

Below is my annotated bibliography of my research. My innovation plan is to incorporate Makerspaces in the Pre-Kindergarten classroom. Formal studies are limited on Makerspaces specifically in the Pre-K grade level. The research that I have found shows promising outcomes in the potential of makerspaces enhancing design thinking and knowledge creation. Makerspaces develop in a variety of settings such as museums, libraries, or mobile labs. They are not prevalent in classrooms. Therefore, there is a gap in research to reflect the challenges educators face in integrating classroom makerspaces with classroom curriculum. I am discovering that perhaps a project based makerspace may lend itself to surmount those challenges.

Grandl, M. (2020). Setup of a Temporary Makerspace for Children at University: Maker Days for Kids 2018. *Robotics in Education, Advances in Intelligent Systems and Computing*, 1023.

This paper details the setup of a temporary makerspace setting for children and teens. Researchers discuss the roles of technologies as a catalyst for making in education. Of note is the innovative evaluation process implemented to document participants' activities in an unstructured learning environment.

Marsh, J., Wood, E., Chesworth, L., Nisha, B., Nutbrown, B., & Olney, B. (2019a). Makerspaces in early childhood education: Principles of pedagogy and practice. *Mind, Culture, and Activity*, 26(3), 221–233.

<https://doi.org/10.1080/10749039.2019.1655651>

This study focuses on the value that Makerspaces can bring to Early Childhood Education (ECE) classrooms. Researchers conducted studies in four ECE settings. They identify skills and knowledge development as a result of Makerspaces.

Peppler, K., & Bender, S. (2013). Maker Movement Spreads Innovation One Project at a Time. *Phi Delta Kappan*, 95(3), 22–27.

<https://doi.org/10.1177/003172171309500306>

This paper discusses the maker movement as an innovative way to reimagine education. There are a number of benefits and potential in makerspaces. The authors discuss how the maker movement spreads innovation and organically invites cross-generational and cross-cultural participation.

Salisbury, K., & Nichols, T. P. (2020). School makerspaces: Beyond the hype. *Phi Delta*

*Kappan*, 101(8), 49–53.

<https://doi.org/10.1177/0031721720923792>

This paper reports on the potential for enhancing learning. It focuses on the need for educators to attend to the practicalities of integrating making into classrooms. In considering some of the challenges teachers face integrating making into classrooms, authors consider how educators can surmount those challenges.

University of Ontario Institute of Technology. (2019). *Makerspaces Promoting Students' Design*

*Thinking and Collective Knowledge Creation: Examples from Canada and Finland*. Springer

International Publishing.

This source addresses research gaps in understanding conditions conducive to makerspaces promoting design thinking and knowledge creation. Two case studies are discussed to analyze students' design actions during a five-day Maker Lab. Results show potential to build global competencies.