

EFFECTIVE CLASSROOM MANAGEMENT STRATEGIES FOR TEACHERS IN THE ERA OF ARTIFICIAL INTELLIGENCE

¹Umoetuk, Emmanuel Usoudo, ²Eden, Mabel Ini-Ibehe
& ³Udoh, Ekaette Effiong

^{1,2}Department of Science Education, Akwa Ibom State University, Ikot
Akpaden, Mkpato Enin, Nigeria

³Department of Curriculum and Teaching, Akwa Ibom State University of
Education, AfahaNsit, Nigeria

Corresponding author: mabeleden8@gmail.com

Abstract

The integration of artificial intelligence (AI) into education is reshaping classroom management, presenting both opportunities and challenges for teachers. This chapter explores effective strategies for managing AI-enhanced learning environments, drawing on classical and contemporary theories, including behaviourist, social–constructivist, and humanistic perspectives. It examines AI-driven tools such as adaptive learning systems, intelligent tutoring platforms, and learning analytics dashboards for lesson organization, behaviour monitoring, and personalized learning. Key teacher competencies are highlighted, including digital pedagogical skills, classroom leadership, student engagement and behaviour management in blended or virtual settings, and effective use of AI for time and resource management. Ethical, equity, and data privacy considerations are emphasized, alongside challenges such as infrastructural limitations, professional capacity gaps, and resistance to change. The chapter provides practical strategies for establishing digital norms, structuring lessons, promoting positive interactions, and using AI-supported assessment to enhance classroom management. It concludes by stressing the need to balance human agency with AI intelligence, ensuring that technology supports equitable, engaging, and effective learning.

Key words: Artificial Intelligence, Classroom Management, Digital Pedagogy, Blended Learning and Teacher Competence

Introduction

Classroom management has long been central to effective teaching and learning, encompassing strategies, practices, and teacher dispositions that create supportive, engaging, and orderly learning environments. Beyond discipline, it now includes facilitating learner engagement, managing instructional resources, nurturing socio-emotional relationships, and creating inclusive spaces for diverse learners. With the increasing integration of digital technologies, classroom management is evolving to emphasize flexibility, personalization, and data-informed decision-making (Holmes, Bialik, & Fadel, 2019).

Artificial intelligence (AI) is reshaping classroom dynamics by influencing how instruction is delivered, learners interact with content, and activities are monitored. AI-driven tools, including adaptive learning systems, learning analytics dashboards, intelligent tutoring systems, and behaviour-monitoring platforms, enable personalized learning, real-time feedback, and human–AI collaboration, while also requiring new teacher competencies for instructional planning, assessment, and classroom coordination (Ishaq et al., 2025; Watson Education, 2020).

In AI-enhanced classrooms, management extends beyond physical spaces to blended and virtual environments, where teachers must balance digital behaviours, online engagement, data privacy, and algorithm-mediated feedback alongside traditional routines. Learning analytics and educational data mining provide valuable insights into learner performance but raise ethical concerns regarding surveillance, data interpretation, and fairness (Baker & Inventado, 2019; Williamson & Piattoeva, 2022).

Effective AI-supported classroom management fosters active engagement, differentiated instruction, and positive behavioural outcomes, whereas poor integration can increase disruptions, workload, and anxiety among teachers and learners. Empirical studies in Nigeria show that teachers' competence, attitudes, and confidence in AI significantly influence classroom effectiveness (Eden et al., 2024a; Udo, Eden, & Umoetuk, 2025). This chapter examines the evolving principles and practices of classroom management in AI-supported learning environments, highlighting strategies, challenges, and ethical considerations. It provides a framework for educators and policymakers to leverage AI as a pedagogical aid while maintaining human agency, equity, and meaningful learning outcomes.

Overview of Classical and Contemporary Classroom Management Theories

Classroom management theories provide the conceptual foundation for understanding how learning environments are organized, regulated, and sustained

to support effective teaching and learning. Classical theories of classroom management are largely rooted in psychological traditions that emphasize control, order, and efficiency, while contemporary theories extend these ideas by incorporating learner-centred, relational, and contextual perspectives. In modern education, classroom management is no longer viewed merely as the maintenance of discipline but as a dynamic process that integrates pedagogy, learner engagement, and the strategic use of resources, including emerging technologies. As classrooms increasingly become technology-rich and AI-supported, these theoretical foundations remain essential for guiding practice and ensuring that innovation aligns with sound educational principles (Holmes, Bialik, & Fadel, 2019).

Behaviourist Perspectives on Classroom Management

Behaviourist theories represent one of the earliest and most influential foundations of classroom management. Rooted in the work of psychologists such as Skinner, behaviourism focuses on observable behaviour and the ways it can be shaped through reinforcement, punishment, and conditioning. From this perspective, effective classroom management depends on the establishment of clear rules, consistent routines, and systematic consequences that encourage desirable behaviours and discourage disruptions. Teachers are viewed as authority figures who design the learning environment to elicit appropriate responses from learners through external controls.

