

Social Gears – a Constructionist Approach to Social Studies

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Abstract

The Gears of Seymour Papert's childhood have been a persistent analogy for our work in the Constructionist community for decades. It is a productive analogy that has helped concretize many central themes in Constructionism: It frames our view of knowledge as understanding the inner workings of a system; it forefronts the existence of an *external representation* of some domain knowledge; and it emphasizes that learning happens through the manipulation of this external representation by alignment of an internal, mental model with an external, physical model. Gears are powerful, maybe *because* their cause-and-effect is simple: one cog moves another cog which moves another cog which moves another cog. Always at the same ratio, and at a rate pre-determined by whichever cog we apply torque to. Importantly to our work as an educational research community, it makes studying *thinking* about cogs relatively straight forward.

But what if the gears were *social*? What if they have inner lives, mood swings, wants and desires, and work under the constraints of social pressures and modern family life that they must negotiate, collectively and individually, in order to organize their turn ratios? Does it change how we should design Constructionist learning environments and activities? Does it change how we should study students' thinking? I will not claim that the deterministic nature of the Gears-analogy *caused* Constructionism to focus on deterministic subjects. But maybe the focus on STEM and programming have led us to not explore and interrogate potential shortcomings of the analogy?



Students reasoning with different representations of Urban Planning

I address these questions based on my experience with designing, implementing, and studying Constructionist learning in social studies classrooms at the high school level. I present “Complex *Social* Systems Thinking” (CSST) as a guiding framework for designing learning activities and for studying students' thinking. I then present a set of Constructionist learning activities that I have designed on Urban Planning, and present data to exemplify what CSST looks like “in the wild”. Finally, I discuss the relationship between Constructionism and CSST and present my hopes for the future of Constructionism in social sciences education.

Keywords

complex systems thinking; social studies; design; qualitative analysis