

Teachers' Pedagogical Attributes as Predictors of Learning Outcomes: A Review of Empirical Evidence

¹Adamu Zakiyu Ubale, ²Umaru Yunusa, ³Ali Abdullahi Taura
⁴Tajuddeen Mohammed, ⁵Nasiru Muhd Garba & ⁶Ahmad Garba

¹National Board for Arabic and Islamic Studies (NBAIS) Kano Zone, Nigeria

²Department of psychology and counselling, Ahmadu Bello University Zaria, Nigeria

³Department of Education, Sule Lamido University Kadin Hausa, Jigawa State

⁴Department of Psychology and Counselling, Jigawa State College of Education and
Legal Studies Ringim

⁵Department of Social Studies, Jigawa State College of Education and Legal Studies
Ringim

⁶Federal Radio Corporation of Nigeria (FRCN), Horizon FM Dutse Jigawa State

Email: zakiyuadamu@gmail.com

ABSTRACT

Teacher pedagogical attributes have increasingly been recognized as important determinants of students' learning outcomes. However, evidence on the specific pedagogical attributes that contribute most significantly to learning outcomes remains dispersed across different studies and educational contexts. This review examined empirical evidence on teacher pedagogical attributes as predictors of students' learning outcomes. Specifically, the study sought to identify key pedagogical attributes examined in previous studies, identify gaps in the existing literature and determine the implications of the reviewed findings for educational practice, teacher development, educational policy, and future research. The study adopted a narrative literature review design. Relevant empirical studies from major academic database Google Scholar that are published between 2020 and 2026 were selected and analyzed through thematic synthesis. The reviewed studies revealed that teacher pedagogical attributes, including teaching style, instructional practices, classroom management, teacher feedback, pedagogical competence, communication skills, and innovative teaching methods, positively influence students' academic achievement, engagement, motivation, and learning quality. Evidence from the review indicates that effective pedagogical practices contribute to students' cognitive, affective, and behavioral development. The review also identified gaps for further studies. Finally, it concludes that teacher pedagogical attributes are significant predictors of learning outcomes and recommends sustained professional development initiatives aimed at strengthening teachers' pedagogical competencies.

Keywords: Pedagogical attributes, learning outcomes, teacher effectiveness, instructional strategies, classroom management, behavioural intervention

INTRODUCTION

Educational systems worldwide strive to improve learning outcomes as indicators of educational quality and effectiveness. Learning outcomes represent the knowledge, skills, attitudes, values, and competencies acquired by learners through educational experiences. Teachers are considered as backbone of this process, as they remain the most important in-school factor influencing learning achievement of the learners. However,

they are considered as agents of education and awareness for students and of course for the growth and development in the structuring of the nation (Corazon, 2023). Despite significant investments by the government, policy makers and other educational agencies to either improve or reform education in different countries across the globe, concerns regarding students' performance and achievement continue to persist in

many countries. Undoubtedly, teachers play a significant role in the intellectual development of students in various techniques, assessments, and methods to improve students' skills in school's subjects. Therefore, they directly affect how students learn, what they learn, how much they learn, and the ways in which they interact with one another and the world around them (Reynaldo, 2020). However, teacher's pedagogical attributes are multifaceted in its dimensions encompassing the instructional competencies, classroom practices, teaching strategies among others that enable teachers to create conducive learning environments and support students' learning needs (Yuan et al., 2023). Supported by decades of study, it is generally perceived that teachers are considered as the most important factor influencing students' learning outcomes, with up to 30% of the difference in student's achievement attributable to teacher influence (Michael, 2020). Although previous studies have established that teacher pedagogical attributes influence students' learning outcomes, the findings are scattered across different studies and educational context. In addition, there is limited understanding of which pedagogical attributes have been examined collectively, how they influence learning outcomes across studies, and what research gaps and practical implications emerge from the existing literature. Therefore, a comprehensive review of empirical evidence becomes important to help synthesize the available studies. The review will be restricted to available studies on Google scholar database ranging from 2020-2026. The google scholar database was selected due to the fact that most of the journals has index with it. Therefore, the purpose of this paper is to examine empirical evidence on teachers' pedagogical

attributes as predictors of learning outcomes, which specifically sought to identify key pedagogical attributes examined in previous studies, identify gaps in the existing literature and determine the implications of the reviewed findings for educational practice, teacher development, educational policy, and future research.

Objectives of the Study

The main objective of this study is to examine empirical evidence on teacher pedagogical attributes as predictors of students' learning outcomes. Specifically, the study seeks to;

1. Identify the major teacher pedagogical attributes examined in empirical studies on learning outcomes.
2. Identify gaps in the existing literature on teacher pedagogical attributes and learning outcomes.
3. Determine the implications of the reviewed findings for educational practice, teacher development, educational policy, and future research.