In contemporary classrooms, behaviourist principles remain evident in practices such as reward systems, behaviour charts, and performance-based feedback. Technology has further strengthened the application of behaviourist approaches through AI-driven monitoring and feedback tools that provide real-time data on student behaviour, participation, and task completion. Platforms designed to track engagement and reinforce positive conduct operationalize behaviourist assumptions by linking actions to immediate feedback and incentives (ClassDojo, 2022; Zhang, Chen, & Wang, 2021). However, while behaviourist strategies contribute to order and predictability, critics argue that overreliance on external control may limit learner autonomy and intrinsic motivation, particularly in complex, technology-mediated learning environments.

Social–Constructivist and Humanistic Approaches

In response to the limitations of behaviourism, social–constructivist and humanistic theories offer more holistic and learner-centred perspectives on classroom management. Social–constructivist theories, drawing from the work of Vygotsky and related scholars, emphasize learning as a social process shaped through interaction, collaboration, and shared meaning-making. Classroom management

within this framework prioritizes the creation of supportive learning communities where norms are co-constructed, learners participate actively, and responsibility for behaviour is shared among members of the class.

Humanistic approaches further extend this view by focusing on the emotional, psychological, and social needs of learners. These theories emphasize respect, empathy, self-regulation, and intrinsic motivation as central to effective classroom management. Teachers are seen not merely as controllers of behaviour but as facilitators who nurture positive relationships, support learner agency, and create environments where students feel valued and motivated to learn. In technology-enhanced settings, these approaches align with adaptive learning systems and personalized instructional tools that respond to individual learner needs, pacing, and interests (Squirrel AI, 2021; Alimisis, 2020).

Empirical studies suggest that teachers' competence, perceptions, and attitudes toward technology significantly influence the extent to which these learner-centred approaches are effectively implemented. Research from Nigeria, for example, indicates that teachers who demonstrate higher confidence and acceptance of AI technologies are more likely to adopt instructional practices that support collaboration, personalization, and positive classroom climates (Eden et al., 2024a; Eden et al., 2024c). This underscores the importance of grounding classroom management practices in theories that acknowledge both behavioural regulation and human development.

Relevance of Classroom Management Theories to Technology-Rich Classrooms

The increasing prevalence of technology-rich classrooms has amplified the relevance of classical and contemporary management theories. Digital and AI-supported learning environments introduce new challenges, including managing online behaviour, sustaining engagement in virtual or blended settings, and addressing issues related to data use and surveillance. Behaviourist theories remain useful for establishing structure and consistency in these contexts, particularly through the use of learning analytics and monitoring systems that help teachers identify patterns of disengagement or disruptive behaviour (Baker & Inventado, 2019).

At the same time, social-constructivist and humanistic theories provide critical guidance for ensuring that technology enhances rather than undermines meaningful learning. Collaborative digital platforms, discussion forums, and AI-supported group work environments require management strategies that promote respectful interaction, shared norms, and learner accountability. Moreover, concerns about

equity, access, and learner well-being in technology-rich classrooms highlight the need for management approaches that are inclusive, ethical, and sensitive to contextual realities (Williamson & Piattoeva, 2022). Thus, no single theory is sufficient; rather, effective classroom management in technology-rich settings depends on the strategic integration of multiple theoretical perspectives.

Integrating Pedagogical Theories with AI-Enhanced Instruction

Integrating classroom management theories with AI-enhanced instruction requires a deliberate alignment of pedagogical principles and technological affordances. AI systems increasingly function as co-teachers by supporting lesson planning, assessment, feedback, and classroom organization (Ishaq et al., 2025; Watson Education, 2020). Behaviourist principles are reflected in AI tools that automate feedback and reinforcement, while constructivist and humanistic principles are evident in adaptive systems that personalize learning and support learner autonomy.

However, effective integration depends largely on teacher capacity and professional judgment. Studies indicate that AI-based training and exposure significantly enhance teachers' competence and confidence in managing AI-supported classrooms, particularly in STEM education contexts (Udo, Eden, & Umoetuk, 2025; Eden et al., 2025). Teachers must therefore be equipped not only with technical skills but also with a strong theoretical understanding of classroom management to ensure that AI tools are used pedagogically, ethically, and contextually.

In sum, the theoretical foundations of classroom management remain highly relevant in the AI era. Behaviourist, social-constructivist, and humanistic theories each offer valuable insights into managing learning environments, and their integration provides a robust framework for navigating the complexities of AI-enhanced classrooms. By grounding technological innovation in established pedagogical theories, educators can foster orderly, inclusive, and engaging learning environments that support both academic achievement and holistic learner development.

