Goos, Merrilyn; Soury-Lavergne, Sophie; Assude, Teresa; Brown, Jill; Kong, Chow Ming; Glover, Derek; Grueon, Brigitte; Laborde, Colette; Lavicza, Zsolt; Miller, Dave; Sinclair, Margaret

Teachers and teaching: Theoretical perspectives and issues concerning classroom implementation.


Summary: This chapter analyses and compares various theoretical frameworks that illuminate the teacher’s role in technology-integrated learning environments and the inter-relationship between factors influencing teachers’ use of digital technologies. The first section of the chapter considers three frameworks drawing on instrumental genesis, zone theory, and complexity theory, and examines their relevance by interpreting lesson excerpts from alternative theoretical perspectives. This section also outlines research on relationships between teachers’ beliefs, attitudes, mathematical and pedagogical knowledge, and institutional contexts and their use of digital technologies in school and university mathematics education. The second section considers classroom implementation issues by asking what we can learn from teachers who use, or have tried to use, digital technologies for mathematics teaching. Issues arising here concern criteria for effective use and the nature of what counts as “progress” in technology integration. The final section of the chapter identifies work that needs to be done to further develop, test, and apply useful theoretical frameworks and methodologies.

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