Conceptual Review

Teachers' Pedagogical Attributes

Pedagogical attributes refer to teacher's understanding of effective teaching strategies, different learning styles, and the ability to adjust and regulate instructional methods for learners' different needs. Teachers with strong pedagogical knowledge can simply create engaging lessons, implement varied instruction, and use suitable assessment tools to track and support student progress (Yuan et al., 2023). In addition to content knowledge and teaching skills, a teacher's emotional intelligence is also considered as crucial for creating a

positive and inclusive classroom environment. Educators with high emotional intelligence can modestly connect with students personally, which fosters and enhance mutual respect and a sense of belonging. This ability allows teachers to respond sensitively to students' emotional cues, creating a safe and supportive learning atmosphere. When learners feel valued, important and understood, they are more interacted. Additionally, this bond often leads to better classroom management since students who respect their teachers are more likely to follow instructions and help maintain a positive learning environment (Yuan et al., 2023).

Moreover, skilled teachers always maintain order and consistency by establishing clear expectations, managing time efficiently, and creating structured routines and practices that keep students attentive, observant and goal-focused. This structured approach enables and ensures smooth content delivery and make best use of instructional time, thereby supporting the achievement of learning objectives. Strong organizational abilities also help teachers balance workloads, plan lessons effectively, and coordinate classroom activities that enhance both enjoyment and learning outcomes. In today's rapidly growing educational landscape, innovations as well as creativity have become indispensable and recognized teaching attributes across varied educational level. Nowadays, educators are increasingly expected to integrate technology and modern instructional approaches into their classrooms instructions. Innovative teachers embrace experimentation, explore new ideas, and encourage students to think critically and creatively. By incorporating multimedia tools, interactive technologies, and

collaborative learning activities, such teachers create dynamic classrooms that foster creativity, engagement, and the practical application of knowledge to real-world situations (Bruno & Lawyer, 2020)..

From the above, one can understand that, pedagogical attributes cover a teacher's ability and skill to apply effective teaching strategies, understand diverse learning styles, and adapt instruction to meet students' needs. They include strong pedagogical knowledge, emotional intelligence, organizational skills, and creativity. The major dimensions of pedagogical attributes include:

Instructional Strategies

Instructional strategies refer to the methods and techniques teachers use to facilitate learning. These include cooperative learning, inquiry-based learning, problem-solving approaches, direct instruction, and learner-centered approaches

Classroom Management

Classroom management involves creating and maintaining a conducive learning environment through effective organization, discipline, and time management.

Assessment and Feedback Practices

Assessment practices help teachers monitor learners' progress and provide feedback to improve learning outcomes.

Instructional Resource Utilization

The effective use of teaching aids, educational technologies, and learning materials enhances students' understanding and participation.

Differentiated Instruction

Differentiated instruction enables teachers to address diverse learning needs, abilities, and interests within the classroom (Yuan et al., 2023).

Learning Outcomes

Learning outcomes are specific and clear statements of what students are expected to learn and be able to demonstrate at the completion of their course of study (Ramsden, 2003). It often refers as statements of the knowledge, skills and abilities individual students should possess and can demonstrate upon completion of a learning experience or sequence of learning experiences (Trinchero, 2022). They are goals that describe how students will be different because of a learning experience. More specifically, learning outcomes are the knowledge, skills, attitudes, and habits of mind that students take with them from a learning experience (Suskie, 2018). Learning outcomes need to be assessable; that is, you must be able to observe an action or be able to measure or evaluate the learners' performance to determine whether the knowledge, skill or attitude has been attained. They are measurable changes in learners resulting from educational experiences, which includes;

1. Academic achievement,
2. Knowledge acquisition
3. Critical thinking skills
4. Learner motivation
5. Learner engagement
6. Skill development

Theoretical Framework

Pedagogical Content Knowledge (PCK) Theory by Lee Shulman (1986)

This review is anchored on pedagogical Content Knowledge (PCK) theory developed by Shulman (1986). It represents a fundamental idea in

education that underscores the importance of teachers having an integrated understanding of the material they are teaching and the most effective ways to teach that material to their students. Lee Shulman's introduction of PCK challenged the then-prevailing notion that content expertise alone was sufficient for effective teaching. Instead, Shulman argued that teachers must also understand how to present content in ways that are accessible, understandable, and engaging to learners (Chris, 2023). The theory is important as it focused on enhancing learning outcomes, curriculum alignment, inclusive teaching, and professional development. PCK encompasses several key components as follows:

Knowledge of Students' Understandings and Misconceptions:

Teachers need to know common learning pathways and misconceptions in their subject area to anticipate and address learning challenges..

1. **Curriculum Knowledge:** This involves understanding what should be taught within a curriculum, including the knowledge of educational standards and how to sequence content towards them.
2. **Instructional Strategies:** Effective teaching requires strategies tailored to the subject content and the learners' needs, such as direct instruction, active practice or analogies and representations.
3. **Assessment:** Teachers must know how to assess students' learning in ways that establish their understanding of the content and their ability to apply it in various contexts.