Artificial Intelligence and the Changing Nature of the Classroom

Artificial intelligence (AI) is increasingly reshaping the structure, processes, and interactions that define contemporary classrooms. In education, AI refers to the use of intelligent systems capable of analyzing data, adapting to learner needs, and supporting instructional decision-making. These systems are now embedded in various aspects of teaching and learning, including lesson delivery, assessment, feedback, and classroom organization. The integration of AI has shifted classrooms from largely teacher-centred spaces to more flexible, data-informed, and learner-

responsive environments, thereby redefining traditional classroom roles and practices (Holmes, Bialik, & Fadel, 2019; Alimisis, 2020).

AI applications in teaching and learning are diverse and continue to expand. Learning analytics and educational data mining tools, for example, collect and analyze large volumes of learner data to provide insights into engagement patterns, performance trends, and learning difficulties. Such insights enable teachers to make informed instructional and managerial decisions, including timely interventions to support struggling learners (Baker & Inventado, 2019). AI is also used in automated assessment, personalized feedback, and predictive systems that identify students at risk of disengagement or poor academic outcomes. These applications enhance instructional efficiency but also increase the complexity of classroom management by introducing algorithm-mediated forms of monitoring and evaluation.

Among the most prominent AI-driven instructional tools are adaptive learning systems and intelligent tutoring systems. Adaptive learning platforms adjust content, pacing, and difficulty levels based on individual learner profiles, thereby supporting differentiated instruction and personalized learning pathways. Systems such as these are designed to promote learner autonomy by allowing students to progress at their own pace while receiving continuous feedback (Squirrel AI, 2021). Intelligent tutoring systems further support learners by simulating one-on-one tutoring, providing hints, explanations, and corrective feedback tailored to individual needs. While these tools can enhance engagement and learning outcomes, they also require teachers to manage multiple learning trajectories simultaneously, redefining classroom control and coordination (Zhang, Chen, & Wang, 2021).

The growing presence of AI in classrooms has significant implications for teacher authority, learner autonomy, and classroom control. As AI systems increasingly assume instructional and evaluative functions, teachers' roles are shifting from sole knowledge providers to facilitators, designers, and supervisors of learning experiences. AI has been described as a “co-teacher” that supports educators by automating routine tasks and offering data-driven insights, thereby allowing teachers to focus more on pedagogical and relational aspects of teaching (Ishaq et al., 2025; Watson Education, 2020). However, this shift can challenge traditional notions of teacher authority, particularly when learners perceive AI feedback as more objective or authoritative than human judgment.

At the same time, AI-enhanced instruction tends to increase learner autonomy by enabling self-paced learning, choice, and personalization. While this autonomy can foster motivation and engagement, it also demands higher levels of self-regulation

and digital responsibility from learners. In contexts where learners lack these skills, increased autonomy may lead to disengagement or misuse of technology. Studies have shown that teachers' attitudes, competence, and confidence in using AI significantly influence how effectively they manage these dynamics, particularly in developing educational contexts (Eden et al., 2024a; Eden et al., 2024c).

AI-mediated learning environments also present emerging classroom management challenges. These include managing digital distractions, ensuring equitable access to AI tools, addressing data privacy and ethical concerns, and maintaining positive classroom relationships in technology-intensive settings. The datafication of classrooms raises concerns about surveillance, bias, and the appropriate use of learner data, which can affect trust and classroom climate if not carefully managed (Williamson & Piattoeva, 2022). Additionally, disparities in infrastructure and technology availability can complicate classroom management, especially in under-resourced contexts (Eden et al., 2024b).

In sum, AI is transforming the nature of the classroom by reshaping instructional practices, roles, and management processes. While AI-driven tools offer significant opportunities for personalized learning and instructional efficiency, they also introduce new complexities for classroom management. Addressing these challenges requires thoughtful integration of AI with sound pedagogical principles, strong teacher oversight, and ethical awareness to ensure that AI supports, rather than disrupts, effective teaching and learning.

Core Classroom Management Competencies for Teachers in the AI Era

The integration of artificial intelligence (AI) into teaching and learning has significantly expanded the scope of classroom management, requiring teachers to develop new and complementary competencies. In the AI era, effective classroom management extends beyond maintaining order in physical classrooms to orchestrating learning across blended, virtual, and technology-rich environments. Teachers are now expected to combine pedagogical expertise with digital fluency, ethical awareness, and data-informed decision-making to create productive, inclusive, and engaging learning spaces. These competencies are essential for ensuring that AI-enhanced instruction supports learning goals while maintaining positive classroom climate and professional control (Holmes, Bialik, & Fadel, 2019).

1. Digital Pedagogical Competence

Digital pedagogical competence refers to teachers' ability to integrate digital and AI tools meaningfully into instruction and classroom management practices. This competence goes beyond basic technical skills to include understanding how AI

applications support learning, assessment, and behaviour management. Teachers must be able to select appropriate AI tools, align them with curricular objectives, and adapt instructional strategies to suit diverse learner needs. Studies indicate that teachers' acceptance of AI and their confidence in using digital tools significantly influence classroom effectiveness and learner engagement, particularly in science and STEM education contexts (Eden et al., 2024a; Eden et al., 2024c).

