



TECHNIUM
SOCIAL SCIENCES JOURNAL

www.techniumscience.com



Vol. 70/2025
A New Decade for Social Changes

PLUS
COMMUNICATION P



International
Communication & PR

Mastering the Art of Teaching Secondary Students: Insights, Strategies, Research and AI-Driven Innovations

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Abstract. Teaching secondary students requires a multifaceted set of skills that blend pedagogical theory, classroom management techniques, and a deep understanding of adolescent development. Drawing upon insights from veteran educators with several years of experience, this article examines the subtle and often underestimated nuances that contribute to effective teaching in a secondary setting. It highlights core practices that bolster classroom management, student engagement, and instructional differentiation. Moreover, the integration of artificial intelligence (AI) into teaching is explored, revealing how AI-driven tools can offer personalized solutions to classroom challenges. Anecdotes and practical examples illustrate how novice and early career teachers can bridge the gap between emerging instructional methods and the wisdom gleaned from years of hands-on experience. By embracing both tested, instinctive approaches and cutting-edge technologies, educators can foster dynamic and responsive learning environments that empower every student to achieve academic success.

Keywords. Secondary students, Effective teaching, Classroom management, Student engagement, Instructional differentiation, Artificial intelligence (AI)

Introduction

Secondary classrooms are bustling arenas of academic, social, and emotional development. Students at this stage experience a transitional period in which they face increasing academic rigor alongside shifts in their personal and social identities (Darling-Hammond, 2021). Teachers, therefore, must navigate a unique set of challenges: fostering subject mastery, maintaining classroom discipline, and addressing the diverse motivational and psychological needs of adolescents.

The purpose of this article is twofold. First, it outlines the subtle, yet transformative, techniques employed by veteran secondary educators, techniques that can be easily overlooked in theoretical discussions of pedagogy. Second, it demonstrates how novice teachers can leverage emerging technologies, particularly AI, to personalize instruction, manage student behavior, and stay organized, ultimately making the teaching-learning process more efficient and effective.

The significance of this inquiry lies in its potential to bridge theory and practice for new and early career teachers. While teacher preparation programs often emphasize evidence-based strategies, they may not fully capture the instinctual judgments and routine adaptations

that seasoned teachers make on a daily basis (Hattie, 2020). By examining the role of both experience and innovation, this article reveals a balanced approach that integrates core best practices with AI-driven interventions, an approach that can meet the evolving demands of contemporary classrooms. The sections that follow delve into the existing literature, profile lessons from veteran educators, explore AI's role, offer concrete strategies for new teachers, and conclude with a discussion of the implications and future directions in secondary education.

Review of relevant literature

Teaching is as much an art as it is a science. Researchers have long emphasized how years of experience cultivate an intuitive sense of student engagement, pacing, and instructional adaptation (Ingersoll & Collins, 2018). Berliner (2001) characterized expert teachers as those who can swiftly interpret classroom cues, ranging from student body language to subtle shifts in group dynamics, and adjust their approaches on the fly. While these instincts may seem elusive, they are often rooted in reflective practice, wherein teachers consciously analyze their successes and setbacks (Farrell, 2019).

The notion of “teacher instincts” extends beyond simple gut feelings to encapsulate data-informed, experience-driven judgments about how students learn best. When these instincts align with well-supported pedagogical frameworks, student achievement and engagement flourish. Examples include knowing when to pause for discussions, when to push for deeper inquiry, and when to introduce playful or collaborative elements. This intuitive dimension of teaching is sometimes underemphasized in teacher education programs, which focus on theoretical models that may require time and practice to implement effectively (Darling-Hammond, 2021).

New teachers often experience what researchers call “reality shock,” the sudden confrontation with the complexities of planning, delivering, and evaluating lessons in real time (Johnson & Kardos, 2005). Common pitfalls include underestimating the time needed for both instruction and administrative tasks, over-reliance on rigid lesson plans, and struggling with classroom management. Mentorship and peer collaboration can be powerful antidotes to these challenges, as they provide structured opportunities for novices to learn from more experienced colleagues (Cochran-Smith et al., 2020).

AI-based educational tools, from adaptive learning platforms to virtual tutors, offer new avenues for addressing classroom diversity and providing instant feedback. Zawacki-Richter et al. (2019) found that while AI tools can enhance personalized learning, ethical and logistical questions persist, such as ensuring data privacy and preventing an over-reliance on automation. Nonetheless, these tools hold promise for real-time assessment, behavior tracking, and generating individualized lesson suggestions, potentially accelerating the learning curve for both students and novice teachers.

