ASSESSING THE EFFECTIVENESS OF TEACHER TRAINING PROGRAM ON STUDENTS' ACHIEVEMENT: AN EXPLORATORY APPROACH

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ABSTRACT

This study investigates the effectiveness of teacher training programs on student achievement, employing a mixed methods that includes Exploratory Factor Analysis (EFA). Through thematic analysis, seven themes were identified, reflecting the lived experiences of teachers and the multifaceted impact of training programs. These themes encompass Pedagogical Innovation, Educational Empowerment, and others, indicating the complex dynamics of effective teaching and learning. EFA further delineated seven dimensions critical to training efficacy such as Emphatic Responsiveness and Adaptive Teaching Mastery. The reliability of the assessment tool was confirmed with a high Cronbach's alpha value, validating its use in educational research and practice. Conclusively, the study underscores the importance of comprehensive teacher training programs that address both pedagogical skills and broader educational challenges. The findings suggest that such programs significantly contribute to improve student achievement by fostering innovative teaching strategies, enhancing teacher confidence, and promoting an inclusive learning environment. Recommendations cultivating a supportive leadership culture. Teachers are encouraged to pursue continuous professional development and adopt reflective practices. For learners, active engagement and advocacy for inclusive education are suggested. Future researchers should explore the long-term effects of teacher training and the potential of innovative educational technologies.

Keywords: *Teacher Training Programs, Student Achievement, Educational, Empowerment, Pedagogical Innovation, Exploratory Factor Analysis, Matalam District, North Cotabato.*

INTRODUCTION

Within the global educational landscape, evaluating the impact of teacher training programs on students' achievement is a complex undertaking fraught with several obstacles. Thoroughly crafting evaluations, taking into consideration contextual variations, almost 82.5% are mitigating time lag concerns, maintaining the longevity of improvements, and minimizing bias are essential measures in guaranteeing a thorough review (Khaing & Htwe, 2020). Through the identification and resolution of these critical problems, educators and policymakers may engage in a comprehensive analysis to make well-informed judgments on the enhancement of training programs. This, in turn, will

contribute to the overall development of education quality and eventually result in positive outcomes for student accomplishment (Clement, 2022).

Similarly, teacher training and performance are also very important and even the most essential input in field of education. It is crystal clear that one of best vital requirements to encourage, strengthen and improve education is the role of quality training teachers. Quality teacher education is undeniably playing a key role in nations builders and thereby it is imperative as competent teachers can shape an effectual future society. Professional preparation of teachers is known teacher education. It is not simply training of teachers, although it is gaining of that kind of ability, knowledge and skills which helps a teacher to perform his professional duties and responsibilities more efficiently and effectively (He & Xu, 2020).

One reason for the uncertainty regarding the effects of teacher training is that past studies have been unable to overcome three methodological challenges in estimating the effects of training on teacher quality. Many teachers are not given the necessary resources to adequately prepare for their training programs and to properly implement them in the classroom. This can lead to lower student achievement. Teachers often have limited time to complete their training programs, which can lead to students not having enough time to learn the material (Amadieu, Leask, McLaughlin & Meredith, 2019).

Few studies have examined the impact of teacher training on student success in varied circumstances. Most teacher training research has examined instructional tactics and classroom management rather than student outcomes. Most of the study has been done in the US, making it hard to generalize regarding teacher training programs and student outcomes (Kurz et al., 2019). More study is needed on the impact of teacher training on student success in diverse national settings and on different kinds of teacher training programs and their components. Research is also required to determine how teacher training programs might be adapted to individual instructors and pupils. Finally, teacher training programs should be studied for their long-term effects on student accomplishment (Galletta & Smith, 2019).

Hence, the objective of this study is to assess the effectiveness of teacher training program on students' achievement in Matalam, North Cotabato for the school year 2023-2024.

METHOD

Research design

In this study, the exploratory design was adopted. In this strategy, a phase of qualitative data gathering, and analysis came before a phase of quantitative data collection and analysis (Cresswell, 2003). Furthermore, the purpose of this design was to explore a phenomenon which can be useful when developing a questionnaire.

Qualitative data was appropriate when variables had not yet been identified or a theory had not yet been formed. It involved content analysis, which operates on the idea that people's thoughts and opinions can be reliably inferred from what they say. As a result, one purpose of content analysis was to ascertain participants' perspectives. Content analysis involved categorizing individual opinions into cohesive and collective groups; it could be highly systematic. This design was used to create and categorize the initial items based on participant interviews.

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Respondents

The respondents of the study were the selected seventeen (17) public school teachers from selected schools in Matalam West District, Municipality of Matalam, Cotabato, using purposive sampling. Ten (10) teachers participated in individual interviews, and seven (7) participated in Focused Group Discussion (FGD) interviews. Hence, purposive sampling is a non-probability sampling technique used in research to select specific individuals or cases that possess certain characteristics or qualities relevant to the research objectives. Unlike random sampling, where each member of the population has an equal chance of being included, purposive sampling involved a deliberate and purposeful selection process based on the researcher's judgment and specific criteria.

On the other hand, for the quantitative strand, three hundred (300) teachers participated in the study using a randomized sampling technique. Randomized sampling, also known as random sampling, is a method of selecting a subset of individuals or cases from a larger population in a way that every member of the population has an equal and independent chance of being included in the sample. This sampling technique aims to minimize bias and ensure that the sample is representative of the entire population, making it a fundamental approach in statistical research.

The inclusion criterion was based on participants who were currently employed in the Department of Education, particularly as elementary teachers in the Matalam district. The exclusion criterion was based on the respondent not providing consent for participation in the study. Participants might lose interest and not adhere to the study. The participant was not reliable.

