ABSTRACT

Technology spending for our K-12 schools continues to increase as schools transition from an emphasis on print resources towards an increasing amount of digital resources. Despite the permeation of technology in education, instructional use of technology by teachers remains sporadic. This dissertation reports on an exploratory, single case study which examined seven high school science teachers’ views on the factors affecting their instructional use of technology, and their process of learning as adults.

Using the holistic ecology of resources framework combined with sociocultural learning theory, this study situated teachers as learners at the center of their educational context in order to explore their perspectives about the laptops they received in place of new textbooks. Interviews and classroom observations were used to investigate the convergence of teachers’ personal and situational influences affecting their use of instructional technology tools. This study identifies facilitative and barrier factors affecting teacher learning and their use of technology in their classrooms.

Findings show professional learning teams (PLTs) were the primary facilitating factor enabling teacher collaboration and learning as they used the laptops to enhance implementation of their science curriculum. Findings also show barriers exist in relation to connectivity and compatibility issues and the digital divide. This research finds it requires the whole school community working as an integrated system, rather than in isolation, for teachers to successfully use technology tools to reach and engage students in their 21st century environment.