4. **Reflective Practice:** Part of PCK is the ability to reflect on teaching experiences, evaluate the effectiveness of instruction, and make adjustments based on evidence from the classroom.

The theory is relevant to this review because it explains how teacher's pedagogical attributes, such as instructional strategies, classroom management, communication skills and assessment practice influence student's learning outcomes. The theory therefore provides a suitable framework for understanding and interpreting the relationship between teacher pedagogical attributes and learning outcomes examined in the reviewed paper.

4.2 Bloom's Taxonomy of Educational Objectives (1956)

Bloom Taxonomies of educational objectives (1956) can be considered as useful guides for developing a comprehensive list of student outcomes. Taxonomies attempt to identify and classify all different types of learning. Their structure usually attempts to divide learning into three types of domains (cognitive, affective, and behavioral) and then defines the level of performance for each domain. Cognitive outcomes describe what students should know. Affective outcomes describe what students should think. Behavioral outcomes describe what students should be able to perform or do. The taxonomy is one traditional framework for structuring learning outcomes. Levels of performance for Bloom's cognitive domain include knowledge, comprehension, application, analysis, synthesis, and evaluation. These categories are arranged in ascending order of cognitive complexity where evaluation represents the highest level.

This framework is relevant because the pedagogical attributes of teachers influences the extent to which learners achieve these different levels of cognitive development. Effective instructional strategies, classroom management practices, assessment techniques, and communication skills can facilitate students' progression through the various cognitive levels identified in Bloom's taxonomy. Therefore, the taxonomy provides a useful lens for interpreting the learning outcomes reported in the empirical studies reviewed.

METHODOLOGY

This study adopted a narrative literature review design to synthesize empirical evidence on teacher pedagogical attributes as predictors of learning outcomes. Relevant literature was retrieved from major academic database Google Scholar. The search focused on peer-reviewed journal articles published between 2020 and 2026 to ensure the inclusion of recent empirical evidence. The inclusion criteria required studies to: (i) be empirical in nature; (ii) examine one or more teacher pedagogical attributes; (iii) investigate learning outcomes such as academic achievement, engagement, motivation, or learning quality; and (iv) be published in English in peer-reviewed sources. Studies that were purely theoretical, opinion-based, duplicated, or unrelated to teacher pedagogical attributes and learning outcomes were excluded from the review. A total of 38 studies were retrieved, but after screening, it appeared that 12 studies met the inclusion criteria and were selected for review. The selected studies were analyzed using thematic synthesis. Their findings were compared and organized according to key pedagogical themes, including teaching style, instructional practices,

classroom management, teacher feedback, pedagogical competence, and innovative teaching methods. The synthesized evidence was subsequently used to identify patterns, similarities, differences, and implications regarding the influence of teacher pedagogical attributes on students' learning outcomes.

Review of Empirical Evidence

The following reviewed studies provide substantial evidence that teacher pedagogical attributes play a significant role in determining students' learning outcomes. For instance, Inayat and Ali (2020) explored the influence of teaching style on students' engagement, curiosity and exploration in the classroom. The results showed that students simultaneously perceived both teaching styles, that is, Autonomous-supportive and Controlling. However, a significant difference was observed between the score of school students where they found their teachers to be more supportive ($t(402) = 3.942$) and controlling ($t(402) = 4.774$) as compared to university students. Furthermore, there was moderate correlation between perceived autonomy support teaching style with students' engagement ($r = .463$) as well as curiosity and exploration ($r = .318$). The results offer an understanding of students' perceptions of teaching style contributing to students' curiosity and motivation to engage in classroom. In support to these findings, Francisco and Celon (2020) explored the impact of instructional practices of teachers on students' academic performance. Results revealed that the instructional practices affect the students' academic performance in English, Mathematics, Science, Filipino, and Araling Panlipunan to a varying extent. This means that for every unit improvement in the instructional management

practices mentioned could generate a certain increase in students' academic performance. The two findings revealed that the manner in which teachers organize and impart instructions contribute significantly to students' cognitive and behavioural engagement in learning.

Similarly, Goo and Zhou (2021) investigated gender differences in teacher feedback and students' motivation in learning and their relationship patterns. The results of MANOVAs suggested that teachers' language provided less directive feedback but more criticism to male than female students. Male students reported less intrinsic motivation, extrinsic motivation and test anxiety than female students. Along similar line, Islam et al. (2025) identified the Impact of Teacher Talk on Learner Engagement and Motivation. The teacher talk is 'an aspect of teacher pedagogical attributes. The study findings summarize the observation frequency of different categories of FIAC and their effect on learner engagement and motivation in the ESL classroom. This data highlights how different teacher talk strategies influence learner participation and motivation, especially among low-performing students. The findings of both studies support the view that effective communication between teachers and students enhance learning outcomes. However, whereas Guo and Zhou observed variations in feedback patterns based on students' gender, Islam et al. concentrated on the broader influence of classroom discourse, indicating slight differences in their focus and explanatory perspectives.