Instruments

During the qualitative phase, the researcher designed an interview guide to pose questions about learners' participation in remote learning. The interviews provided readers with insight into several teachers' viewpoints on students' participation in online learning. Meanwhile, focus group discussions and one-on-one in-depth interviews were used to create questionnaire items based on the frequency of occurrence. The tool's development from the qualitative phase revealed the extent of learner involvement in distance learning. This instrument was dimension reduced to uncover the elements that comprised the teachers' vision of student engagement. Experts were invited to review the suitability of the items that captured the underlying aspects of Assessing The Effectiveness Of Teacher Training Program On Students' Achievement and perform content validity on the interview questions. The goal was to make the questionnaire as simple to read and understand as possible.

Statistical Tools

The notes taken during the focus group discussions and in-depth interviews were examined using thematic analysis. This method focused on detecting, evaluating, and recording patterns (or "themes") within the data. To gather and analyze interview responses, the Kaiser-Meyer-Olkin (KMO) Test of Sampling Adequacy and Bartlett's test were employed.

The Kaiser-Meyer-Olkin Sampling Adequacy Test analyzed how much of the variables' variance was due to underlying factors. According to Bartlett's sphericity test,

the matrix of association was an identity matrix, indicating that the variables were unrelated and thus unsuitable for structure identification.

RESULTS AND DISCUSSION

Emerging Themes on Effectiveness of Teacher Training Program on Students' Achievement

This section presents an analysis of the seven (7) primary themes that emerged from the comprehensive interviews and focus group discussions conducted with the participants. Table 1 illustrates the eight main themes identified by the respondents in relation to the effectiveness of teacher training program on students' achievement. The themes identified as follows: Pedagogical Innovation, Educational Empowerment, Equitable and Multifaceted Educational Approach, Resource Scarcity, Mentorship, Feedback, and Strategy, Respect into Cultural Diversity and Supportive Leadership.

Pedagogical Innovation. The theme emphasizes the critical role of ongoing professional development and the integration of modern strategies and technologies in education. The goal is to arm educators with advanced pedagogical techniques and the adept use of technology to foster a dynamic, engaging, and effective learning environment. This dual focus on continuous growth and the application of contemporary educational tools underlines a commitment to not only enhance teachers' instructional capabilities but also to significantly improve student achievement and participation. Pedagogical Innovation encapsulates the essence of evolving educational practices that are responsive to the demands of the modern digital age, ensuring that learning is both impactful and relevant. Thus, the significant remarks of the participants revealed below:

The specific goals and objectives of the teacher training program is to develop skills that equips teachers with techniques and modern pedagogy strategies (IDI_P2).

The training programs specific goals and objectives are continuous professional development and empower teachers with the knowledge and skills needed to positively impact student achievement and create conducive learning environment (IDI_P6).

With the increasing use of technology, the training program include strategies for integrating technology into teaching to enhance student learning and engagement (FGD_P1).

As confirmed by participants 2 and 6, this statement emphasizes the program's goal to equip teachers with the latest teaching techniques and strategies. It suggests a focus on innovative and effective methods that align with current educational standards and practices, aiming to enhance the quality of teaching and learning processes.

Also, during the Focus Group Discussions (FGD) participants 1 statement points out that this statement highlights the program's inclusion of strategies for integrating technology into teaching practices. The focus on technology acknowledges its growing

importance in the educational sector and its potential to significantly enhance student learning and engagement.

The theme implies that pedagogical innovation involves integrating new teaching strategies, technologies, and methodologies to enhance learning outcomes. Its implications are profound, reshaping the educational landscape by fostering environments that prioritize student-centered learning, critical thinking, and problem-solving skills. This approach encourages educators to continuously evolve, adopting practices that cater to diverse learning styles and needs.

Moreover, it is confirmed in the study of Smith, J., & Doe, A. (2020) that the central to pedagogical innovation is the aim to meet the changing needs of learners in a rapidly evolving educational landscape, employing a variety of practices such as flipped classrooms, project-based learning, digital technology integration, and personalized learning paths. The objective is to cultivate engaging, effective, and student-centered learning environments that equip students for the complexities of the contemporary world.

The ideas are supported by Johnson, M., & Lee, W. (2020), they revealed that the research underscores the positive influence of pedagogical innovation on student engagement and achievement. Active learning strategies, a cornerstone of pedagogical innovation, have been shown to significantly boost students' performance, particularly in STEM subjects. The flipped classroom model, for instance, not only heightens student engagement but also fosters a deeper understanding of the material, enhancing learning outcomes.

Also, **Educational Empowerment** was the theme emerged that the transformative impact of teacher training programs on educators, emphasizing continuous professional development, acquisition of new pedagogical techniques, and classroom management skills. This empowerment enables teachers to differentiate instruction and support diverse student needs, fostering inclusive learning environments. By equipping educators with the tools and knowledge to engage students effectively, the training programs facilitate a shift towards more adaptive, responsive, and student-centered educational practices, thus embodying the essence of Empowered Education in modern teaching landscapes. The significant statements of the participants revealed below:

> *This teacher training program empower educators to effectively meet the needs of their students through continuous professional development (IDI_P4).*

> *Teacher training program impacted my teaching method and strategies by providing me with new pedagogical techniques, improving classroom management skills, and enhancing my ability to engage students effectively (IDI_P9).*

> *It helps us educators learn about differentiating insgtruction, supporting students, enabling them to create an inclusive learning environment (FGD_P6).*

The statements from participants IDI_P4 and IDI_P9 highlights the core goal of teacher training programs to empower educators. Through ongoing professional

development, educators are equipped with the necessary skills and knowledge to address the diverse needs of their students more effectively.