AI-driven tools such as adaptive learning platforms and learning analytics dashboards enable teachers to personalize instruction and monitor learner progress in real time. However, effective use of these tools requires pedagogical judgment to interpret data accurately and respond appropriately. Research shows that targeted AI-based training enhances teachers' competence in managing AI-supported classrooms and improves instructional outcomes (Udo, Eden & Umoetuk, 2025). Thus, digital pedagogical competence is foundational to classroom management in the AI era, as it determines how effectively technology is harnessed to support learning rather than disrupt it.

2. Classroom Leadership and Decision-Making in AI-Supported Settings

Classroom leadership remains a central management competency, even as AI systems increasingly support instructional and administrative functions. In AI-supported settings, teachers are required to exercise professional judgment in balancing human authority with algorithmic recommendations. AI tools can provide insights into student performance, engagement, and behaviour, but they do not replace the teacher's role as the ultimate decision-maker. Effective classroom leadership involves interpreting AI-generated data critically, setting clear expectations for technology use, and guiding learners in responsible and ethical engagement with digital tools (Ishaq et al., 2025; Watson Education, 2020).

Decision-making in AI-enhanced classrooms is increasingly data-informed, drawing on learning analytics and educational data mining to support timely interventions. While such data can enhance classroom control and instructional responsiveness, it also raises concerns about bias, surveillance, and over-automation. Teachers must therefore demonstrate ethical leadership by ensuring transparency, protecting learner privacy, and using AI tools in ways that promote trust and equity (Williamson & Piattoeva, 2022). Strong classroom leadership in the AI era is thus characterized by informed, reflective, and ethically grounded decision-making.

3. Managing Student Engagement and Behaviour in Blended and Virtual Classrooms

Managing student engagement and behaviour in blended and virtual classrooms presents unique challenges that differ from those in traditional face-to-face settings. In AI-mediated environments, students often engage with content independently through digital platforms, increasing the need for self-regulation and motivation. Teachers must therefore employ management strategies that sustain attention, encourage participation, and promote positive digital behaviours. Behaviourist strategies such as clear rules, consistent feedback, and reinforcement remain relevant and are often embedded in AI-supported behaviour tracking and engagement monitoring systems (ClassDojo, 2022; Zhang, Chen, & Wang, 2021).

At the same time, learner-centred approaches are essential for fostering intrinsic motivation and meaningful engagement. AI tools that personalize learning pathways can support engagement by aligning instruction with learners' interests and abilities, but they require careful management to prevent isolation or disengagement. Empirical evidence suggests that teachers' attitudes toward technology integration influence how effectively they manage student behaviour and engagement in technology-rich classrooms (Eden et al., 2024). Consequently, effective classroom management in blended and virtual settings depends on a balanced application of structure, support, and flexibility.

4. Time, Task, and Resource Management Using AI Tools

Time, task, and resource management are critical classroom management competencies that are increasingly supported by AI technologies. AI tools can automate routine tasks such as grading, attendance tracking, and content distribution, thereby reducing teacher workload and freeing time for instructional planning and student support. Learning management systems and AI-driven scheduling tools also assist teachers in organizing tasks, monitoring deadlines, and coordinating resources across multiple learning environments (Baker & Inventado, 2019).

However, the effective use of AI for time and resource management requires strategic planning and oversight. Teachers must ensure that automation aligns with instructional priorities and does not lead to over-dependence on technology. Research indicates that the availability and effective use of emerging technologies significantly influence instructional efficiency and classroom organization, particularly in higher education contexts (Eden et al., 2024b). By leveraging AI tools thoughtfully, teachers can enhance classroom efficiency, maintain instructional flow, and support sustained learner engagement.

In conclusion, classroom management competencies in the AI era encompass digital pedagogical competence, strong classroom leadership, effective engagement and behaviour management, and strategic use of AI for time and resource management. Together, these competencies enable teachers to navigate the complexities of AI-supported classrooms while maintaining professional authority, ethical responsibility, and a focus on meaningful learning outcomes.

Effective Classroom Management Strategies in AI-Enhanced Classrooms

The integration of artificial intelligence (AI) into classroom practice requires deliberate and context-sensitive management strategies to ensure that technology enhances learning rather than disrupts it. Effective classroom management in AI-enhanced classrooms involves establishing clear norms, organizing instruction strategically, promoting positive behaviour and engagement, and using assessment data ethically and productively. These strategies support order, inclusivity, and meaningful learning in increasingly complex, technology-mediated environments (Holmes, Bialik, & Fadel, 2019).

