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Teaching, Learning, and
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A STUDY OF PRE-SERVICE ELEMENTARY TEACHERS' CONCEPTUAL
UNDERSTANDING OF INTEGERS (415 pp.)

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The purpose of this qualitative study was to examine how pre-service elementary teachers' conceptual understanding of integer addition and subtraction understanding is impacted by the use of a novel teaching model. Two models currently exist for teaching integers: the number line model, which emphasizes ordinality; and the neutralization model, which emphasizes cardinality. The novel model incorporated both ordinality and cardinality.

Seventy-nine pre-service teachers took the original survey during the fall semester of 2007 and six of these students made up the sample that was used for this study. All of these students were chosen from a mathematics content course that is required of elementary education majors.

The research design was a blend of a phenomenological study and a teaching experiment. Data was collected using a survey, videotapes of four interview sessions for each pair of participants, and written material provided by the participants. NVivo 7, a qualitative software program, was used to help organize the data.

This study showed that the novel model helped participants to better understand which numbers make up the set of integers and the novel model aided the participants' understanding of the algorithms for addition and subtraction of integers.

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