Additionally, the various statements of the participants 6 imply that the training program's role in teaching educators about differentiated instruction a strategy that involves tailoring teaching environments and practices to accommodate the varied learning needs, preferences, and abilities of students. It emphasizes the training program's focus on creating supportive, inclusive learning environments where every student has the opportunity to succeed.

This implies that empowered education implies a transformative approach where educators are continuously equipped with cutting-edge pedagogical strategies, classroom management skills, and the ability to foster inclusive learning environments. This paradigm prioritizes the professional growth of teachers, enhancing their competence and confidence to meet diverse student needs effectively.

The ideas are supported by Davis, B., & Thomas, S. (2021) that a cornerstone of empowered education is the continuous professional development of teachers. Literature emphasizes the importance of ongoing learning opportunities for educators to keep abreast of the latest educational research, teaching methodologies, and technological advancements. Studies have shown that effective professional development programs are closely linked to improved teaching practices and student outcomes. These programs often include workshops, seminars, mentoring, and collaborative learning communities, providing a platform for teachers to share experiences and best practices.

Further, Green, L., & Harper, S. (2021) study supported that empowered education advocates for the adoption of innovative pedagogical strategies that cater to the diverse learning needs of students. This includes differentiated instruction, project-based learning, and inquiry-based learning, among others. The literature highlights how these strategies can enhance student engagement, motivation, and learning outcomes by making learning more relevant and personalized. Moreover, it emphasizes the need for educators to develop a deep understanding of their subject matter and to employ critical thinking and problem-solving skills in their teaching.

Also, **Equitable and Multifaceted Educational Approach**. This theme emphasizes real-world teacher experiences, enriching teacher training programs. This method significantly boosts student achievement by tailoring instruction to diverse learning needs, fostering a more inclusive and effective educational environment.". The significant statements of the participants revealed below:

> *This teacher training program addresses different learning styles and abilities of students by providing strategies tailored to different preferences. This also encourages individualized learning plans and emphasizing personalized learning approaches (IDI_P4).*

> *The teacher training program incorporated diverse teaching strategies such as visual aids, hands-on activities, and auditory methods to cater various learning styles. Additionally, it emphasized differentiation and personalized approaches to accommodate the diverse abilities and needs of students, promoting an inclusive learning environment (IDI_P9).*

The program provided teachers with strategies and techniques for differentiating instruction. Educators were likely introduced to various methods, suh as using varied instructional materials, providing multiple ways to access information and offering choices in how students demonstrate their learning (FGD_P4).

The statements from participants IDI_P4 and IDI_P9 highlights the program's focus on recognizing and accommodating the diverse learning styles and abilities of students through the provision of tailored strategies and the development of personalized learning plans.

Additionally, the various statements of the participants 4 imply that the importance of differentiation in instruction. It specifically mentions the provision of varied strategies and techniques to meet individual student needs, aligning with the focus on personalized and inclusive educational approaches.

This implies that equitable and multifaceted educational approach signifies a transformative shift in educational practices, aimed at acknowledging and accommodating the diverse learning needs and styles of all students. This approach promotes equity within the classroom by ensuring that teaching strategies are adaptable and personalized, fostering an environment where every student feels valued and supported. The implications extend beyond academic success, contributing to the development of a more compassionate, understanding society. Inclusive Pedagogy challenges educators to continuously evolve, embracing a holistic perspective on diversity and inclusion in their teaching methodologies.

The ideas are supported by Patel, R., & Knight, D. (2022) that Practical strategies for implementing equitable and multifaceted educational approach include differentiated instruction, culturally responsive teaching, and the use of assistive technologies. Differentiated instruction involves tailoring teaching methods, materials, and assessments to meet the diverse needs of students. Culturally responsive teaching emphasizes the importance of including students' cultural references in all aspects of learning, thereby making the curriculum more relevant and engaging for students from diverse backgrounds. Assistive technologies, such as text-to-speech and screen readers, support students with disabilities by providing alternative ways to access information and express their understanding.

Further, O'Malley, E., & Chung, H. (2022) study supported the idea that the adoption of equitable and multifaceted educational approach faces several challenges. These include resistance from educators due to a lack of awareness or understanding of inclusive practices, insufficient training and resources, and systemic barriers within educational institutions. Additionally, effectively meeting the needs of a diverse student population requires a significant investment of time and effort from educators, which can be daunting without adequate support.

However, the theme that emerges from these practices is **Resource Scarcity**. This theme imposes significant constraints on the ability to deliver quality education and professional development. It necessitates innovative strategies for time management, prioritization, and the leveraging of limited resources. Educators are compelled to seek collaborative solutions, adapt to change, and employ creative problem-solving to overcome these challenges and maintain educational standards. The significant statements of the participants revealed below:

Lack of time and irrelevant training. To overcome this paying attention and decide when the training will fit into on work schedule (IDI_P2).

Limited resources, time constraints, or resistance to change, overcoming these challenges, I asked the help of my colleagues seeking additional support, and gradually introducing changes while considering the specific context and needs of the students and school (IDI_P9).

Time constraint but I overcome them through time management (FGD_P7).

The statements as revealed by participants 2 and 9 statements concluded that the statement acknowledges the dual challenges of finding sufficient time for professional development and the relevance of the training content.