1. Establishing Clear Expectations and Digital Classroom Norms

Establishing clear expectations is fundamental to effective classroom management, particularly in AI-enhanced learning environments where learners interact with multiple digital tools. Teachers must clearly communicate expectations regarding appropriate AI use, digital etiquette, data privacy, and responsible technology behaviour. Co-creating classroom rules with students fosters shared ownership, accountability, and understanding of the ethical implications of AI use. This collaborative approach aligns with learner-centred management theories and supports positive classroom climate (ClassDojo, 2022).

Managing screen time and digital distractions is a critical challenge in AI-enhanced classrooms. While AI tools support personalization and engagement, excessive or unregulated screen use can lead to reduced attention and off-task behaviour. Teachers can address this by establishing structured routines for device use, integrating purposeful technology activities, and balancing digital and non-digital learning experiences. Learning analytics tools can help teachers identify patterns of disengagement and intervene early, thereby reinforcing productive learning habits (Baker & Inventado, 2019).

2. Instructional Organization and Lesson Structuring with AI Tools

AI tools offer significant opportunities for instructional organization and lesson structuring. AI-assisted lesson planning platforms can support teachers in sequencing content, aligning objectives with learning activities, and pacing

instruction based on learner progress. These tools enable teachers to manage instructional time more efficiently and maintain instructional flow, especially in blended and virtual classrooms (Watson Education, 2020).

Differentiation is another key benefit of AI-enhanced instruction. Adaptive learning systems adjust content difficulty, learning pathways, and feedback based on individual learner needs, allowing teachers to manage diverse abilities within a single classroom. By leveraging adaptive technologies, teachers can provide targeted support to struggling learners while offering enrichment opportunities to advanced students (Squirrel AI, 2021). However, effective management requires continuous teacher oversight to ensure that differentiation aligns with curriculum goals and does not fragment the learning experience (Alimisis, 2020).

3. Behaviour Management and Student Engagement

Proactive and preventive behaviour management strategies are particularly important in AI-enhanced classrooms. Rather than reacting to misconduct, teachers can use AI-supported monitoring tools to anticipate behavioural issues and address them early. Clear routines, positive reinforcement, and consistent feedback help establish a predictable and supportive learning environment. Digital behaviour management platforms exemplify how behaviourist principles can be applied through technology to reinforce positive conduct (ClassDojo, 2022; Zhang, Chen, & Wang, 2021).

AI tools also support real-time feedback and engagement monitoring, enabling teachers to track participation, completion rates, and interaction patterns. Such feedback enhances student motivation and helps teachers adjust instruction dynamically. However, maintaining positive student–teacher and peer interactions remains a human-centred responsibility. Teachers must intentionally design collaborative activities and discussion spaces that encourage respectful interaction, empathy, and social learning, ensuring that AI complements rather than replaces interpersonal relationships (Holmes et al., 2019).

4. Assessment, Feedback, and Classroom Monitoring

Assessment and feedback are central to classroom management, and AI has transformed these processes through automation and data analytics. AI-supported formative assessment tools provide immediate feedback that supports learning and reduces teacher workload, while AI-assisted summative assessments enhance efficiency and consistency. These tools enable teachers to monitor learning progress continuously and adjust classroom strategies accordingly (Baker & Inventado, 2019; Watson Education, 2020).

However, AI-enhanced assessment raises concerns about academic integrity, data privacy, and ethical use of student information. Teachers must establish clear guidelines for acceptable AI use in assessments and promote ethical academic practices. Learning analytics can further inform classroom management by identifying trends in engagement, achievement, and behaviour, supporting evidence-based decision-making. Nevertheless, educators must interpret such data critically and ethically to maintain trust and fairness within the classroom (Williamson & Piattoeva, 2022).

In summary, effective classroom management strategies in AI-enhanced classrooms require clear digital norms, strategic instructional organization, proactive behaviour management, and ethical use of assessment data. When grounded in sound pedagogical principles and supported by informed teacher leadership, these strategies enable AI to function as a powerful tool for enhancing order, engagement, and learning outcomes.

Ethical, Equity, and Data Privacy Considerations in AI-Driven Classroom Management

The use of artificial intelligence (AI) in classroom management introduces important ethical, equity, and data privacy considerations that must be addressed to ensure responsible and inclusive educational practice. While AI-driven tools offer opportunities for improving efficiency, personalization, and classroom control, their application also raises concerns about power, transparency, and the protection of learners' rights. Ethical classroom management in AI-supported environments therefore requires deliberate policies, informed teacher judgment, and learner-centred values that prioritize trust, fairness, and educational integrity (Holmes, Bialik, & Fadel, 2019).

