

1996

## Learning through construction of interactive multimedia

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# ***Learning Through Construction of Interactive Multimedia***

*A Thesis submitted in fulfilment of the  
requirements for the award of the degree:*

**Doctor of Philosophy**

*from*

**University of Wollongong**

*by*

**Mrs Christine Anne Brown**

*BVetSci (Hons), MVetSci, Dip Ed*

**Faculty of Education**

**September, 1996**



*Accompanied by the CD, "THE GARDEN®".*

### ***Declaration***

Except where stated in the text, and in the list of acknowledgments,  
this thesis represents the original work of the author, and the material has not been  
submitted for the degree to any other university.

**Mrs Christine Anne Brown**

## ***Summary***

This study examines the potential for the merger between computer mediated educational technology and the classroom, within the context of a constructivist philosophy. Parallel representations of the findings have been produced— a traditional text thesis, and a multimedia representation, *The Garden*, which accesses a CD also titled *THE GARDEN*, containing the full data set. Through a personal account of the teacher as researcher and designer in two class settings, with subjects at primary school and tertiary level, as students and student teachers, focused on the construction process or product development, the researcher demonstrates the benefits of learning through construction of interactive multimedia. This constructionist activity engages students for sustained periods of time, permits them to express their creativity and individuality, promotes higher order thinking and cognitive flexibility, and demands increased student reflection and communication of strategies.

A framework is presented to relate the activities of teaching and learning to interactive multimedia when the student occupies the role of software user, or software producer. For meaningful learning, students do not have to produce a 'product' aimed at a specific target audience. There are many benefits to be derived from allowing them to construct interactive multimedia using simple cognitive tools in a playful and grounded manner. This permits students to explore expression using multiple forms of representation and multiple representations. It also allows two different thinking styles— the bricoleur and the planner, to process learning materials in entirely different ways, even though the ultimate products may bear a striking resemblance.

Nine key study findings are presented, relating to constructivism/constructionism from the perspectives of teacher, researcher and designer, and the framework of interactive multimedia and teaching/learning. Implications are discussed for teachers, designers and researchers. Learners are challenged to develop a more self-regulated, lifelong approach to learning. The process focus on the construction of personal information systems permits the expert practice of sustained contact with an evolving body of knowledge. The product focus refines multimedia publishing skills. Standardised tests which maintain fixed curricula are seen as a major limit to the growth of social acceptance of the constructivist philosophy as a foundation for flexible education.

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