
Learning with CyberPLAYce, a Cyber-Physical Learning Environment for Elementary Students Promoting Computational Expression

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collaborative learning.

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Abstract

CyberPLAYce is our novel, interactive-computational construction kit for elementary school children and their teachers. CyberPLAYce bridges the physical and digital worlds, allowing young students to bring their ideas, stories and class subjects to life through the construction of cyber-physical environments. The CyberPLAYce construction kit is comprised of hand-sized, magnetic modules integrating a variety of electronic components, and rectangular panels, nearly two-feet measured diagonally, that receive the modules and serve as physical building blocks for constructing cyber-physical environments imagined by children. Through play, children become comfortable with the working modules and panels; subsequently, they are provided matching non-electronic module cards allowing them to quickly compose pattern sequences to map ideas, stories and class content. Additionally, students are provided action and story cards to spark their imagination. CyberPLAYce merges play and learning in the physical world while transitioning students from consumers of virtual and digital-centric technologies into technological innovators and cyber-playful storytellers.

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