

A digital seed: designing a toy plant to facilitate cognitive growth.

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This study is designed to understand how to facilitate children's conceptual growth about plants using digital technology. Fifteen 4 and 5 year old children were interviewed to identify their understandings about plant growth and reproduction. Misunderstandings include representations of origins of plants and relations between seeds and plants. A digital toy plant was then used to challenge these representations. Difficulties in understanding focused on transitions in growth, aspects of the digital display design, and whether to begin with the plant or the seed.

Summary.

This study is about children's representations of the cyclic nature of plant growth. We are seeking to promote conceptual development through playful interaction with a digital plant. The study is a preliminary qualitative one combining results of clinical interviews with a design process to produce an interactive toy with physical and virtual components. We found standard misunderstandings about plant growth including: the origin and growth of seeds and plants were not clear, nor was the relation between seeds, plants, flowers and fruit. Children have difficulty with the concept alive and with the transformations of growth and they may talk about plants anthropomorphically. The digital seed was designed to help children play with their emerging understandings about plant growth. In particular they could manipulate conditions determining rate of growth including water, temperature and light (not enough, correct amount, or too much). Technical details are available elsewhere

(<http://>) Children's reactions to the digital seed provide important information for our project. They had difficulty with some display features including: size changes (by zooming) in the display, visual transformations in growth, the colours chosen to signal the plant was unhealthy, and they did not recognize the bird might eat the apple.