Along similar lines, Thuong and Nguyen (2021) conducted a research aimed to determine the effects of classroom management styles on

students' motivation and academic achievement in learning English. The findings showed that each style of classroom management exerted impact with different levels and dimensions on students' English learning motivation. Remarkably, Authoritative style demonstrated the most positive influence on students' English learning motivation and academic achievement. In a related study, Afzal and Rafiq (2022) examined the impact of teachers' instructional techniques on student involvement in class. The findings showed that the teachers' instructional strategies were critical to enhance the student involvement in class. The study concluded that, as teachers' instructional techniques positively impact students' class involvement, therefore, innovative instructional techniques learned by university teachers may optimize students' class involvement, which ultimately leads to excellent academic achievement for students. Although both studies support the effectiveness of sound pedagogical practices, they differ in emphasis, with the former focusing on classroom control and learning environment, and the latter emphasizing instructional innovation and learner-centre approaches.

More recent study by Zhang et al. (2024) examined the relationship between teachers' teaching strategies and students' learning engagement within online environments, considering the mediation by students' perceptions of teachers' emotional engagement and the moderation by teachers' expectations. The study found that teachers' teaching strategies not only directly affect students' learning engagement ($r = 0.377^{***}$, $p < 0.001$), but also indirectly affect students' learning engagement through students' perception of teachers' emotional engagement. It showed a

significant mediating effect (indirect effect = 0.231^{***} , $p < 0.001$). The study highlights the critical role of emotional connection in educational strategies, suggesting that teachers should focus on fostering emotional engagement alongside academic content. However, Victor et al. (2025) revisits pedagogical frameworks to determine how teachers' beliefs, attitudes, competence, and training shape students' multidimensional learning outcomes across the cognitive, affective, and psychomotor domains. Although student development spans all three domains, existing research has largely focused on cognitive achievement. This study addressed this gap by analyzing responses from 1887 teachers and 5667 students using a rigorously validated questionnaire. Hierarchical multiple regression analysis showed that all four pedagogical factors (teachers' beliefs, attitudes, competence, and training) significantly predicted student learning outcomes. Overall, the findings show that pedagogical attributes contribute differently to each learning domain. While both studies affirm the importance of pedagogical attributes, Zhang et al. Focused primarily on instructional strategies within digital learning environment, whereas Victor et al. Examined a wider range of teacher characteristics that shape classroom effectiveness.

In line with the above, Yunanti and Amaliya (2025) conducted a research aimed to determine whether teachers' professional and pedagogical competencies influence students' mathematics learning outcomes at Madrasah Ibtidaiyah Negeri 02 Lebong. The results showed that teachers' professional and pedagogical competencies had a significant effect on students' mathematics learning outcomes at Madrasah Ibtidaiyah

Negeri 02 Lebong. Similar study was conducted by Yatini et al. (2026) where they investigate the effect of teachers' pedagogical competence on learning quality in public elementary schools in Tanggungharjo Subdistrict, Grobogan Regency. The findings reveal a positive and significant relationship between pedagogical competence and learning quality ($r=0.832$; $p < 0.001$), indicating a very strong association. The coefficient of determination shows that pedagogical competence contributes 69.3% to the variance in learning quality. These results highlight the critical role of pedagogical competence as a key determinant of instructional effectiveness and emphasize the importance of targeted professional development programs to enhance teaching quality in elementary education.

Moreover, Idaho et al. (2025) evaluates the effectiveness of innovative teaching methods in enhancing student learning outcomes at SMAN 1 Sindangkasih Ciamis. Findings indicate that project-based learning and information technology integration enhance both academic performance and student engagement. Thematic analysis further highlights improvements in motivation and social skills. The three studies supported the previous one, indicating a strong relationship between the pedagogical competence and effectiveness on students' learning outcomes.

Adding support and value to the above studies, Elkamali et al. (2026) investigates how specific teaching skills impact student learning outcomes. The findings reveal distinct clusters of teacher skills, underscoring the importance of interpersonal engagement, organizational skills, and instructional clarity. Additionally, the study identifies active engagement as a unique skill category, suggesting that

students perceive it as distinct from other teaching skills. Moreover, Manasi (2026) examined the relationship between teacher pedagogical competence and students' achievement in Mathematics Kenya Certificate of Secondary Education. The study revealed that teacher competence in involving learners to design teaching and learning aid, use of participatory teaching and learning strategies, constructing tests and examination and creating portfolio for teaching had statistically significant positive correlation with students' achievement in mathematics. The study also revealed that teacher competence in giving assessment feedback was a strong predictor of students' achievement in mathematics.

