**Students with Disabilities Making: The Beginning of An Ongoing Multiple Case Study**

**Introduction & Motivation**

The maker movement is going strong and many students are engaging in digital design as they traverse the K-12 experience. Although many schools are introducing making into their curriculum, little research attention has been given to special education students and the maker movement (Buehler, et al., 2016). Much of the research available is focused on the product of digital design or the tools that can be used as assistive technology for students with disabilities (Buehler, et al., 2016; Toenders, de Putter-Smits, Sanders, & den Brook, 2017). This project takes a different approach by researching how students, with varying disabilities, engage in a PBL focused on maker-centered learning processes (Clapp, Ross, Ryan, & Tishman, 2016) and entrepreneurship in order to develop cognitive abilities, function socially, develop work skills, and develop functional life skills.

Throughout this qualitative project we ask the following research questions:

* How can PBL and making support learning for students with disabilities?
* How can implementing maker pedagogies support the development of teacher candidates?
* What effect does making and maker-centered learning have on students with disabilities?
* What effect does making and maker-centered learning have on teachers?
* What effect does making and maker-centered learning have on preservice teachers?

**What will be shown?**

This presentation will present a detailed description of the process and progress of the full project. We will present initial data from this multiple case study. Including research designs and preliminary results from our ongoing project. This project has various components that we are studying. First and foremost we are studying the high school students as a whole including perceptions and attitudes in relation to school and learning. We will also discuss development of students spatial visualization skills over time, and we will track their academic progress throughout the project. Additionally, we are studying the effects on the classroom teacher’s perception of teaching and learning during and after implementation of teaching using maker pedagogies through a long term PBL. We will also be studying our preservice teacher candidates as they engage with individual students in an action research project focused on supporting high school students with disabilities as they use digital design software in a PBL setting. Anecdotal data from the in-service teacher partners and university faculty will be included as well as Teacher candidate reflections.

We will also discuss the development of a partnership between university based preservice teaching program and a public school. A timeline of events and meetings will be presented and the discussion of how this partnership progressed to the point where undergraduate teacher candidates began engaging in action research with the special needs high school students.

**Major aspects of this project are bulleted below:**

* Infusing Maker pedagogy and 3D design into a special education setting
* Project Based Learning for students with disabilities focused on business practices and entrepreneurship
* Preparing teachers to develop innovative teaching practices with students with disabilities.
* Development of a partnership between a university based teacher preparation program and a high school special education department.

References:

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