

ABSTRACT

The purpose of this study is to design and provide initial validation of the Comprehensive Beliefs About Inquiry and Teaching and Learning Experiences Instrument (CBAITLEI) for measuring beliefs and experiences related to teaching and learning science through inquiry approaches. The instrument measures beliefs about the importance of inquiry for teaching and learning science, barriers to using inquiry in science classrooms, student outcomes resulting from use of inquiry approaches, and beliefs about scientific inquiry.

Experts in teacher education programs and inquiry assessed content and face validity. Principal Components Analyses of participant responses were used to assess construct validity. A sample of 603 respondents was chosen based upon their varied teaching and learning experiences.

One-way ANOVA with post hoc Scheffé Pairwise Comparisons were used to determine sample group differences in their beliefs about inquiry teaching and learning and scientific inquiry and to determine the differences among these groups in their learning and teaching experiences. Pearson Product Moment Correlation Coefficients were used to detect significant relationships between learning, teaching experience and beliefs about inquiry, and scientific inquiry. Results showed significant relationships

between learning and teaching experience. Teaching and learning experiences were also significantly correlated with beliefs about inquiry teaching and learning and scientific inquiry.

Canonical correlations were used to determine the ability of the instrument to discriminate between groups characterized by different teaching and learning experiences. Components resulting from applying Principal Components Analyses were considered to be good discriminators for the groups sampled except for the Learning Experience in Regard to Student Role in Inquiry Classrooms component. This is evidence of construct validity of the instrument sections that measure these variables.

Based upon face validity, content validity, construct validity, and concurrent validity evidence from this study, the modified versions of these instrument sections are considered to be valid, reliable, and comprehensive measures of inquiry teaching and learning factors.