

1106-VD-1579 **Xiaofen Zhang*** (xzhang2@hotmail.com). *The influence of hands-on activities incorporating different models on student understandings of rational numbers.*

Many students experience difficulty in learning fractions. In order to assist them to grasp the concepts, researchers have placed special emphasis on the need for multiple representations (Dienes, 1960). Dienes claimed the quality of conceptual learning is likely to be maximized when students are exposed to a concept in a variety of different situations represented through different embodiments. Forty elementary students participated in the study, who had been taught fractions concepts mainly through an area-model approach. They were first administered pre-teaching tests and interviews to explore how early experiences of learning fractions affected their thinking with respect to fractions concepts and skills. After their normal math teacher taught them 5 fractions lessons including 6 hands-on activities, they participated in post-teaching tests and interviews. Analysis of pre-teaching data showed the students' understandings of fractions were very shallow and many of them could NOT solve problems where fractions were associated with non-area model representations. Analysis of post-teaching data indicated the intervention lessons not only enabled students to perform well on post-intervention tests, but also helped them develop a more connected understanding of fractions concepts. (Received September 14, 2014)