Case Study Using Maplets for Calculus with Continuity Concepts

A model for the research and development of educational applets for mathematics

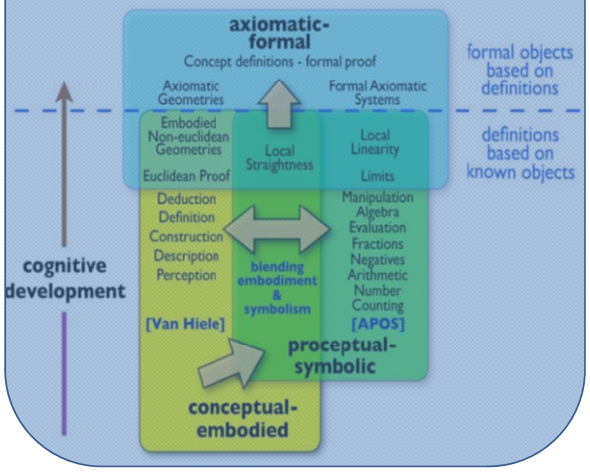
CONCEPTUAL FRAMEWORK

Investigate student use of Maplets as a tool based on Instrumentation theory research developed by Paul Drivjers and Luc Trouche.

GOALS

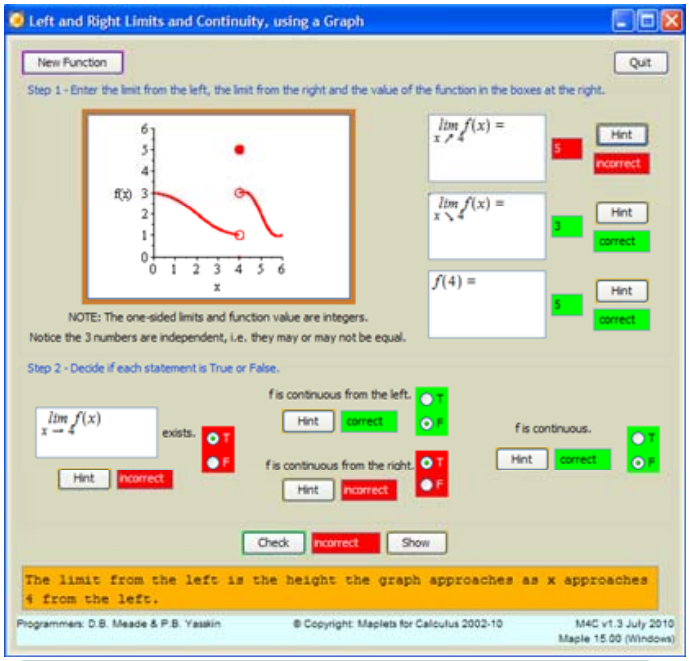
- Identify strategies that promote conceptual understanding.
- Document and analyze features of technology that promote students' understanding.

Determine student level of understanding for continuity using David Tall's 'Three Worlds' model:



METHOD

Record computer activity and voice of students as they 'Think Aloud' while using Maplets:



An excerpt from a recorded student session is found at
http://www.math.sc.edu/~meade/VMI-2012/

Investigators

- Ray Patenaude, PhD candidate at the University of South Carolina is a mathematics teacher at South Pointe High School, Rock Hill, SC.
- Dr. Edwin Dickey , University of South Carolina, is advising Mr. Patenaude and Ms. Adams on this project.
- Paula Adams, PhD candidate at the University of South Carolina and mathematics teacher at Indian Land High School, SC assisted in this study.

References

- Drijvers, P., & Trouche, L. (2008). From artifacts to instruments: A theoretical frameworkbehind the orchestra metaphor. In G. W. Blume & M. K. Heid (Eds.), *Research on technology and the teaching and learning of mathematics: Vol. 2. Cases and perspectives* (pp. 363-392). Charlotte, NC: Information Age.
- Tall, D.O. (2008). The transition to formal thinking in mathematics. *Mathematics Education Research Journal, 20*(2) 5-24.

Supported in part by NSF DUE CCLI (Phase I) and TUES (Type 2) Grants 0737209 / 1123170 (Meade) and 0737248 / 1123255 (Yasskin).