The reviewed studies collectively demonstrate that teacher pedagogical attributes are critical determinants of students' learning outcomes across cognitive, affective, and behavioral domains. Evidence from the studies consistently indicates that effective teaching practices, including supportive teaching styles, instructional management, constructive feedback, classroom management, innovative instructional techniques, emotional engagement, and pedagogical competence, positively influence students' academic achievement, motivation, engagement, learning quality, and overall development. While the studies differ in their specific focus, educational contexts, and methodological approaches, they converge on the view that teachers' pedagogical skills significantly shape the learning process and students' success. Furthermore, the findings suggest that both traditional and contemporary pedagogical attributes, such as instructional clarity, learner-centered strategies, technology integration, and assessment feedback,

contribute to improved learning outcomes.

Despite their assertions, several gaps were discovered. First, most of studies investigated individual pedagogical attributes separately rather than examining the combined influence of multiple pedagogical attributes such as supportive teaching styles, instructional management, constructive feedback, classroom management, innovative instructional techniques, emotional engagement, and pedagogical competence on learning outcomes. Second, the previous studies focused on specific aspects of learning outcomes such as achievement, engagement, or motivation, which focused more on cognitive outcomes, giving limited emphasis on affective and psychomotor outcomes. Third,

most of studies employed quantitative approaches, creating a need for mixed-methods research that can provide deeper explanations of how pedagogical attributes influence learning. Finally, there is limited longitudinal evidence on the sustained effects of pedagogical attributes on learning outcomes.

Thematic Analysis of Reviewed Studies

To facilitate a clearer understanding of the patterns emerging from the reviewed literature, the studies were grouped according to the major dimensions of teacher pedagogical attributes they examined. The thematic synthesis presented in Table 1 highlights the dominant themes, key findings, and their implications for students' learning outcomes;

Table 1: Thematic Analysis

S/N	Theme	Studies`	Key Findings	Implication for Learning outcomes
1.	Teaching Style and Student Engagement	<i>Inayat & Ali (2020)</i>	Autonomy-supportive teaching positively influenced students' engagement, curiosity, and exploration.	Supportive teaching styles enhance students' motivation and active participation in learning.
2.	Instructional Practices and Academic Achievement	<i>Francisco & Celon (2020); Afzal & Rafiq (2022)</i>	Effective instructional practices and innovative instructional techniques significantly improved students' academic performance and classroom involvement.	Quality instructional delivery contributes directly to improved academic achievement and engagement.
3.	Teacher Feedback and Classroom Communication	<i>Goo & Zhou (2021); Islam et al. (2025)</i>	Teacher feedback and classroom discourse significantly affected learner motivation, participation, and engagement.	Constructive communication and feedback foster better learning experiences and student motivation.
4.	Classroom Management and Learning Motivation	<i>Thuong & Nguyen (2021)</i>	Authoritative classroom management style showed the strongest positive effect on motivation and academic	Effective classroom management creates conducive learning environments that

			achievement.	enhance student performance.
5.	Teaching Strategies and Emotional Engagement	<i>Zhang et al. (2024)</i>	Teaching strategies directly and indirectly influenced learning engagement through students' perception of teachers' emotional engagement.	Emotional support strengthens the effectiveness of instructional strategies and promotes engagement.
6.	Pedagogical Competence and Learning Quality	<i>Victor et al. (2025); Yunanti & Amaliya (2025); Yatini et al. (2026)</i>	Teachers' pedagogical competence, beliefs, attitudes, and professional skills significantly predicted learning quality and student outcomes.	Strong pedagogical competence is a key determinant of instructional effectiveness and learning success.
7.	Innovative Teaching Methods and Student Development	<i>Ifah et al. (2025)</i>	Project-based learning and technology integration improved academic performance, motivation, engagement, and social skills.	Innovative pedagogies support both academic and holistic student development.
8.	Teaching Skills and Academic Achievement	<i>Elkamali et al. (2026); Manasi (2026)</i>	Instructional clarity, organizational skills, active engagement, assessment practices, and feedback significantly predicted student achievement.	Effective teaching skills improve understanding, participation, and academic performance.

Overall Thematic Synthesis

The reviewed studies reveal eight major pedagogical themes: teaching style, instructional practices, teacher feedback and communication, classroom management, emotional engagement, pedagogical competence, innovative teaching methods, and teaching skills. Across these themes, the evidence consistently demonstrates that teacher pedagogical attributes positively influence students' academic achievement, engagement, motivation, learning quality, and overall development. Among the identified themes, pedagogical competence and instructional practices emerged as the most frequently investigated and consistently significant predictors of learning outcomes. However, the studies focused predominantly on cognitive outcomes and relied mainly on quantitative approaches, indicating the need for more qualitative, mixed-methods, and longitudinal research examining affective and psychomotor learning outcomes.