Ethical use of AI in managing learners involves ensuring that AI tools support learning and well-being rather than exerting excessive control or surveillance. AI systems used for behaviour tracking, engagement monitoring, or performance prediction should function as decision-support tools rather than as substitutes for professional judgment. Teachers retain responsibility for interpreting AI-generated data, contextualizing learner behaviour, and making fair management decisions. Over-automation of classroom management risks reducing learners to data points and may undermine autonomy and motivation if not guided by ethical pedagogical principles (Ishaq et al., 2025; Watson Education, 2020).

Data privacy and surveillance are central concerns in AI-driven classroom management. AI systems often rely on continuous data collection, including

behavioural data, academic performance, and interaction logs. While such data can enhance classroom management, it also raises questions about student consent, data ownership, and appropriate data use. Excessive monitoring may create a culture of surveillance that affects learner trust and classroom climate. Scholars argue that educators and institutions must establish clear policies on data collection, storage, and access, ensuring transparency and informed consent, particularly for minors (Williamson & Piattoeva, 2022). Teachers also play a key role in communicating how data are used and in advocating for privacy-conscious practices.

Addressing bias, fairness, and inclusivity in AI tools is another critical ethical consideration. AI systems are shaped by the data and assumptions embedded in their design, which may inadvertently reflect cultural, socio-economic, or gender biases. In classroom management contexts, biased algorithms may disproportionately flag certain learners as disengaged or disruptive, reinforcing existing inequalities. Teachers must therefore approach AI-generated insights critically and remain attentive to contextual and individual factors that algorithms may overlook (Zhang, Chen, & Wang, 2021). Research suggests that teachers' competence and awareness of AI limitations influence their ability to mitigate such risks and promote fair classroom practices (Eden et al., 2024c).

Promoting equitable access to AI-supported learning is essential for ensuring that AI-driven classroom management does not widen existing educational inequalities. Disparities in infrastructure, device availability, and digital literacy can limit the effectiveness of AI tools, particularly in under-resourced contexts. Studies from Nigeria highlight that the availability and level of use of emerging technologies vary significantly across institutions, affecting both teaching quality and classroom management (Eden et al., 2024b). To address these challenges, educators and policymakers must prioritize inclusive access, capacity building, and context-sensitive implementation of AI technologies.

In conclusion, ethical, equity, and data privacy considerations are integral to AI-driven classroom management. Responsible use of AI requires balancing innovation with human oversight, protecting learner data and consent, addressing bias and inclusivity, and ensuring equitable access to AI-supported learning environments. By grounding AI use in ethical principles and social justice considerations, educators can harness its benefits while safeguarding the rights and well-being of all learners.

Challenges Teachers Face in Implementing AI-Supported Classroom Management

Despite the growing potential of artificial intelligence (AI) to enhance classroom

management, teachers face a range of challenges in implementing AI-supported practices effectively. These challenges are particularly pronounced in contexts where infrastructure, professional capacity, and institutional support are limited. Understanding these constraints is essential for developing realistic and context-sensitive strategies for integrating AI into classroom management (Holmes, Bialik, & Fadel, 2019).

One of the most significant barriers to AI-supported classroom management is technical and infrastructural constraints. Effective use of AI tools depends on reliable electricity, internet connectivity, access to digital devices, and functional learning management systems. In many schools, especially in developing contexts, these basic requirements are either inadequate or unevenly distributed. Research indicates that limited availability and inconsistent use of emerging technologies hinder teachers' ability to manage classrooms effectively using AI tools, leading to fragmented implementation and reduced impact (Eden et al., 2024b; Watson Education, 2020). Technical issues such as system failures, software incompatibility, and lack of technical support further complicate classroom management and increase teacher workload.

Teacher readiness and professional capacity gaps also pose major challenges. Many teachers lack sufficient training in AI literacy, digital pedagogy, and data-informed classroom management. Without adequate professional development, teachers may struggle to interpret AI-generated data, integrate AI tools into lesson routines, or address ethical concerns related to data use and learner monitoring. Empirical studies show that teachers' competence and confidence in leveraging AI significantly influence their classroom practices and management effectiveness (Eden et al., 2024c; Udo, Eden, & Umoetuk, 2025). Additionally, computer anxiety and low levels of AI approval among some teachers can limit their willingness to adopt AI-supported management strategies (Eden et al., 2024a).

Resistance to change among teachers and learners further constrains the implementation of AI-supported classroom management. Some teachers perceive AI as a threat to professional autonomy or fear that technology may replace their instructional roles. Similarly, learners may resist AI-based monitoring or behaviour tracking due to concerns about privacy, fairness, or increased surveillance. Such resistance can undermine classroom norms and reduce the effectiveness of AI tools. Studies suggest that positive attitudes toward technology integration are closely linked to successful adoption and classroom management outcomes (Eden et al., 2024).

