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Aiming High: Exploring the Influence of Implementation Fidelity and Cognitive Demand Levels on Struggling Readers' Literacy Outcomes

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Abstract: Researchers studied components of a two-year school-wide Striving Readers intervention aimed at bolstering middle school teachers' use of literacy strategies to raise students' reading achievement. Although students of intervention teachers had significantly higher Iowa Test of Basic Skills (ITBS) scores than students of nonparticipating teachers, no evidence was found that suggested relationships existed among teachers' fidelity of implementation (FOI), observed cognitive demand level of classroom lessons, and students' performance on the ITBS. Higher cognitive demand and FOI ratings were associated with use of more literacy strategies overall, and comprehension strategies in particular. Study implications, limitations and areas for future research are discussed.

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Strategies to Engage Students' Production of Electron Configurations in a Prototypical Chemistry Classroom Community

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Abstract: This study investigated associations between teacher-student interaction and students' persistence to complete written electron configurations in a high school chemistry classroom. Analyses of the interactions were guided with an Expectancy-Value framework to identify the discourse strategies used by the teacher to build engagement in a classroom community of practice. Teacher discourse strategies to blend the cognitive and social aspects in a community that completes a traditional chemistry task were found.

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The Impact of Problem-Based Learning (PBL) on Student Attitudes toward Science, Problem-Solving Skills, and Sense of Community in the Classroom

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Abstract: Problem-based learning (PBL) is a constructivist pedagogical approach to learning in which students work together to find solutions to a complex problem. This study used a mixed-method approach to examine the impact of PBL on student attitudes toward science, problem-solving skills and their perceptions of the learning environment. Forty-eight students in three regular high school chemistry classes participated in the study. Results based on student answers to a survey questionnaire, journal entries, approaches to solving a problem, and teacher classroom observations indicated a significant increase in student attitudes toward science, problem-solving skills and positive views of the learning environment. The use of PBL also facilitated the development of a sense of community in the classroom.