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Two Bit Circus and the Future of Entertainment

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Prologue

Abstract Educating a future STEM literate workforce requires a paradigm shift in how we approach teaching those disciplines. Collaboration with technological innovators can bring experiential learning opportunities to the classroom. Exposing students to these innovators and their work can enable those students to see their own pathways to STEM careers.

Prologue

I adjust the straps to my head, carefully, to keep them from snagging my hair. I already feel woefully out of place, but this young guy is nice. It'll be okay. I'm standing in the shop of Two Bit Circus where Hector Alvarez, the Creative Director, helps me try out the virtual reality headset. My eyes adjust to the scene. The impact of the immersive experience is just so much more "wow" than I anticipated. Let's be honest, this isn't my world, and my expectations hadn't been stretched enough to be ready for it. I'm a little scared, and my hand squirms around until I find Hector's shoulder. There's something reassuring about simple human connectedness. My fear subsides, and I am in another world and awed by the strange mix of both virtual and reality. The experience opens a window for me into the world of technology, the innovators that create it, and the pathways that led them there.

Introduction

I'm an educator. Our profession prepares children for the future, yet classrooms today look astonishingly similar to those of decades past. Meanwhile the rest of our life, from work to play, has galloped along in an incredible era of innovation. Transforming classrooms to meet the future requires more than the spark of a great idea. It's some mix of the right team, the right idea, and the right time.

Fig. 1 Popular Mechanic's 2014 Breakthrough awardees, Brent Bushnell and Eric Gradman of Two Bit Circus

Science, math, and engineering are disciplines children have struggled with mightily in this country for nearly a generation. Brent Bushnell, CEO of Two Bit Circus, summarizes his plan for overhauling how we teach children these essential subjects in three words: "lasers, fire, and robots." Two Bit Circus won Popular Mechanics Magazine's 2014 Breakthrough Award. Their achievement is making children want to learn (Howard 2014). Two Bit Circus offers an instructive model bridging the world of emerging technology with learning. Overhauling how we teach means rolling up our sleeves and diving into a system where words like "lasers, fire, and robots" can evoke fear among faint-of-heart school leaders. This is a story of how bravery, camaraderie, and sheer fun combine in a quest to help learners design their own better world.

It Began with a Rube Goldberg Machine

When they were part of a team constructing a 40,000 square foot Rube Goldberg machine, the last adjective Brent Bushnell and Eric Gradman would have used to describe their work was educational. A Rube Goldman machine is an elaborate piece of engineering that performs a very basic task. The one Bushnell and Gradman worked on was the centerpiece of a music video for the band OK Go. The commercial and critical success of that Rube Goldberg machine provided the initial spark that would ultimately lead to a dedicated program designed to reignite students' interest in technological careers and inspire the next generation of inventors (Two Bit Circus 2014).