Abstract: The modern classroom computer has an unparalleled ability to implement both graphical and procedural components of mathematics understanding in a single unified object. This dual encapsulation allows students to see both the form of representation and their actions upon the representation simultaneously. An extension of activity theory, Action on Objects (Connell, 2001), has been developed incorporating this ability which has proven of great worth in instructional planning and effective utilization of technology to enhance mathematics learning.

During the summer of 2001 the author lead a graduate course where we carried out an extensive review of existing websites focusing upon those best fitting this action upon objects model. This paper will provide a brief overview of the model and the rubrics used in the course of this website evaluation together with annotated links to the resources themselves.

Background

A major conceptual framework used in my research and writings has been that of action upon objects (Connell, 2001). This has in turn lead to some foundational questions surrounding the nature of the technology-enhanced objects and the types of actions that one might be expected to perform upon them. I have created a conceptual framework of actions upon objects that has proven to be very powerful in both experimental settings as well as in school classrooms. I feel that it also captures recent thinking on object reification in mathematics (Sfard, 1994).

It is clear, however, that if this approach is to be effective that the objects to think with must be developmentally appropriate for the student. The following model captures my current “best attempt” to put this into an easily presentable format.

Evaluation Rubrics

During the summer of 2001 the author lead a graduate course within which we carried out an extensive review of existing websites focusing upon those best fitting this action upon objects model. The following illustrations serve to outline the evaluation template used. The final paper will develop the rationale for these in more detail and provide a copy of the template for inclusion on the SITE CD. It will also include some selected sites and their annotations so that a preview of the database might be achieved.
Conclusion

I am planning on including both the template file and the developed database of all reviewed websites (94+) with this submission. The inclusion of the database will allow others to have access to a peer review of excellent materials that support not only the action on objects model, but also the NCTM emphasis upon student-centered learning and problem solving. It is my hope that SITE members will avail themselves of the opportunity to contribute to this developing database using the provided template.

References
