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Title

Imagination in play and imagination in STEM: Practices within activity settings where micro-aggressions and micro-validations emerge when girls dare to engineer

Abstract

Eminent scientists, like Albert Einstein and Barbara McClintock, worked with theoretical contradiction, thought experiments, mental models and visualisation—all characteristics of children's play. Supporting children's play is a strength of early childhood teachers. My research shows a link between imagination in STEM and imagination in play. A scientific PlayWorld, an Engineering PlayWorld, digital PlayWorld and a STEM PlayWorld were developed from the results of this research. In this presentation, the collective outcomes of a series of studies are reported in order to illustrate new thinking about the relations between play and learning.

Core to the theoretical foundations of this presentation are the cultural-historical concepts of imagination (Vygotsky, 2004), play (Vygotsky, 1966), and moral and future imagining (Bottcher & Dammeyer, 2016; Vadeboncoeur, 2019). How children become oriented towards STEM in collective play is one of the central problems facing those interested in the relations between play, learning and development. But not a lot is known about how early childhood teachers engage children in the future imaginings of STEM (Science, Technology, Engineering and Mathematics). Mostly what is known has come from the Government reports with statically dismal representation of girls. More needs to be known how play as the leading activity of children within the preschool period can open up new possibilities for STEM thinking generally, but particularly in ways that ensure girls experiences and rights are validated. In this presentation, it is argued that just at a time when societies are worried about the under representation of woman and girls in STEM, we are also seeing a push towards schoolification. Therefore, new models of play practice are needed to support imagination and creativity as core for girls' future imagining and validation of their STEM thinking.

References

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