Teachers' Technology Integration Decision-Making in Co-Taught Classrooms: Two Cases

Debbie Grosser, M.Ed. & Diana Theisinger, M.Ed.
The College of William & Mary

We investigated how teachers make decisions about using technologies in two public middle school classrooms. For the purposes of this study, technology is defined as any digital tool used to enhance, supplement, or assist with student learning (Hew & Brush, 2007). Specifically, we focused on the context of collaboratively-taught classrooms, where two teachers—one general education teacher and one special education teacher—worked together to make decisions. Results of this study provided deeper understanding about (a) how technology-integration decisions were made in these co-taught settings, and (b) the elements that influenced these co-teachers' technology integration decision-making.

Research Paradigm: interpretivism/social constructivism (Rossman & Rallis, 2003)

Setting: two public middle school classrooms, both taught by co-teachers

Purpose: Many factors play into teachers' decisions to integrate technology into the classroom and their effectiveness in doing so. However, it is unclear which factors may influence co-teachers' technology integration decision-making and practices within their shared classrooms. Further research in these areas may assist educators in identifying the most effective approaches to technology decision-making and integration in the co-taught classroom.

Theoretical Framework: The "practicality ethic" (Doyle & Ponder, 1977, p. 7): When teachers consider whether and to what extent they will adopt a proposed innovation in the classroom, they first consider the ease of learning the new procedure (*instrumentality*), the extent to which the new procedure aligns with their existing practices and beliefs (*congruence*), and the payoff—in the form of student enthusiasm or professional recognition—for implementing the procedure (*cost*). In short, teachers make decisions about adopting change based on what is practical.

Method: Multiple case study to compare and contrast the experiences of teachers in two separate cases, one in which the co-teachers had made the decision to implement technological tools independently of principal or district influence and one in which the principal or district had mandated the use of certain technological tools.

Participants: Purposive criterion sampling; two public middle school classrooms, both taught by co-teachers who were integrating technology into instruction. Both co-teaching pairs met our desired qualifications in that they were veteran teachers (with greater than five years' teaching experience), in established partnerships, who reported working well together.

Data Generation and Collection: We conducted two semi-structured interviews with each of the four participants (two co-teachers per case), two classroom observations in each classroom, each followed by unstructured interviews with the co-teaching pair, and we collected data in the form of teachers' lesson plans and any school policy documents related to teachers' technology integration decisions (e.g., memos, professional development handouts, emails, etc.).

Data Analysis: Cross-case analysis (Bazeley, 2013; Yin, 2014). In looking at similarities and differences across the two cases, we focused on teachers' technology use and decision-making, as well as evidence of the practicality ethic (Doyle & Ponder, 1977) in teachers' decision-making. We relied on both categorical and holistic approaches (Creswell, 2013) in the process of data analysis.

Results: Contextual elements played a significant role in the decision-making process for the teachers in both of our cases. Doyle and Ponder (1977) referred to these contextual factors as "ecological variables" (p. 5) that influenced teachers' adoption of new practices in the classroom. Teachers must make decisions about how particular innovations will impact their unique classrooms. The results of our study supported the notion that an innovation must be practical in order for teachers to incorporate it into the unique context of their own classrooms. However, our results went beyond this notion to include not only the practicality of a particular innovation, but also the role of *relative advantage* in teachers' decisions to adopt an innovation as standard classroom practice.

> **Relative Advantage:** Rogers (2003) defined relative advantage as "the degree to which an innovation is perceived as better than the idea it supersedes" (p. 15). During our first round of interviews with our participants, relative advantage emerged repeatedly as a factor in teachers' technology integration decision-making. When we later asked our participants about the role of relative advantage in their decision-making, across both cases, teachers identified multiple instances of how technology made tasks easier, faster, more efficient, or otherwise better than the previously used methods—all examples of relative advantage. Relative advantage was a necessary precondition for these technologies to become standard classroom practice. In our two cases, it was the perception of relative advantage, first and foremost, that ensured technology became standard classroom practice.

Conclusion: Ultimately, we found that contextual, interpersonal, and teaching and learning elements often overlapped to influence teachers' determination of technology's relative advantage in the classroom, leading eventually to that technology becoming part of their standard classroom practice.

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