

TEACHER CONFIDENCE AND CLASSROOM PRACTICES: A CASE STUDY ON SCIENCE IDENTITY

Background and Methodology

- Hanson School District is a K-12 district in eastern South Dakota
- District and non-district teachers were surveyed to measure science teacher identity and confidence in teaching science
- Students' science identity were measured, then correlated with their classroom teacher's responses
- Two classrooms were selected for a case study to understand science teacher identity and its relationship with classroom practices and students' science identity.

Research Focus Questions

1. Does student science identity correlate with science teacher identity? Do teachers who see themselves as science people have students who develop stronger science identity?
2. Does teacher confidence and understanding in NGSS and 3D science teaching correlate with stronger science teacher identity?

Teacher Quotes

"I'm no knock-your-socks-off science teacher." –Mrs. O.

"I definitely have a passion for that level of kids and that content knowledge." –Mrs. B.

Data

- All six teacher-student datasets show similar ranges in students' science identities, despite differences in science teacher identity scores
- There is no correlation between strong science teacher identity and students' science identities

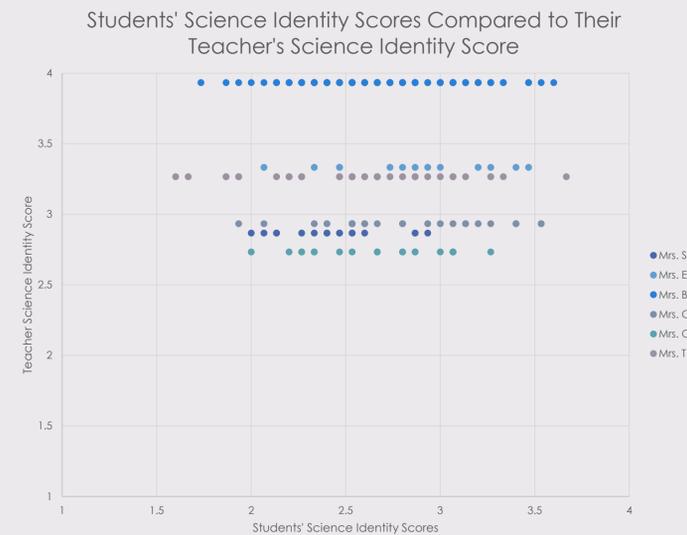


Figure 1. Scatter plot displaying correlation between students' SSIS scores and teachers' STIS scores, 1.0 being the lowest possible science identity score and 4.0 being the highest, (N=219).

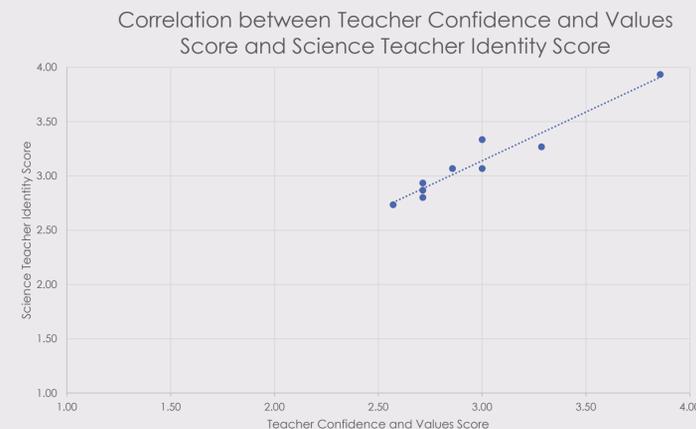


Figure 2. Correlation between teachers' scores on the Teacher Confidence and Values subsection and their overall Science Teacher Identity scores from the STIS, 1.0 being the lowest possible science identity score and 4.0 being the highest, (N=9).

Teachers with higher confidence in their science teaching abilities and classroom practices that were more aligned to NGSS tended to have stronger science teacher identities.

Analysis

- No significant correlation exists between strong science teacher identity and strong student science identity
- Positive correlation exists between teachers' confidence teaching science and understanding of NGSS/3D science teaching and their overall science teacher identity
- Mrs. B. exhibited a strong science teacher identity and strong confidence teaching science that is aligned to the 3DI nature of NGSS

Value

In order to shift from a culture of *learning about* to *figuring out*, students need high-quality, equitable science education experiences that are NGSS-aligned. Increasing teachers' understanding of NGSS and 3D science teaching could increase their confidence in teaching science and improve overall science teacher identity.



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