Abstract

In our attempts to articulate a notion of 'activation' in science learning, we investigated the ways that 11-year-olds talk about and identify with science across a variety of contexts. We propose that in-depth study of how children and families relate to science will help us better understand immediate and long-term interest in science (Achabal et al., 2010; Stevens, 2011). Through interviews with students, teachers, and parents, we ask how students think about what science 'is' and how students express ideas about the value or importance of science (Archer et al., 2010; Basu & Barton, 2007). Do students with differing ideas about science talk differently about the value of science learning? We describe five case studies to highlight that students have varying ideas about what science is and value it for different reasons. These differences need further exploration in attempts to understand long-term engagement in science learning through a lens of identity development.

Research Design & Methods

Questions:
1. How do students talk about science and its value?
2. How do views and values of science vary for individuals?
3. How do parents and teachers talk about student interest?

Participants:
29 students - 12 – private alternative school 8 – low-performing public school
2 – charter or public school

Interviews: Students (N=29), Parents (N=4), Teachers (N=4)

We coded interviews for views of science and values of science that students expressed.

Summary and Next Steps

Basu and Barton (2006) suggest that middle school students' interest in science is fostered when their experiences connect with the futures they see for themselves, when they can participate in ways that foster social interactions that they value and when they feel agency for acting on their own views on the purpose of science. Our study suggests that understanding variation in views and values of science can help us study long-term interest in science through a lens of emergent identity.

Students with varying views of what science 'is' reported similar values of science:
- 'Interested in Inquiry' views science as primarily investigating the world, whereas 'Interested in Facts' views science as fact/knowledge and technology. However, both students reported an intrinsic value of science – they like it because it's interesting to them. 'Interested in Social Interaction' has a broad view of science and also reports intrinsic value – but it's because she likes doing hands-on activity with her classmates. 'Uninterested in the Practice' also views science as investigating the world but expresses little importance for science learning.
- 'Interested for Family & Future' views science as nature and carrying on steps in experiments, whereas 'Interested in Facts' views science as facts/technology. However, both students express ideas of power and value of science to society. 'Interested for Family & Future' also talks about valuing science because her family does.

These data informed the quantitative measurement of 'activation'. We designed survey questions that ask about values of science to self, family, community, and society. Futures analyses will explore the extent to which the survey items capture the nuance we observed. As the Retrospective (AR11) and Pathways analyses suggest, there are a variety of ways that people interact with science over time and a variety of contextual factors that support paths to science careers. In efforts to 'activate' students to engage in science learning (regardless of eventual career choice) we need to better understand and support the ways that youth think about, identify with, and have access to a variety of science-related experiences. In addition, we need to continue investigating how to make science learning relevant to the ways youth see themselves across development.