

Meeting: 1003, Atlanta, Georgia, MAA CP V1, MAA Session on Research on the Teaching and Learning of Undergraduate Mathematics, I

1003-V1-1203 **Maria Trigueros*** (trigue@itam.mx), Rio Hondo #1, Tizapan, San Angel, 01000 Mexico, D.F., Mexico, and **Laurel Cooley** and **Bernadette Baker**. *On Schema Thematization*.

Research analysing conceptual development in mathematics education has focused on ways students learn and use particular concepts. There is less research on how mathematics concepts are mentally structured and the ability to access part or all of a structure as needed when encountering a problem. There is almost no research focused on the stability of these mathematical structures. This presentation concerns the development and possible thematization of a calculus graphing schema as defined in an earlier study (Baker, Cooley & Trigueros, 2000), using APOS theory. This investigation went further to study itself thematization of a schema using a series of related questions to expose those possible structures acquired at the highest levels of schema development. The results obtained were similar to those from the previous study. Students' development of their graphing schemata appeared to move along similar paths of the double triad, and the same difficulties that students faced were the same showing the reliability of the theoretical framework and its utility for analysis of the development of the calculus graphing schema. Most importantly, it was shown that it was possible to have thematized the schema as it was defined by the researchers. (Received October 04, 2004)