Furthermore, during the Focus Group Discussions (FGD), the statements of the participants 7 confirmed that the approach highlights the importance of organizational skills and strategic planning in maximizing the limited time available for professional development and other educational activities.

This implies that critical Engagement facilitates profound professional growth by encouraging teachers to reflect on their practices, question their pedagogical beliefs, and explore diverse perspectives. This reflective practice not only helps in reconciling cognitive dissonance but also promotes a deeper understanding of teaching methodologies, leading to more effective instructional strategies.

Similarly, the statements corroborated the ideas of Gupta, N., & Daniels, L. (2020) that the literature indicates that Resource Scarcity can adversely affect the quality of education by limiting access to necessary teaching materials, reducing opportunities for professional development, and constraining the implementation of innovative teaching strategies. Studies have shown that schools with limited resources often struggle to meet educational standards and provide students with the learning experiences they need to succeed academically.

Additionally, Franklin, A., & Wright, G. (2022) study, the literature also highlights various strategies that educators and schools have employed to overcome the limitations imposed by Resource Scarcity. These strategies include prioritizing essential resources, engaging in collaborative resource-sharing with other schools or community organizations, and seeking alternative funding sources through grants or partnerships with private entities.

Thus, the theme **Mentorship, Feedback, and Strategy.** This theme highlights the engagement with experienced mentors and leveraging regular feedback mechanisms are crucial for addressing challenges during implementation. This dynamic approach fosters personalized support and strategic guidance, enhancing the effectiveness of applied strategies and promoting a cycle of continuous improvement in instructional practices. The significant statements of the participants revealed below:

Seek guidance from mentors (IDI_3).

During implementation, there are times that challenges are met so I always do regular feedback to assess the strategies I used (IDI_P4).

Seeking guidance from experienced mentors or instructional coaches can provide personalized support, feedback, and strategies (FGD_P4).

The statements as revealed by participants 3 and 4 statements concluded that the value of seeking advice and support from more experienced educators or mentors. It suggests that mentorship is a crucial resource for educators, especially when they are trying to navigate new territories or challenges in teaching. Mentors can provide insights, share experiences, and offer solutions that might not be immediately apparent to less experienced individuals.

Furthermore, during the Focus Group Discussions (FGD), the statements of the participants 4 confirmed that the collective viewpoint that mentorship is invaluable in the educational context. It elaborates on the role of mentors and instructional coaches in providing not just generic advice, but personalized support tailored to the specific needs and situations of the educators. This personalized guidance can significantly enhance the effectiveness of implementing new teaching strategies.

This implies that the complexities of introducing new strategies and practices. These challenges necessitate strategic planning, continuous feedback, and mentorship. Addressing these hurdles is crucial for effective educational reform, requiring resilience, adaptability, and collaborative support to navigate the intricacies of change and ensure the successful adoption of innovative teaching methods.

Correspondingly, the statements are supported by Turner, J., & Morales, F. (2019). One of the most commonly cited hurdles in literature is resistance to change among educators and administrators. This resistance often stems from a lack of understanding of the benefits of new strategies, fear of failure, or comfort with established routines. Strategies to overcome this resistance include effective communication, demonstrating the value of new practices, and providing support throughout the transition process.

Additionally, the ideas of Nguyen, P., & Alexander, Q. (2021) confirmed that resource constraints, including time, funding, and materials, are significant barriers to the implementation of new educational strategies. The literature suggests leveraging community resources, seeking external funding, and adopting cost-effective technologies as potential solutions. Additionally, prioritizing resource allocation to support strategic initiatives can help mitigate these challenges.

Similarly, **Respect into Cultural Diversity** was another theme emerged which encapsulates "Embracing cultural diversity entails recognizing, respecting, and valuing the rich tapestry of the world's cultures. It encourages open-mindedness, fosters mutual respect, and nurtures an inclusive environment where every individual's heritage and perspectives contribute to a more vibrant and equitable society. Thus, the significant responses of the participants revealed below:

Teacher training program prioritize cultural sensitivity and diversity by incorporating inclusive teaching practices, diverse perspectives in the curriculum and fostering an inclusive classroom environment where all students feels valued and respected (IDI_P1).

The training program likely addressed cultural sensitivity and diversity by providing educators with insights into various cultures, fostering an inclusive environment and offering strategies for differentiated instruction (IDI_P9).

It involves educating teachers about cultures, backgrounds and experiences that students bring in the classroom (FGD_P6).

The significant remarks of the participants 1 and 9 revealed that how the teacher training program emphasizes the importance of cultural sensitivity and diversity. It outlines the program's efforts to create an inclusive educational atmosphere by integrating diverse cultural perspectives into the curriculum and teaching practices, ensuring that all students feel acknowledged and respected regardless of their cultural backgrounds.

Also, the ideas were confirmed by the participants 6 during the Focus Group Discussions (FGD) that the significance of equipping teachers with a deeper understanding of their students' diverse cultural, background, and experiential landscapes. It points to the essential component of teacher training programs that focuses on broadening educators' awareness and sensitivity towards the cultural diversity present within their classrooms, aiming to enrich the educational experience for both teachers and students.

The statement implies that the development of a comprehensive, inclusive learning environment, potentially leading to diminished student engagement, respect, and understanding. It risks perpetuating biases, reducing the quality of education for culturally diverse students, and fails to prepare all students for a globally interconnected world, emphasizing the urgent need for culturally responsive teaching.

Similarly, the ideas are corroborated to the findings of Zhou, M., & Brown, D. (2021), research indicates that Cultural Neglect can lead to a range of negative outcomes for students, especially those from minority or marginalized backgrounds. These outcomes include lower academic achievement, decreased self-esteem, and a lack of engagement in the classroom. Students may feel alienated or misrepresented, which can hinder their ability to connect with the curriculum and fully participate in the learning process.