DISCUSSION OF THE FINDINGS

The findings of the reviewed studies collectively demonstrate that teacher pedagogical attributes significantly influence students' learning outcomes, thereby supporting the assumptions of Pedagogical Content Knowledge (PCK) Theory proposed by Shulman (1986). According to Shulman (1986), effective teaching requires more than mastery of subject matter; it involves the integration of content knowledge with pedagogical knowledge to enable teachers to present concepts in ways that are understandable and meaningful to learners. The studies reviewed provide empirical evidence that teachers who employ effective instructional strategies, classroom management techniques, feedback mechanisms, and learner-centered approaches are better positioned to facilitate student learning and achievement. For instance, the findings of Inayat and Zehra (2020), Francisco and Celon (2020), and Afzal and Rafiq (2022) indicate that supportive teaching styles and effective instructional practices enhance students' engagement and academic performance. These findings align with Shulman's (1986) assertion that teachers' ability to transform subject content into teachable forms is fundamental to effective learning. Furthermore, the studies by Goo and Zhou (2021) and Islam et al. (2025) highlight the importance of teacher feedback and classroom communication in fostering student motivation and participation. From the perspective of PCK Theory, effective communication represents an essential pedagogical skill through which teachers adapt content delivery to meet learners' needs and characteristics (Shulman, 1986). The positive relationship between teacher talk, feedback, and learner engagement suggests that pedagogical competence

extends beyond content transmission to include meaningful interactions that promote understanding and motivation.

The findings also support Bloom's Taxonomy of Educational Objectives, which posits that learning occurs across hierarchical cognitive levels ranging from knowledge and comprehension to application, analysis, synthesis, and evaluation (Bloom et al., 1956). The reviewed studies reveal that pedagogical attributes contribute not only to students' academic achievement but also to their engagement, curiosity, motivation, and critical thinking abilities. For example, the studies by Thuong and Nguyen (2021), Zhang et al. (2024), and Khadija et al. (2025) demonstrate that effective classroom management, emotional engagement, and innovative teaching methods encourage active participation and deeper learning. These outcomes reflect higher-order cognitive processes emphasized in Bloom's Taxonomy, particularly application, analysis, and evaluation, which are essential indicators of meaningful learning. Similarly, the studies by Victor et al. (2025), Yunanti and Amaliya (2025), Yatini et al. (2026), Elkamali et al. (2026), and Manasi (2026) emphasize the significance of teachers' pedagogical competence, professional skills, and assessment practices in improving learning outcomes. These findings support both theoretical perspectives. While Shulman's (1986) theory explains how pedagogical competence enables teachers to deliver content effectively, Bloom et al. (1956) provide a framework for understanding how such competence facilitates learners' progression through various cognitive levels. Effective assessment and feedback, as identified in the reviewed studies, enable teachers to evaluate students' attainment of

learning objectives and guide them toward higher-order thinking skills.

In conclusion, the reviewed studies provide strong empirical support for Pedagogical Content Knowledge Theory and Bloom's Taxonomy of Educational Objectives. The findings suggest that teachers' pedagogical attributes enhance students' learning outcomes by improving the quality of instruction, fostering engagement and motivation, and facilitating the achievement of cognitive, affective, and behavioral learning objectives. Consequently, efforts to strengthen teachers' pedagogical competence through professional development and training are likely to contribute significantly to improved educational outcomes across different learning contexts.

Summary of the Major Findings

The review revealed several important findings regarding teacher pedagogical attributes and students' learning outcomes, further giving the answers to the study's objectives. The findings of this study provided a range of pedagogical attributes that significantly contribute to effective teaching. These attributes are; teaching style, instructional practices, classroom management, teacher feedback, communication skills, pedagogical competence, assessment practices, emotional engagement, and innovative teaching methods. These attributes were consistently recognized as essential components of effective classroom instruction. This provides the answer of the first research objective that seeks to identify major teacher pedagogical attributes examined in empirical studies on learning outcomes.

Furthermore, the review discovered several gaps in the existing literature.

First, most of studies investigated individual pedagogical attributes separately rather than examining the combined influence of multiple pedagogical attributes such as supportive teaching styles, instructional management, constructive feedback, classroom management, innovative instructional techniques, emotional engagement, and pedagogical competence on learning outcomes. Second, the previous studies focused on specific aspects of learning outcomes such as achievement, engagement, or motivation, which focused more on cognitive outcomes, giving limited emphasis on affective and psychomotor outcomes. Third, most of studies employed quantitative approaches, creating a need for mixed-methods research that can provide deeper explanations of how pedagogical attributes influence learning. Finally, there is limited longitudinal evidence on the sustained effects of pedagogical attributes on learning outcomes. This also provided the answer to the third research objective that seeks to identify gaps in the existing literature on teacher pedagogical attributes and learning outcomes.

