

# Personalization of Mathematics Teaching Based on Student's Mathematical-Communication-Forms

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## Abstract

We describe a personalized teaching environment that provides support and reinforcement in mathematics to high school students as an on-demand after-school program. It consists of personal tutor-student interaction assisted by an artificial intelligence-based computer system that builds an adaptable personal-learning path for each learner. We propose the definition of five mathematical-communication forms (MCFs) as an alternative to learning styles for personalized teaching, and we examine the learning paths of students who possess different MCFs. The findings indicate that matching personal learning paths to students' mathematical-communication forms enable students to achieve their target scores successfully.

**Keywords:** Personalization teaching and learning, mathematical communication forms, artificial intelligence