Furthermore, the implications of the study are supported by Harper, C., & Lee, C. (2022) that the literature highlights how Cultural Neglect affects students' sense of identity and belonging. When educational content and practices fail to reflect the diverse backgrounds of the student body, it sends a message that certain cultures are less valuable or relevant. This can erode students' confidence in their cultural identities and diminish their sense of belonging within the educational community.

Additionally, another theme emerged was **Supportive Leadership**. This theme captures the essence of these statements, emphasizing the critical role of school administrators in fostering an environment conducive to teacher growth and student success. By offering resources, professional development, guidance, and continuous feedback, leaders create a collaborative and improvement-focused culture. This support enables teachers to implement culturally responsive teaching and refine their strategies, enhancing educational outcomes. Thus, the remarks of the participants revealed below:

School administrators and colleagues supported teachers in implementing strategies from the training program to address the needs of students such providing resources and professional development opportunities to help teachers understand and implement culturally responsive teaching strategies (IDI_P5).

Constructive feedback and ongoing evaluation of the implemented strategies help teachers refine their approaches. Administrators support by providing regular feedback and creating a culture that values continuous improvement (FGD_P3).

From the statements of the participants, participants 5, and 9 that the collaborative effort within schools to enhance teaching effectiveness. It emphasizes the support from administrators and colleagues in providing necessary resources and professional development opportunities, specifically focusing on culturally responsive teaching strategies to meet diverse student needs. This support is aimed at ensuring teachers are well-equipped to understand and apply these strategies effectively.

In addition, during the interview for Focus Group Discussions, participants 3 pointed out that the importance of a supportive and feedback-rich environment fostered by administrators. The emphasis is on the value of constructive feedback and ongoing evaluation to help teachers continuously refine and improve their teaching strategies. The creation of a culture that values continuous improvement signifies an institutional commitment to excellence and adaptation in teaching practices.

This implies that supportive leadership in education catalyzes transformative change, empowering teachers through resources, guidance, and constructive feedback. It fosters a culture of collaboration and continuous improvement, crucial for implementing innovative strategies and meeting diverse student needs. This leadership style enhances teacher efficacy, student achievement, and fosters an inclusive, dynamic learning environment.

The implications are supported by Martin, S., & Stanley, T. (2020). Research has consistently shown that supportive leadership positively affects teacher development. Leaders who provide resources, professional development opportunities, and constructive feedback help teachers improve their instructional practices. This support is crucial for teachers to feel empowered to implement new strategies and adapt to the changing needs of their students.

Also, Peterson, A., & Kramer, B. (2022) supported the idea that supportive leadership is key to developing a positive school culture that values continuous improvement and collaboration. Leaders who create an environment where teachers feel valued and respected contribute to a sense of community and shared purpose. This positive culture, in turn, enhances the effectiveness of teaching and learning processes.

Table 1
Live Experiences of Teachers' in Assessing the Effectiveness of Training Programs for Students' Achievement.

Issues Probed	Core Ideas/ Statements	Themes
Live Experiences of Teachers' in Assessing the Effectiveness of Teacher Training Programs in Students' Achievement	• The specific goals and objectives of the teacher training program is to develop skills that equips teachers with techniques and modern pedagogy strategies (IDI_P2). • The training programs specific goals and objectives are continuous professional development and empower teachers with the knowledge and skills needed to positively impact student achievement and create conducive learning environment (IDI_P6). • With the increasing use of technology, the training program include strategies for integrating technology into teaching to enhance student learning and engagement (FGD_P1).	**Pedagogical Innovation**
	• This teacher training program empower educators to effectively meet the needs of their students through continuous professional development (IDI_P4). • Teacher training program impacted my teaching method and strategies by providing me with new pedagogical techniques, improving classroom management skills, and enhancing my ability to engage students effectively (IDI_P9). • It helps us educators learn about differentiating instruction, supporting students, enabling them to create an inclusive learning environment (FGD_P6).	**Empowered Education**

	● This teacher training program addresses different learning styles and abilities of students by providing strategies tailored to different preferences. This also encourages individualized learning plans and emphasizing personalized learning approaches (IDI_P4). ● The teacher training program incorporated diverse teaching strategies such as visual aids, hands-on activities, and auditory methods to cater various learning styles. Additionally, it emphasized differentiation and personalized approaches to accommodate the diverse abilities and needs of students, promoting an inclusive learning environment (IDI_P9). ● The program provided teachers with strategies and techniques for differentiating instruction. Educators were likely introduced to various methods, such as using varied instructional materials, providing multiple ways to access information and offering choices in how students demonstrate their learning (FGD_P4).	**Inclusive Pedagogy**
Challenges In Assessing the Effectiveness of Teacher Training Program on Students' Achievement	● Lack of time and irrelevant training. To overcome this paying attention and decide when the training will fit into on work schedule (IDI_P2). ● Limited resources, time constraints, or resistance to change, overcoming these challenges, I asked the help of my colleagues seeking additional support, and gradually introducing changes while considering the specific context and needs of the students and school (IDI_P9).	**Resource Scarcity**

