

## **THE LADDER AND SLIDE FRAMEWORK FOR VISUALIZING THE INTEGRATION OF TECHNOLOGY BY MATHEMATICS TEACHERS IN THEIR CLASSES**

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The diffusion of technology in the teaching and learning is more complex than other fields. In order to understand the complexity of the factors and processes impacting teachers' integration of technology, in mathematics education in particular, and for any teacher in general, we need to use many complementary lenses. For that end, using the networking theories (Prediger, Bikner-Ahsbals, Arzarello, 2008) I have used three theories: the technological pedagogical content knowledge (TPACK) (Koehler, Mishra, 2008; Niess et.al 2009), innovation diffusion theory (IDT) (Rogers, 1995, 2003, 2011), and the zone theory (Goos, 2005; Goos, 2013; Goos, Bennison, 2008; Goos, Dole, Makar, 2007; Goos et.al., 2010). TPACK describes the types of knowledge that teachers require in order to effectively integrate technology in their teaching practices. IDT describes the developmental *processes* that individuals go through as they adopt/reject a technological innovation. While the zone theory identifies the limiting and assisting factors teachers face when they decide to integrate technology in their teaching. The aim is to present those theories in one visual framework which has been named the *Ladder and Slide* framework. This framework is one of the results of a design-based research (Wang, & Hannafin, 2005) done over six years. In this lecture I will explained how and why this new framework is developed. In addition, a pilot phase will be presented done with four in-service secondary mathematics teachers using GeoGebra (Hohenwarter, 2002; Hohenwarter, Jones, 2007) in their teaching with the new framework to show the phases they went through followed by some conclusions and recommendations.

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