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## **ENHANCING ENGLISH WRITING SKILLS THROUGH ARTIFICIAL INTELLIGENCE TECHNOLOGIES AND SELF-REGULATED STRATEGIES IN DIFFERENTIATED INSTRUCTION FOR MULTILEVEL CLASSROOMS**

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### **Annotation:**

This article explores the integration of Artificial Intelligence (AI) technologies and self-regulated learning (SRL) strategies to support differentiated writing instruction in multilevel classrooms. Grounded in Tomlinson's (2001) differentiation model, the paper examines how AI tools can address differences in cognitive styles, learning preferences, and readiness levels, while fostering student autonomy. Research highlights the effectiveness of adaptive AI platforms in providing personalized feedback, scaffolding writing tasks, and promoting metacognitive skills. By synthesizing findings from Anderson (2007), Santangelo & Tomlinson (2009), and Chachoui & Elmediouni (2019), this study underscores the necessity of differentiated writing instruction and the role of AI in enhancing SRL. The discussion concludes with practical recommendations for educators in Uzbekistan's multilingual classrooms.

**Keywords:** Differentiated Instruction, Artificial Intelligence technologies, Self-Regulated Learning, English Writing Instruction, Multilevel Classrooms, Personalised Feedback, Scaffolding

### **Introduction**

Differentiated instruction (DI) is a pedagogical approach that tailors teaching to students' readiness levels, interests, and learning profiles (Tomlinson, 2001), making it particularly essential for multilevel English classrooms where students demonstrate varying proficiency levels in writing. While DI is crucial for effective



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writing instruction, manual differentiation presents significant challenges for teachers, including time constraints and the difficulty of addressing diverse needs simultaneously (Anderson, 2007). Emerging AI technologies provide innovative solutions by automating personalized feedback, adapting writing tasks, and supporting self-regulated learning (SRL)—key elements in developing strong writing skills. This paper explores three main aspects: (1) the application of **Tomlinson's DI model to writing instruction**, (2) the role of AI in facilitating differentiation, and (3) the intersection of AI and SRL in writing development. By examining these areas, the study highlights how technology can enhance differentiated writing instruction while promoting student autonomy and metacognitive skills.

Tomlinson (2001) defines differentiation as the intentional adaptation of content, process, and product to meet students' diverse learning needs. In writing instruction, this model translates into three key applications. First, content differentiation involves varying text complexity, such as providing simplified prompts for novice writers and advanced analytical tasks for proficient learners. Second, process differentiation employs tailored scaffolding strategies, ranging from sentence starters and graphic organizers for beginners to peer-review frameworks and self-editing checklists for more advanced students. Third, product differentiation allows learners to demonstrate competence through varied formats, including traditional essays, digital storytelling, or audio-recorded reflections. Anderson (2007) underscores the value of this approach, noting that it prevents learner frustration by ensuring "all students engage with meaningful, appropriately challenging tasks" (p. 50).

The integration of AI-powered tools like Grammarly, QuillBot, and ChatGPT has revolutionized the implementation of differentiated writing instruction. These technologies enhance Tomlinson's model through three primary mechanisms. First, they provide adaptive feedback by detecting language errors and suggesting level-appropriate corrections, effectively serving as 24/7 writing tutors (Chachoui & Elmediouni, 2019). Second, AI enables personalized prompt generation, automatically creating writing tasks calibrated to individual readiness levels—for instance, producing basic narrative prompts for A2-level learners while generating



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thesis-driven argument topics for B2+ students. Third, AI supports multimodal learning through features like text-to-speech for auditory learners, real-time translations for multilingual students, and visual writing aids for those who benefit from graphic representations. Together, these AI capabilities not only operationalize differentiation principles but also scale personalized learning in ways that would be logistically impossible for teachers to achieve manually in multilevel classrooms.

Artificial Intelligence (AI) significantly enhances **Self-Regulated Learning (SRL)** in writing by supporting key SRL components—goal-setting, self-monitoring, and reflection (Zimmerman, 2002). Through automated progress tracking, AI dashboards visually display students' writing improvements over time, fostering motivation and accountability. Examples of these dashboards are *ProWritingAid*, *NoRedInk*, *Essay Grader.ai*. Additionally, AI tools embed metacognitive prompts, such as reflective questions (e.g., "*Did you check your thesis statement?*"), to guide students in evaluating their own work. Furthermore, AI provides differentiated **scaffolding** by dynamically adjusting feedback and hints based on individual learner needs—offering more structured support for struggling writers while gradually reducing prompts for advanced students. These AI-driven features not only cultivate independent learning habits but also align with the principles of differentiated writing instruction, which is essential for two key reasons. First, differentiation ensures equity by tailoring challenges to each student's proficiency level, guaranteeing that all learners—regardless of skill—engage with meaningful tasks (Tomlinson, 2001). Second, when combined with AI, it improves efficiency by reducing teachers' grading burdens while simultaneously enhancing personalized instruction (Anderson, 2007). Together, AI and differentiation create a scalable framework that supports both student autonomy and inclusive, high-quality writing education.

## Conclusion

For Uzbekistan's multilingual classrooms, where resource constraints and varying proficiency levels pose significant challenges, AI-driven differentiation offers a scalable solution to improve writing instruction. It ensures equity by meeting students at their readiness levels (Tomlinson, 2001) and boosts efficiency by



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reducing teacher workload (Anderson, 2007). However, successful adoption requires addressing infrastructure gaps, providing teacher training, and selecting culturally responsive AI tools.

Future research should explore the long-term impacts of AI-aided DI on writing motivation and skill retention, particularly in underrepresented educational contexts. By embracing these innovations, educators can create inclusive, dynamic learning environments that empower all students to thrive as confident, self-regulated writers.

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