Finally, showed the implications of the reviewed studies for practice and further studies, which is the answer to the fourth objective that seek to determine the implications of the reviewed findings for educational practice, teacher development, educational policy, and future research. The implications will be presented in the next stage of this paper.

Implications for Practice and Further Studies

The summary of this review have important implications for educational practice and further research.

For practice;

- i. The study suggests that schools and educational institutions should prioritize the development of teachers' pedagogical competencies. This should be through continuous professional development programmes. Particular attention should be given to instructional strategies, classroom management, assessment practices, communication skills, and learner-centered approaches, as these attributes were repeatedly identified as contributors to improved student engagement, motivation, and academic achievement.
- ii. The findings imply that teacher education programmes should place greater emphasis on the integration of content knowledge and pedagogical knowledge, as advocated by Shulman's Pedagogical Content Knowledge Theory. Pre-service and in-service teacher training should therefore focus not only on subject mastery but also on equipping teachers with the skills required to transform content into meaningful learning experiences for diverse learners.
- iii. The review highlights the need for educational policymakers and school administrators to support teaching practices that foster higher-order learning outcomes. Consistent with Bloom's Taxonomy of Educational Objectives, teachers should be encouraged to employ instructional approaches that promote critical thinking, problem-solving, analysis, and evaluation rather than focusing solely on knowledge acquisition and memorization.
- iv. Furthermore, the findings suggest that effective teacher-student interactions, constructive feedback,

emotional engagement, and innovative teaching methods play vital roles in enhancing learning outcomes. Consequently, schools should create supportive environments that encourage the adoption of learner-centered and technology-enhanced pedagogical practices.

For further studies;

- i. There is a need to investigate the influence of collective teacher pedagogical attributes on collective learning outcomes, as most of the previous studies examined separately individual teacher pedagogical attributes and individual students' learning outcomes.
- ii. Since most of the reviewed studies concentrated on cognitive learning outcomes, future studies should examine how teacher pedagogical attributes influence affective outcomes, such as attitudes, values, and emotional development, as well as psychomotor outcomes involving practical and skill-based learning. Such investigations would provide a more comprehensive understanding of the role of pedagogy in promoting holistic student development.
- iii. Future studies should determine which attributes exert the greatest impact on students' academic achievement, engagement, and overall development, thereby providing clearer guidance for teacher training and professional development programmes.
- iv. The predominance of quantitative research in the reviewed literature suggests the need for more qualitative and

mixed-methods studies. Qualitative investigations could provide deeper insights into how and why specific pedagogical attributes influence learning outcomes, while mixed-methods approaches could combine statistical evidence with contextual explanations to enrich understanding of the phenomenon.

- v. Finally, the scarcity of longitudinal studies highlights the need for research that examines the long-term effects of teacher pedagogical attributes on students' learning outcomes. Longitudinal designs would enable researchers to determine whether the positive effects of effective pedagogical practices are sustained over time and how these effects evolve throughout students' educational experiences

CONCLUSION

This review examined empirical evidence on teacher pedagogical attributes as predictors of students' learning outcomes. The reviewed studies consistently demonstrated that various pedagogical attributes, including teaching style, instructional practices, classroom management, feedback, communication skills, pedagogical competence, and innovative teaching methods, significantly influence students' academic achievement, engagement, motivation, and learning quality. The evidence suggests that effective teaching is not solely dependent on subject-matter knowledge but also on teachers' ability to employ appropriate pedagogical strategies that facilitate meaningful learning experiences. The findings support Shulman's (1986) Pedagogical Content Knowledge Theory, which emphasizes the integration of content knowledge and

pedagogical knowledge in effective teaching, as well as Bloom et al.'s (1956) Taxonomy of Educational Objectives, which highlights the role of instruction in promoting learning across different cognitive levels. Collectively, the reviewed studies indicate that teacher pedagogical attributes are fundamental determinants of educational effectiveness and student success. Based on the evidence synthesized in this review, it is concluded that strengthening teachers' pedagogical competencies is essential for improving learning outcomes across educational contexts. Therefore, educational stakeholders should continue to invest in teacher professional development and the promotion of effective pedagogical practices. Future research should further explore the relative contribution of specific pedagogical attributes to different dimensions of learning outcomes across diverse educational settings and learner populations.

REFERENCES

- Afzal, A., & Rafiq, S. (2022). Impact of teachers' instructional techniques on student involvement in class: A case study. *UMT Education Review*, 5(2), 184–204. <https://doi.org/10.32350/uer.52.10>
- Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals*. Handbook1: Cognitive domain. David McKay.
- Bruno, F., & Lawyer, T. (2020). Innovative teaching practices: Embracing creativity in modern classrooms. *Journal of Education and Learning Sciences*, 15(4), 56–70.