Contextual challenges in developing and low-resource settings compound these

difficulties. Socio-economic disparities, limited funding, and weak policy frameworks often restrict large-scale implementation of AI in education. In such contexts, uneven access to devices and connectivity can exacerbate inequities among learners, complicating classroom management and engagement. Furthermore, institutional communication gaps and administrative inefficiencies may limit coordinated support for AI integration at the school level (Umoetuk et al., 2023). These contextual realities highlight the need for flexible, locally grounded approaches to AI-supported classroom management that prioritize capacity building, infrastructure development, and gradual adoption.

In summary, teachers face multiple, interconnected challenges in implementing AI-supported classroom management, ranging from technical and infrastructural constraints to professional capacity gaps, resistance to change, and contextual limitations. Addressing these challenges requires sustained investment in infrastructure, targeted professional development, supportive leadership, and policies that reflect the realities of diverse educational contexts.

Implications for Teacher Professional Development and Practice

The integration of artificial intelligence (AI) into classroom management has far-reaching implications for teacher professional development and everyday classroom practice. As AI-enhanced learning environments become more common, teachers are required to acquire new competencies that combine pedagogical expertise with digital, ethical, and managerial skills. Effective classroom management in this context depends largely on how well teachers are prepared, supported, and empowered to work with AI tools while maintaining instructional coherence and professional authority.

Capacity Building for AI-Responsive Classroom Management

Capacity building is fundamental to preparing teachers for AI-responsive classroom management. Teachers require structured training that develops digital pedagogical competence, data literacy, and confidence in using AI tools for managing instruction, assessment, and learner behaviour. Such training should emphasize the pedagogical application of AI rather than mere technical operation. Research shows that teachers who receive focused AI-related training demonstrate greater competence and reduced anxiety toward technology use, leading to more effective classroom management practices (Eden et al., 2024a; Udo, Eden, & Umoetuk, 2025). Without intentional capacity building, AI tools may be underutilized or misaligned with classroom management goals.

Role of Continuous Professional Development and Mentoring

Given the rapid evolution of AI technologies, continuous professional development (CPD) is essential for sustaining effective classroom management practices. One-time workshops are insufficient to address the dynamic nature of AI-supported teaching. Ongoing CPD enables teachers to update their skills, reflect on practice, and adapt management strategies to emerging classroom realities. Mentoring and professional learning communities further strengthen this process by encouraging peer collaboration, experience sharing, and collective problem-solving. Studies suggest that supportive mentoring improves teachers' confidence and willingness to integrate AI tools effectively into classroom routines (Eden et al., 2024c).

Institutional and Policy Support for Teachers

Institutional and policy support plays a critical role in translating professional development into effective classroom practice. Schools and educational authorities must provide enabling environments that include reliable infrastructure, access to AI tools, technical assistance, and clear guidelines for ethical AI use. Policy frameworks are also necessary to address issues of data privacy, equity, and accountability in AI-supported classroom management. Supportive leadership and coherent institutional policies empower teachers to innovate confidently while maintaining professional standards and learner trust (Williamson & Piattoeva, 2022).

Redefining the Teacher's Role in AI-Enhanced Classrooms

AI-enhanced classrooms require a redefinition of the teacher's professional role. Teachers increasingly function as facilitators, learning designers, and managers of complex, technology-mediated learning environments rather than sole transmitters of knowledge or enforcers of discipline. While AI systems can automate routine tasks and provide data-driven insights, teachers remain responsible for interpreting information, making contextual decisions, and fostering positive classroom relationships. This evolving role underscores the importance of human judgment, empathy, and ethical leadership in AI-supported classroom management (Ishaq et al., 2025; Watson Education, 2020).

In sum, the implications of AI-supported classroom management for teacher professional development and practice are profound. Building teacher capacity, sustaining continuous learning, strengthening institutional and policy support, and redefining professional roles are essential for ensuring that AI enhances, rather than complicates, effective classroom management and teaching practice.

Conclusion

This chapter has examined the evolving landscape of classroom management in the AI era, highlighting the integration of classical and contemporary management theories with emerging AI-driven tools. It has emphasized the competencies required of teachers, including digital pedagogical skills, leadership, and data-informed decision-making. Key issues addressed include ethical considerations, data privacy, equity, and the challenges posed by infrastructural constraints, professional capacity gaps, and resistance to change. Effective strategies—such as establishing clear digital norms, leveraging adaptive technologies for lesson organization, monitoring behaviour, and providing timely assessment—underscore the need to balance structure, engagement, and personalized support.

Looking ahead, classroom management will increasingly adopt a hybrid approach, in which AI complements rather than replaces human judgment. Teachers' roles will continue to shift toward facilitators, designers, and ethical decision-makers, guided by pedagogical principles that promote learner autonomy, fairness, and inclusion. The successful integration of AI depends on maintaining human agency while leveraging technology to support productive, equitable, and engaging learning environments.

