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Psychometric analysis of a 5E learning cycle lesson plan assessment instrument.

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Summary: The purpose of this paper is to describe the procedures and the analysis of an instrument designed to measure preservice teachers' ability to develop appropriate 5E learning cycle lesson plans. The 5E inquiry lesson plan (ILP) rubric is comprised of 12 items with a scoring range of zero to four points per item. Content validity was determined through the expertise of a panel of five science educators. Sixty six preservice teachers enrolled in elementary science methods at three universities prepared lesson plans, which were scored by their instructors using the ILP rubric. Using a Pearson two-tailed correlation, inter-rater reliability was established at a value of 0.83. An exploratory factor analysis provided evidence of construct validity, with three factors. The factors included (1) explore, (2) engage/explain/elaborate, and (3) evaluate. In addition, a secondary analysis revealed the means and standard deviations of the students' performance on each of the phases of the 5E that include: engage, explore, explain, elaborate, and evaluate. The engage item held the highest mean rating, and the evaluation items had the lowest mean ratings. Examination of the instrument's structure in light of the 5E phases is discussed and provides directions for future revisions and research.

Classification: D60 D40 D30
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