Learning from a veteran educator

Mr. John Mercer, a synthesized representation of educators with over 10 years of experience in secondary English and Social Studies, embodies the blend of structure and flexibility essential for reaching diverse learners. Teaching in both suburban and urban schools, Mr. Mercer has refined a philosophy centered on relationships, high expectations, and reflective practice. He emphasizes that classroom effectiveness hinges on trust and that students need to believe that their teacher genuinely cares about their success. Over time, he has adapted his methods to shifting student interests and technological innovations without losing sight of fundamental human connections.

Classroom management and environment

From the outset, Mr. Mercer co-creates classroom norms with his students, inviting them to suggest guidelines that align with mutual respect and collective goals (Marzano, 2017). This collaborative approach instills a sense of ownership and accountability. To maintain consistency, he uses visible charts outlining daily routines and keeps a predictable sequence of activities. As a result, students feel secure, knowing exactly what to expect when they enter the classroom each day.

Building rapport requires personal connections. Drawing on the work of Darling-Hammond (2021), Mr. Mercer invests time in learning about each student's interests. He might strike up a conversation about a weekend soccer game or ask for show recommendations. In one anecdote, he managed a high-energy class by channeling their boisterous enthusiasm into short, structured group tasks, infusing humor to release tension while maintaining focus. The students responded positively because they felt seen as individuals, not just learners to be managed.

Instructional mastery and differentiation

Effective teaching requires recognizing and responding to students' varied abilities. Mr. Mercer's English class, for instance, includes both advanced readers and English language learners. He provides layered texts with AI, short summaries for those still acquiring language proficiency and advanced articles or literary critiques for those seeking a deeper challenge. This approach reflects the literature on differentiated instruction, which advocates tailoring content to students' readiness levels, interests, and learning profiles (Wiliam, 2018).

Formative assessments allow Mr. Mercer to adjust instructional strategies in real time. He might pause a lesson to pose an open-ended question and invite responses on index cards. Observing the patterns of answers helps him identify misconceptions or gaps in understanding. This feedback loop ensures that students remain active participants, and it aids in preventing minor learning obstacles from escalating into significant challenges (Wiliam, 2018).

Building a culture of curiosity and resilience

Mr. Mercer often employs inquiry-based projects, where students explore essential questions such as "How does power shape societies?" This fosters deeper thinking, especially when students collaborate, debate, and support their arguments with evidence, thereby aligning with views of cooperative learning as a powerful tool for academic and social development.

Securing motivation involves setting challenging yet achievable goals. Students in Mr. Mercer's class frequently create short presentations, perform dramatic readings, or design digital content, ensuring that varied learning preferences are honored. By celebrating small milestones, students are more willing to tackle bigger challenges, thereby developing resilience and self-efficacy.

The role of ai and technology in personalized teaching

The advent of AI-based educational platforms offers significant support to teachers, particularly those new to the profession. Tools like automated tutoring systems and chatbots can suggest differentiated activities, allowing teachers to spend more time on relationship-building and individualized student attention. For instance, a reading comprehension tool might analyze student responses to identify recurring mistakes and generate tailored reading passages, thus freeing teachers from repetitive grading tasks while offering targeted feedback.

AI-driven insights for specific classroom issues

AI systems can help track behavioral patterns, highlighting trends that might escape a busy teacher's notice (Zawacki-Richter et al., 2019). A brief anecdote from a novice teacher who used an AI analytics tool revealed that a particular student's off-task behavior surged after group transitions. With that data, the teacher redesigned transitions into short, well-structured routines. The result was a noticeable decrease in behavioral incidents, suggesting that data-informed strategies can complement a teacher's instincts.

Personalized AI tools can quickly gather student performance data, alerting teachers to areas that require more direct instruction. For instance, if a cluster of students repeatedly struggles with a grammatical concept, the AI system can recommend targeted practice activities. Meanwhile, those who have mastered the skill could be directed to more advanced tasks, thus streamlining the teacher's differentiation process. Although these tools cannot replace a teacher's intuitive judgments, they offer valuable scaffolding that augments real-time decision-making.