Recommendations

1. **Invest in Teacher Professional Development:** Schools and policymakers should prioritize ongoing training programs that enhance teachers' digital literacy, AI competence, and ethical awareness to manage AI-enhanced classrooms effectively.
2. **Develop Clear Guidelines and Digital Norms:** Educators should co-create classroom policies on AI use, digital behaviour, and data privacy with students to foster accountability, ethical use, and positive engagement.
3. **Leverage AI for Personalized Instruction and Classroom Management:** Teachers should use adaptive learning systems, learning analytics, and AI-assisted assessment tools to monitor performance, provide timely feedback, and support differentiated instruction.
4. **Ensure Ethical and Equitable AI Integration:** Schools must implement policies that address bias, inclusivity, and equitable access to AI tools, ensuring that all learners benefit regardless of socio-economic or infrastructural disparities.
5. **Promote a Balanced Human–AI Partnership:** Teachers should maintain professional judgment and human oversight in AI-supported classrooms, using technology as a complementary tool rather than a controlling force.
6. **Strengthen Institutional and Policy Support:** Governments and school authorities should provide infrastructure, technical support, and regulatory frameworks that facilitate safe, ethical, and effective AI integration in education.

References

- Alimisis, D. (2020). Artificial Intelligence in Education: Emerging Trends and Applications. *International Journal of Educational Technology in Higher Education*, 17(1), 45–60.
- Baker, R. S., & Inventado, P. S. (2019). Educational Data Mining and Learning Analytics. *Springer Handbook of Learning Analytics*, 23–41.
- ClassDojo. (2022). Building Positive Classrooms with Technology. Retrieved from www.classdojo.com
- Eden, M. I., Mathew, V. E., Umoetuk, E. U. & Akpan, M. U. (2024a). Artificial intelligence approval and computer anxiety of science teachers in Akwa Ibom State, Nigeria. *Journal of Research Education, Humanities and Science*, 2(1), 55-63
- Eden, M. I., Nathan, N. A., Mbuk, E. W. (2025). AI-Based education intervention, STEM literacy and career interest among undergraduate science education students in Akwa Ibom State, Nigeria. *Journal of Educational Research*, 5 (2), 258- 264
- Eden, M. I., Udo, A. L & Mbuk, W. E. (2024b). Availability and level of usage of emerging technologies in science education in public and private Universities in Akwa Ibom State, Nigeria. *Journal of Research Education, Humanities and Science*, 2(1), 33-38
- Eden, M. I., Mbuk, W. E., Umoetuk, E. U. & Mathew, V. E. (2024). Teachers and students attitude towards integrating technologies toward global competitiveness in secondary school in Akwa Ibom State. *Journal of Research Education, Humanities and Science*, 2(1), 64-72
- Eden, M. I., Umoetuk, E. U. & Mbuk, W. E. (2024c). Perception and Competence of Secondary School Teachers in Leveraging Artificial Intelligence in Lesson delivery; A Panacea for sustainable global society, *International Journal of Innovation & Pedagogical Technology*, 4(1), 92-103
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Boston: Center for Curriculum Redesign.
- Ishaq, S. M., Bangulzai, A. R., Asif, M., & Ullah, I. (2025). Artificial Intelligence as a Co-Teacher: Enhancing Educator Efficiency through Intelligent Systems. *The Critical Review of Social Sciences Studies*, 3(3), 1324-1342.

- Langreo, L. (2023). 7 strategies to prepare educators to teach with AI. Available at <https://www.edweek.org/technology/7-strategies-to-prepare-educators-to-teach-with-ai/2023/06>. Retrieved on 30/1/2026
- Squirrel AI. (2021). Adaptive Learning for Personalized Education. Retrieved from www.squirrelai.com
- Udo, A. L., Eden, M. I., Umoetuk, E. U. (2025). AI-Based Training and STEM Educations' Competence in Teacher Education in Public Universities in Akwa Ibom, Nigeria. *Journal of Educational Research*, 5 (2), 258- 264
- Umoetuk, E. U., Boc-Ifeobu, A. J., Kulo, A. A. &Ekpor, E. I. (2023). Principals' Communication Gap involving School Facilities, School Records and Administrative. *Prestige Journal of Counselling Psychology*, 6 (2), 82-90
- Umoetuk, E. U., Boc-Ifeobu, J. A., Eden, M. I.&Mbuk, W. E. (2023). School Discipline, Reward System and Administrative Efficacy of Principals in Secondary Schools in Akwa Ibom State, Nigeria. *Asian Journal of Education and Social Studies*, 49 (3), 312-317.
- Watson Education. (2020). AI-Driven Classroom Solutions. IBM.
- Williamson, B., &Piattoeva, N. (2022). Education Governance and Datafication. *Learning, Media and Technology*, 47(1), 1–13.
- Zhang, Y., Chen, X., & Wang, H. (2021). AI-Based Classroom Management Systems: Benefits and Challenges. *Journal of Educational Technology Development and Exchange*, 14(2), 112–130.