



Mathematics & Mathematics Education Seminar



3 MARCH 2026 (TUESDAY)
2.30 to 3.30 pm



MATH JOURNAL ROOM
NIE7-03-16

Latent Profile Analysis of AI Literacy and Trust in Mathematics Teachers and Their Relations with AI Dependency and 21st-Century Skills

Artificial Intelligence (AI) technology, particularly generative AI, has positively impacted education by enhancing mathematics instruction with personalized learning experiences and improved data analysis. Nonetheless, variations in AI literacy, trust in AI, and dependency on these technologies among mathematics teachers can significantly influence their development of 21st-century skills such as self-confidence, problem-solving, critical thinking, creative thinking, and collaboration. This study aims to identify distinct profiles of AI literacy, trust, and dependency among mathematics teachers and examines how these profiles correlate with variations in the aforementioned skills. Using a cross-sectional research design, the study collected data from 489 mathematics teachers in China. A robust three-step latent profile analysis method was utilized to analyze the data. The research revealed five distinct profiles of AI literacy and trust among the teachers: (1) Basic AI Engagement; (2) Developing AI Literacy, Skeptical of AI; (3) Balanced AI Competence; (4) Advanced AI Integration; and (5) AI Expertise and Confidence. The study found that an increase in AI literacy and trust directly correlates with an increase in AI dependency and a decrease in skills such as self-confidence, problem-solving, critical thinking, creative thinking, and collaboration. The findings underscore the need for careful integration of AI technologies in educational settings. Excessive reliance on AI can lead to detrimental dependencies, which may hinder the development of essential 21st-century skills. The study contributes to the existing literature by providing empirical evidence on the impact of AI literacy and trust on the professional development of mathematics teachers. It also offers practical implications for educational policymakers and institutions to consider balanced approaches to AI integration, ensuring that AI enhances rather than replaces the critical thinking and problem-solving capacities of educators.



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Speaker's Biography

Dr Tommy Tanu Wijaya is a PhD researcher in Mathematics Curriculum and Pedagogy at Beijing Normal University (School of Mathematical Sciences), with a background in mathematics education. His research focuses on AI in education, particularly teachers' AI literacy, trust in AI-supported tools, and how these relate to AI dependency and 21st-century skills in mathematics teaching and learning. Methodologically, his work uses quantitative approaches such as latent profile analysis and structural equation modeling to identify teacher profiles and examine relationships among psychological and behavioral factors. He has a Scopus h-index of 24, with 43 Scopus-indexed Q1 publications and 16 Scopus-indexed Q2 publications.