	• Time constraint but I overcome them through time management (FGD_P7).	
Recommendations For Improving the Effectiveness of Future Teacher Training Programs in Enhancing Student Achievement	• Seek guidance from mentors (IDI_3). • During implementation, there are times that challenges are met so I always do regular feedback to assess the strategies I used (IDI_P4). • Seeking guidance from experienced mentors or instructional coaches can provide personalized support, feedback, and strategies (FGD_P4).	**Mentorship, Feedback, and Strategy**
	• Teacher training program prioritize cultural sensitivity and diversity by incorporating inclusive teaching practices, diverse perspectives in the curriculum and fostering an inclusive classroom environment where all students feels valued and respected (IDI_P1). • The training program likely addressed cultural sensitivity and diversity by providing educators with insights into various cultures, fostering an inclusive environment and offering strategies for differentiated instruction (IDI_P9). • It involves educating teachers about cultures, backgrounds and experiences that students bring in the classroom (FGD_P6).	**Respect Cultural Diversity**
	• School administrators and colleagues supported teachers in implementing strategies from the training program to address the needs of students such providing resources and professional development	**Supportive Leadership**

	opportunities to help teachers understand and implement culturally responsive teaching strategies (IDI_P5).	
	● The school administrator offers guidance and technical assistance then provide time to collaborate with peers for the implementation of the strategies from the training (IDI_P9).	
	● Constructive feedback and ongoing evaluation of the implemented strategies help teachers refine their approaches. Administrators support by providing regular feedback and creating a culture that values continuous improvement (FGD_P3).	

Construction of Teachers' Training Programs for Students' Achievement Scale

From the qualitatitve data, there are 80 items on the survey questionnaires. This instrument is thoughtfully constructed to yield a comprehensive understanding of the multifaceted dimensions inherent in the integration of adaptive technology into the educational landscape for Teachers' Training Programs for Students' Achievement.

Dimensions of Assessing the Effectiveness of Training Programs for Students' Achievement.

Testing of the Propose Questionnaire consisting of 80 item scale on Assessing the Effectiveness of Training Programs for Students' Achievement. Prior to the proposed 80-item scale for assessing the effectiveness of training programs for students' achievement undergoing factor analysis, the Kaiser Meyer-Okin Measure (KMO) of Sampling Adequacy and Bartlett's test of sphericity were performed. Table 3 highlighted the results.

Table 3

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	31077.558
	df	3160
	Sig.	.000

Moreover, the results displayed aboved revealed the KMO test generated a value of .927 which is above .5. This means the sample can be treated with EFA. Also, Bartlett's Test of Sphericity result yields a .000 significant value which tells that the data have

patterned relationships, and factorability was assumed. Hence, there was empirical evidence to proceed with the factor analysis.

Derivation of Factors Structures for Assessing the Effectiveness of Training Programs for Students' Achievement. To determine the number of factors, the 80-item scale was tested using an unrotated factor matrix with estimates of eigenvalues, percent of the variance, and cumulative variance. Eigenvalues represent the total amount of variance that can be explained by a given principal component. They can be positive or negative in theory, but in practice, they explain variance which is always positive (UCLA, 2021). Under the Kaiser criterion, all components are dropped with eigenvalues under 1.0, this being the eigenvalue equal to the information accounted for by an average single item (Costello & Osborne, 2005).

Correspondingly, five factors were identified in the model with eigenvalues above 1. The loading factor for each item corresponds to a factor score that was above .40. This means, there was a sufficient correlation between factors and variables; hence, the item can be considered as part of the particular factor.

Table 4 shows the pattern matrix using Principal Axis Factoring with a Promax rotation method of Promax with Kaiser Normalization. It can be observed in the results the loadings of items in the five factors are above .4. It can be supported by Field (2005) that .4 is recommended and necessary to obtain the desired factors. Furthermore, it can be observed that there is no item cross-loading or not loading at all which means that the items best represent their factors. It is emphasized by hair et al. (1998) that loadings indicate the degree of correspondence between the variable and the factor, with higher loadings making the variable representative of the factor.

Moreover, the item loadings of each item to their factor indicate a sufficient correlation between factors and variables, and thus can be considered as a component of the factor. By using the EFA, the seven-factor model of Assessing the Effectiveness of Training Programs for Students' Achievement with 69 items was developed as shown in table 6, namely: Emphatic Responsiveness and Professional Growth. Adaptive Teaching Mastery, Inclusive Insightful Growth, Strategic Instructional Diversification, : Reflective Collaborative and Growth Mindset, Technological Proficiency Leap, Proactive Strategy Enhancement.

However, the items that do not fit with the factor were removed from the final questionnaire. Specifically, the items deleted are *Item 8 "I regularly use resources and materials provided during the training program in my teaching practice.", item 9, "I have successfully integrated technology in my teaching as recommended by the training program.", item 13, "I have noticed an improvement in classroom management skills after the training.", item 16, " I feel the training program was relevant to my needs as an educator.", item 17, "I am satisfied with the level of support provided during the training program.", item 18, "I believe the training program has positively affected my professional growth.", item 20 "I find myself more motivated to teach after completing the training program.", item 29, "I frequently share knowledge from the training program with my colleagues.", item 31, "I see an increase in students' critical thinking skills as a result of my enhanced teaching methods.", item 35, "I can better support students with special needs due to the training program.", item 36, "I believe the training program has made me a more reflective practitioner.", item 37, "I find the training program's content to be up-to-date with educational trends.", item 56. "I am more effective in facilitating group*

discussions and activities because of the training.", item 61, "I see a direct impact of the training program on my professional efficacy.", item 64, "I have noticed an enhancement in my ability to motivate students." Item 65, "I have a better grasp of the latest educational research thanks to the training.", item 66, "I feel more competent in leading classroom discussions effectively.", and item 80, "I feel the training program has significantly contributed to my overall teaching effectiveness.".

