A strategic approach to enhance rural teacher training in universities. *Journal of the Knowledge Economy*, *15*(3), 15053-15093. <https://link.springer.com/article/10.1007/s13132-023-01693-z>