

WHAT “=” MEANS

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Research indicates that young children view the equal sign (=) as an operator which signals that some operation such as addition, subtraction, multiplication or division must be performed (Behr, Erlwanger, & Nichols, 1978; Kieran, 1981). This viewpoint does not suggest the equal sign as a relational symbol. In this study, we suggest that first and second grade students participating in a mathematics program called Measure Up will begin to understand the equal sign to be a symbol of equivalence, rather than it being an operator.

GOALS

1. To verify that children in grades one and two can begin to learn that “=” stands for equivalent entities and not for an operator.
2. To verify that this meaning of the equal sign is maintained throughout grade 2.

PROCEDURE

Ten first grade students and ten second grade students participated in interviews 5-10 minutes in length. Each interview was videotaped as well as observed by other researchers in an adjoining room. A semi-structured interview protocol was used. Students were asked what the equal sign meant. They were also shown and read cards such as $7 + 3 = ___ + 5$ and asked what can be placed in the blank to make the statement true and how they decided this. Statements such as $7 + 2 = 5 + 4$ and $7 + 2 = 9 + 5$ were shown, and the students were asked whether the statement is true or false and to explain how they decided this.

RESULTS

Preliminary results show that the students’ understanding of “=” as equivalence improves from the first to second grade. Students also showed well-defined ways of viewing the tasks that suggest the meaning they attributed to the “=” sign.

References

- Behr, M., Erlwanger S, & Nichols (1975). *How children view equality sentences*, (PMDC Tech. No. 3.) Tallahassee, FL: Florida State University. (ERIC No. ED144802)
- Kieran, C. (1981). Concepts associated with the equality symbol. *Educational Studies in Mathematics*, 12, 317-326.