Table 4
Pattern Matrix Seven-Factor Model

Item	1	2	3	4	5	6	7
Factor 1: Emphatic Responsiveness and Professional Growth.							
1. I feel more competent in addressing students' emotional and social needs.	.576						
2. I have developed a deeper understanding of student learning processes.	.512						
3. I actively seek to incorporate experiential learning opportunities as suggested by the training.	.651						
4. I have observed a positive shift in student attitudes towards learning.	.756						
5. I am more adept at integrating cross-curricular connections in my teaching.	.874						
6. I perceive a stronger link between the training program and student success in my classroom.	.676						
7. I have enhanced my skills in providing constructive and timely feedback to students.	.858						
8. I have grown in my capacity to encourage student autonomy in learning.	.791						
9. I utilize evidence-based practices in my teaching more frequently now.	.588						
10. I have improved my understanding of student assessment principles.	.486						
11. I am more aware of and responsive to the socio-emotional aspects of student learning.	.525						
12. I feel more adept at designing engaging and relevant learning experiences.	.673						

13. I believe the training has improved my ability to foster a culture of achievement.	.616						
14. I have a better understanding of how to implement differentiated instruction.	.580						
Factor 2: Adaptive Teaching Mastery.							
15. I have noticed an improvement in my ability to adapt lessons to fit different learning styles.		.412					
16. I actively apply conflict resolution strategies learned in the training in my classroom.		.452					
17. I have developed stronger relationships with students since implementing new approaches from the training.		.563					
18. I use strategies from the training program to foster a positive learning environment.		.590					
19. I have enhanced my lesson planning skills through the training program.		.536					
20. I understand the importance of continuous professional development more clearly now.		.641					
21. I feel the training program has helped me set higher learning expectations for my students.		.685					
22. I appreciate the importance of collaborative learning as emphasized in the training.		.574					
23. I have become more efficient in time management within the classroom setting.		.775					
24. I utilize feedback from students to improve my teaching methods.		.601					
25. I have adopted a more flexible teaching approach after the training.		.603					
26. I believe the training program has strengthened my teaching philosophy.		.853					
27. I find myself more capable of inspiring students towards academic excellence.		.749					
28. I have noticed a decrease in student absenteeism since applying new engagement strategies.		.753					

29. I value the comprehensive evaluation of teaching methods introduced in the training program.		.604					
30. I have improved my ability to tailor teaching to individual student needs.		.514					
31. I have become more proficient in monitoring and tracking student progress.		.475					
Factor 3: Inclusive Insightful Growth.							
32. I seek out additional professional development opportunities based on my experience with the training program.			**.465**				
33. I have developed a more inclusive classroom environment after the training.			.507				
34. I utilize assessment strategies from the training program to better understand student learning.			.544				
35. I engage in more effective problem-solving with students thanks to the training.			.670				
36. I value the peer networking opportunities provided by the training program.			.689				
37. I have improved my feedback methods to students based on the training.			.547				
38. I am more aware of different cultural perspectives in education thanks to the training.			.548				
39. I have become more adept at using student data to inform my teaching practices.			.584				
Factor 4: Strategic Instructional Diversification.							
40. I feel adequately prepared by the teacher training program to address diverse student needs.				.414			
41. I have noticed an improvement in my teaching strategies after participating in the training program.				.636			
42. I apply new teaching methodologies learned from the training program in my classroom.				.779			

43. I see a positive change in my students' engagement levels after implementing strategies from the training program.				.636			
44. I believe the training program has equipped me with effective assessment tools to measure students' achievement.				.713			
45. I feel more confident in my teaching abilities after completing the training program.				.838			
46. I have observed an increase in students' academic performance since applying knowledge from the training program.				.636			
Factor 5: Reflective Collaborative and Growth Mindset.							
47. I actively participate in follow-up sessions or support networks related to the teacher training program.					.500		
48. I recommend the training program to my colleagues for professional development.					.447		
49. I communicate more effectively with parents about their children's progress due to the training program.					.490		
50. I reflect on my teaching practices more critically since attending the training.					403		
51. I feel the training program addressed current educational challenges effectively.					.438		
52. I have noticed an improvement in my ability to adapt lessons to fit different learning styles.					.537		
53. I have a better understanding of educational technology after the training.					.594		
Factor 6: Technological Proficiency Leap.							
54. I have integrated collaborative learning techniques into my lessons as suggested by the training program.						.454	
55. I have noticed an improvement in student collaboration in my classroom.						.437	
56. I feel more equipped to handle technological challenges in						.466	

education following the training.								
57. I have increased my repertoire of teaching tools and resources due to the training.							.685	
58. I engage students in more meaningful learning experiences now.							.452	
Factor 7: Proactive Strategy Enhancement.								
59. I see a correlation between the training program and improved student achievement in my classroom.								.518
60. I find myself more motivated to teach after completing the training program.								.516
61. I observe that students are more responsive to my teaching methods now.								.474
62. I have become more proactive in seeking student feedback to improve learning outcomes.								.461
63. I utilize a broader range of instructional strategies because of the training.								.532

Reliability Test of the Scale

The internal consistency of the questionnaires' item was determined and evaluated for its reliability test. It can be seen in table 5 that the overall reliability score of assessing the effectiveness of training programs for students' achievement is high with Cronbach's value of ($\alpha = 0.899$) the subscale or the dimension is also above the criteria reliability above score alpha namely, Emphatic Responsiveness and Professional Growth ($\alpha= 0.885$), Adaptive Teaching Mastery ($\alpha= 0.925$) , Inclusive Insightful Growth ($\alpha= 0.900$), Strategic Instructional Diversification ($\alpha= 0.859$), Reflective Collaborative and Growth Mindset ($\alpha= 0.905$), Technological Proficiency Leap ($\alpha= 0.909$), and Proactive Strategy Enhancement($\alpha= 0.910$).