Despite the benefits, integrating AI raises ethical questions about data privacy and potential over-reliance on technology (Cobb & Krownapple, 2019). Teachers must remain vigilant about how data is stored and used to maintain student trust. Moreover, technology should serve as a supplementary tool rather than the primary mode of instruction. Education thrives on human connection, empathy, and moral guidance, dimensions technology cannot replicate.

Novice teachers could begin with small-scale AI integrations, but according to OpenAI (2024), artificial intelligence is already embedded in many of the tools they use daily, whether through writing assistance and grammar-checking features, formative assessment apps with instant analytics, or the AI-powered capabilities built into Google, Apple, and Microsoft products. As this paper illustrates, teachers inevitably engage with AI as they work, often without even realizing it. Consulting with more tech-savvy colleagues or seeking guidance from district IT departments can ease implementation. Success hinges on matching the right tool to the learning objective, an approach that underscores thoughtful, purposeful technology adoption.

Strategies for novice and early career teachers

Many schools offer mentorship programs that pair new teachers with experienced veterans, facilitating classroom observations and feedback sessions (Johnson & Kardos, 2005). Professional Learning Communities (PLCs) also encourage collaboration, allowing teachers to exchange lesson plans, analyze student work, and reflect on instructional practices. These structured networks fast-track professional growth by grounding new teachers in a support system.

A teaching journal can be an invaluable tool for novices (Farrell, 2019). By recording daily reflections, they can track reoccurring challenges such as off-task behavior or mismatched lesson pacing, and brainstorm targeted solutions. Attending workshops, webinars, and conferences is also crucial, keeping teachers abreast of the latest research on pedagogy, student engagement, and technology (Hattie, 2020).

Burnout is a legitimate concern for teachers at any career stage, but novices often feel the pressure most acutely. Effective time management involves planning lessons well in advance, using digital tools to store and organize resources, and setting realistic grading schedules (Ingersoll & Collins, 2018). Equally important is self-care: balancing weekend or

evening work with personal time. A well-rested, emotionally regulated teacher is more likely to connect with students, remain patient, and make sound instructional decisions.

Rather than overhauling entire curricula, novices should integrate technology incrementally. This might involve introducing a single AI-based quiz platform or using digital note-taking tools to monitor student progress. In the event of technical disruptions, a backup plan or paper worksheets or offline group activities which ensure continuity of learning. Over time, comfort with these tools will grow, allowing for more ambitious initiatives.

Discussion

The insights from experienced teachers underscore the role of subtle yet impactful classroom practices, such as establishing a warm, respectful culture and differentiating instruction to meet diverse student needs. These intuitions are shaped by years of reflective practice and refined by consistent exposure to the varied realities of student learning (Berliner, 2001). AI, as a complement to these instincts, can amplify a teacher's effectiveness by offering data-driven perspectives on student performance and classroom dynamics.

However, technology must be viewed as a tool rather than a panacea. The human elements of teaching, empathy, creativity, and mentorship, cannot be outsourced. Future research is needed to evaluate the long-term impact of AI-driven instruction on student outcomes, particularly in areas like critical thinking, collaboration, and emotional well-being (Zawacki-Richter et al., 2019). In policy terms, teacher training programs might consider weaving AI literacy and ethical data use into their curricula to better prepare new educators.

Conclusion and recommendations

In conclusion, effective secondary teaching is a dynamic interplay of relationship-building, well-structured classroom management, and adaptive instruction. The wisdom gained from years of hands-on experience can serve as a critical guide for novice teachers, helping them avoid common pitfalls and nurturing their growth into reflective practitioners. Simultaneously, AI offers transformative potential by streamlining differentiated instruction and providing timely, personalized insights.

Key Takeaways for Practice

1. Build Authentic Relationships: Students are more receptive when they feel respected and genuinely known by their teacher.
2. Use Reflective and Differentiated Approaches: Incorporate formative assessments and adapt to student needs in real time.
3. Adopt AI Thoughtfully: Leverage AI to enhance, not replace, teacher judgment, while remaining mindful of ethical considerations.

Continued professional development is essential for balancing evolving technologies with foundational teaching principles. Collaboration between educators, policymakers, and tech developers can refine AI tools to align more closely with pedagogical best practices and ethical standards (Cobb & Krownapple, 2019). Ultimately, the power of teaching lies in its capacity to shape not just academic outcomes, but also the holistic development of each learner.

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