

to analyze the data. Results indicated that grade level, gender, and ethnicity were significantly related to science self-efficacy. All grade levels showed a clear decline in science self-efficacy after sixth grade with females, Latino students, and ninth graders showing the greatest decline.

Strand 2: Science Learning: Contexts, Characteristics and Interactions

Science Learning within Biology Domains

1:00pm – 2:30pm, Caribbean Salon 2

Presenter: Leslie Keiler

Socioscientific Issues as an Instructional Tool for Promoting Students' Communication Skills in the Science Classroom

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ABSTRACT: Communication skill is one of the essential competences for effective problem solvers who are able to respond to the variety of demands in our daily lives and to build joint understandings. The premise of this study is that SSI instruction can play a crucial role in promoting communication skills by increasing peer interactions and stimulating their reasoning. This study, therefore, aimed to investigate educational effects of implementing a SSI program on communication skills. A total of 132 9th grade students in Korea participated in the SSI program on genetic engineering technology over 3-4 weeks. We adapted mixed method approach. We developed a questionnaire to measure students' communication skills and compared pre- and post-scores. And we observed the classroom with field-notes while a teacher implemented the program, and conducted interviews with the teacher and students. In results, the SSI program had a moderately large impact on the extent the students became more competent in communicating with others. Especially, scores of students' Understanding of others' main points (U) and Respect to other's perspectives (R) significantly improved. Qualitative data also revealed that the students tried to pay attention to the other's argument and to find out the intent during the discussions.

Coauthoring the Curriculum: Testing a Strategy for Incorporating Students' Interests into the High-School Biology Classroom

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ABSTRACT: Many students feel the curriculum is detached from their lives and interests. This study presents a strategy to incorporate students' curiosity questions into the curriculum as a way to reduce the disparity between students' interests and curricular requirements. It draws on Self-Determination Theory to incorporate students' voice as input in high-school science teaching. The sample included 175 students and 5 teachers who were involved in the intervention, and 16 biology classes that served as comparison classes. In all classes, students were invited to anonymously write down their questions on certain topics and hand them in to the teacher. In the intervention classes teachers mapped these questions into the curriculum and addressed them during their teaching. The findings indicate that the strategy addressed the three basic needs identified by Self-Determination Theory, hence potentially increasing students' intrinsic motivation. Cognitive development clearly seen from the changes in level of questions asked in the main intervention class. These questions were more likely to explore issues beyond the curriculum, involve non-concrete and **ABSTRACT** ideas, and attempt to understand mechanisms rather than identify their components. It is argued that knowledge of students' interests can be viewed as part of teachers' pedagogical content knowledge.

Examining the Interaction between Content and Context: An Empirical Analysis of Genetics News Articles

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ABSTRACT: Genetic literacy is becoming increasingly important as advancements in our application of genetic technologies such as stem cell research, cloning, and genetic screening become more prevalent. Research shows, however, that many high school graduates lack the genetic knowledge necessary to participate in public debates over