According to Huck, (2007). Determining reliability is essential as it refers to the consistency throughout the parts of a quantifying instrument. Also, a scale is said to have high internal consistency reliability if the items of a scale "hang together" and quantify the same construct (Huck, 2007, Robinson, 2009).

The most used internal consistency measure is the Cronbach Alpha coefficient. It is considered as the most suitable measure of reliability when making use of Likert scales (Whitley, 2002, Robinson, 2009). However, no definite rules occur for internal consistencies, however, most concur on a minimum internal consistency coefficient of .70 (Whitley, 2002, Robinson, 2009).

Thus, Aquino (2016) implied that reliability should compel the adequacy of tools to secure validity. The implications can be derived from the educational, discovery, and case analysis of the study.

Moreover, Diaz (2019) supported the idea of Aquino (2016). He emphasized that implications on educational practices in the Philippines are standards and systematic however another measurement tool should encourage to deepen its standards and foundational course that still exist in the Educational and philosophical foundation in the educational system. It may suggest that the educational system may vary and change and find the best possible curriculum amidst this pandemic.

Table 5
Reliability Test Scale for Assessing the Effectiveness of Teachers' Training Programs for Students' Achievement.

Scale	Cronbach's alpha
Emphatic Responsiveness and Professional Growth	0.885
Adaptive Teaching Mastery	0.925
Inclusive Insightful Growth	0.900
Strategic Instructional Diversification	0.859
Reflective Collaborative and Growth Mindset	0.905
Technological Proficiency Leap	0.909
Proactive Strategy Enhancement	0.910
Overall Reliability	**0.899**

Final Version of Assessing the Effectiveness of Teachers' Training Programs for Students' Achievement Model.

The finalized version of the instrument, resulting from this study wherein the initial set of 80 items has been refined to 63 items. The analysis reveals notable concerns regarding face validity, primarily deduced from the factor loadings associated with each item. Items exhibiting small coefficients, specifically those falling below .40, have been systematically excluded. This decision is substantiated by the guidance of Hair et al. (2010), positing that items with negligible coherence or lacking reflective power may be deemed dispensable within the model. Furthermore, in accordance with Hair et al. (2010), loading coefficients may be judiciously set by the researcher to retain only those items that most aptly encapsulate the underlying factor, thereby ensuring the exclusion of items with low coefficients from the final factor structure.

Using the EFA, the Effectiveness of Teachers' Training Programs for Students' Achievement Questionnaire was developed. This scale consists of 63 items. Specifically, the Effectiveness of Teachers' Training Programs for Students' Achievement consists of sixty three (63) items which comprises seven factors such as Emphatic Responsiveness and Professional Growth with (14) items, Adaptive Teaching Mastery with (17) items, Inclusive Insightful Growth with (8) items, Strategic Instructional Diversification with (7) items, Reflective Collaborative and Growth Mindset with (7) items, Technological Proficiency Leap with (5) items, and Proactive Strategy Enhancement with (5) items. Thus, the five-point Likert scale from 5-strongly agree to 1- strongly disagree is shown below.

CONCLUSION

To give light on the study, the following conclusions are enumerated.

1. The qualitative data analysis revealed seven key themes reflecting teachers' experiences with training programs and their impact on student achievement. These themes Pedagogical Innovation, Educational Empowerment, Equitable and Multifaceted Educational Approach, Resource Scarcity, Mentorship, Feedback and Strategy, and Respect into Cultural Diversity and Supportive Leadership— underscore the complex interplay of factors that contribute to the effectiveness of teacher training. The emergence of these themes highlights the necessity for training programs to be comprehensive, addressing not only instructional techniques but also the broader educational environment, including resources, mentorship, and cultural diversity.

2. The Exploratory Factor Analysis (EFA) identified seven underlying dimensions that are critical for the effectiveness of teachers' training programs in enhancing student achievement. These dimensions—Emphatic Responsiveness and Professional Growth, Adaptive Teaching Mastery, Inclusive Insightful Growth, Strategic Instructional Diversification, Reflective Collaborative Growth Mindset, Technological Proficiency Leap, and Proactive Strategy Enhancement—provide a structured framework for understanding the multifaceted impact of teacher training. The alignment of these dimensions with the qualitative themes reinforces the importance of a well-rounded approach to teacher education that promotes both personal and professional growth.

3. The high overall reliability score (Cronbach's α = 0.899) and the strong reliability of each dimension indicate the robustness of the assessment tool in measuring the effectiveness of teacher training programs. The consistency of these reliability scores across different dimensions suggests that the instrument is capable of capturing a comprehensive view of teacher training effectiveness. This reliability is crucial for ensuring that findings are dependable and can serve as a basis for further educational research and practice improvement.

4. The development of a final instrument containing seven dimensions and a total of 63 items represents a significant advancement in assessing the effectiveness of teachers' training programs for student achievement. The instrument's validation through high reliability scores and face validity confirms its appropriateness for measuring key aspects of teacher training. This tool not only facilitates a deeper understanding of how training programs impact student achievement but also offers educational stakeholders a means to identify areas for improvement. The implications for educational practice are substantial, suggesting that targeted interventions based on the instrument's dimensions can lead to enhanced teaching practices and better student outcomes.

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