- Chris, Q. (2023). The importance of Pedagogical Content Knowledge (PCK). www.chrisquigley.co.uk/blog/the-importance-of-teachers-pedagogical-content-knowledge-pck/
- Corazon, H. B. (2023). Personal And Professional Attributes Of Teachers In Relation To Students' Academic Performance In Mathematics, *Sci.Int.(Lahore)*, 35(4), 517-520.
- Elkamali, Z., Elkharaz, O., Khazzar, A., Elmarzouk, S., Yasser, L., & Chaali, K. (2026). Examining the effect of teaching strategies on student productivity in Moroccan higher education, *Discover Education*, 5(2), 3-21.
- Francisco, C. D. & Celon, L. C. (2020). Teachers' Instructional Practices and Its Effects on Students' Academic Performance. *International Journal of Scientific Research in Multidisciplinary studies*, 6(7), 64-71.
- Guo, W., and Zhou, W. (2021). Relationships Between Teacher Feedback and Student Motivation: A Comparison Between Male and Female Students. *Front. Psychol.* 12:679575. doi: 10.3389/fpsyg.2021.679575
- Ifah, K. N., Mulyani, L., Amana N., & Sukmanawati, N. (2025). Improving Learning Outcomes through Innovative Pedagogical Approaches in Modern Education. *Journal of English Language and Education*, 10(1), 423-433. <https://doi.org/10.31004/jele.v10i1.661>
- Inayat, A., & Ali, Z. (2020). Influence of Teaching Style on Students' Engagement, Curiosity and Exploration in the Classroom. *Journal of Education and Educational Development*, 7(1), 87-102. DOI: <http://dx.doi.org/10.22555/joed.v7i1.2736>
- Islam, M., Khalil, L., & Sagheer, I. (2025). Impact of Teacher Talk on Learner Engagement and Motivation. *Journal of Social Sciences Review*, 5(1), 566-577. <https://doi.org/10.62843/jsr.v5i1.521>
- Manas, E. (2026). Relationship Between Teacher Pedagogical Competence and Students' Achievement in Mathematics at Kenya Certificate of Secondary Education: Implications on Teacher Professional Development. *International Journal Of Research And Innovation In Social Science (Ijriiss)*, 10(2), 1835-1846.
- Michael, W. (2020). *Examining Multiple Dimensions of Teacher Quality: Attributes, Beliefs, Behaviours, and Students' Perceptions of Effectiveness*, (PH.D Thesis), The University of Melbourne
- Ramsden, P. (2003). *Learning to Teach in Higher Education*. London, UK: Kogan Page.
- Reynaldo, V. M. (2020). Teachers' Attributes and Their Students' Research Productivity, *Journal Of Creative Writing*, 4 (2), 1-34.
- Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4-14.
- Suskie, L. (2018). *Assessing student learning: A common sense guide*.

- (2nd ed). Jossey-Bass, A Wiley Imprint, U.S.A.
- Thuong, T. T., & Nguyen, H. T. (2021). The Effects of Classroom Management Styles on Students' Motivation and Academic Achievement in Learning English. *International Journal of Learning, Teaching and Educational Research*, 20(1), 223-239. <https://doi.org/10.26803/ijlter.20.1.12>
- Trinchero, R. (2022). Define learning outcomes in terms of processes and contents: The cognitive operation. *Open Journal per la Formazione in Rete*, 22(2), 4-18. <https://doi.org/10.36253/form-14175>
- Victor, S. O., Joseph, U. O., Neji, H., Stephen, U., Omaji, J. U., Samuel, A. N., Maduekwe, E., Blessing, N., Joy, A., Ebay, A., & Egu, A. (2025). Revisiting pedagogical frameworks for enhancing multidimensional learning outcome among students. A hierarchical multiple regression analysis. *Social Sciences & Humanities Open*, 13(4), 1-15. <https://doi.org/10.1016/j.ssaho.2025.102306>
- Yatini, Y., Supandi, S., & Nurkolis, N/ (2026). Teachers Pedagogical Competence as as a Strong Predictor of Learning Quality in Elementary Education. *Edunesia: Jurnal Ilmiah Pendidikan*, 7(2), 1232-1243.
- Yuan, L., Wang, J., & Zhao, T. (2023). Teacher organizational skills and classroom management: Key to a productive learning environment. *Education Management Quarterly*, 26(2), 105–120.
- Yunanti, & Amaliyah, A. (2025). The Effect of Teachers' Professional and Pedagogical Competencies on Mathematics Learning Outcomes of Students at Madrasah Ibtidaiyah. *Indonesian Journal of Innovative Teaching and Learning*, 2(2), 117-124. <https://doi.org/10.64420/ijitl.v2i2.289>
- Zhang H, Yang J and Liu Z (2024) Effect of teachers' teaching strategies on students' learning engagement: moderated mediation model. *Front. Psychol.* 15:1475048.doi: 10.3389/fpsyg.2024.1475048.