World Conference on Research in Education

24 - 26 April 2026 Madrid , Spain

Designing a Multiple Intelligences-Inspired Mathematics Learning Environment in Primary Education: A Design-Based Approach

Tímea Preisendörfer

Pécsi Apáczai Csere János Primary and Secondary Grammar School, Dormitory and Basic Art School, 1st Primary School, Pécs, Hungary

Abstract

This study builds on previous research examining the application of multiple intelligences (MI) theory in Hungarian primary EFL classrooms. The earlier study explored teachers' awareness and use of MI theory and its relationship to student learning outcomes. Data were collected through questionnaires from 72 elementary school teachers, a secondary analysis of a related master's thesis, and three in-depth interviews. The findings revealed that, although not all teachers were explicitly familiar with Gardner's framework, many applied its principles intuitively. Moreover, students taught by teachers consciously incorporating MI-based approaches demonstrated higher levels of engagement and more effective language acquisition. Building on these findings, the present study extends the application of MI as a pedagogical framework to primary mathematics education. The research focuses on the design of a multimodal learning environment that enables students to approach mathematical concepts through diverse modes of engagement, including visual, kinesthetic, and collaborative activities. A pilot lesson has already been implemented to explore the feasibility of this approach.The study adopts a design-based research methodology, involving iterative cycles of design, implementation, and refinement in a primary classroom setting. The proposed model incorporates learning stations, varied task types, and structured opportunities for student choice. The aim is to examine how such a learning environment can enhance student engagement and support deeper mathematical understanding. By connecting prior empirical findings with a structured classroom model, the study contributes to the development of responsive and inclusive teaching practices in primary education.

Keywords: Student Engagement; Multimodal Learning; Learner Autonomy; Design-Based Research,

Differentiated Instruction