Changing Classroom Norms of Discourse and Practice: iPad Enhanced Active Learning

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Through the introduction of a classroom set of iPads in a teachers high school physics classes, I have examined how students have taken up digital tools and how the integration of these tools has shifted classroom norms of discourse and practice.

Theoretical Framework
Students are mutually negotiating new norms of discourse and practice within their community [1]. The shift within the sociocognitive system has created new opportunities for student cognition when dealing with physics concepts [2, 3].

Research Questions
1) What technological tools and practices are being taken up by students?
2) How do student norms of discourse and practice change to include use of iPads?

The iPEAL research project is designed to help inform the creation of a technology-enhanced physical science curriculum that builds on students’ cultural, social, cognitive, and linguistic resources. By using students’ experiential knowledge as well as technology-assisted forms of communication to shift the roles of students in the classroom, I hope to foster a community of practice whose norms more closely parallel those of the scientific community.

iPEAL goals

Based on the findings from my first year of research, I have identified several technological tools, such as screencasting and voicethreading, that allow for unique and substantive change in student discourse and practices. These tools are currently being used to mediate for several forms of discourse.

Screencasting affordances:
- Development of student metacognition through the recording of thinkalouds.
- Students become peer tutors through sharing of internal dialogue and problem solving strategies.
- Greater teacher insight into student thinking process.

Voicethreading affordances:
- Asynchronous dialogue between community members (students and teacher).

Future Research

Possible Questions

Finding #1: Digital techniques spread rapidly.
- Why do some things spread and others do not?
- How can we make scientific discourse and practices spread this way?

Finding #2: Students demonstrate quick mastery and fluidity.
- What is motivating this high rate of learning the technology?
- How far can you go into traditional academic practices before this rate of learning drops off?

Finding #3: Students engage in new forms of peer communication.
- Can these new forms of communication be used for students to instruct each other?

Finding #4: Students desire to be a part of the project.
- What is driving students’ desires to be a part of this project?
- What about the project makes it more motivating than everyday school activities?

Finding #5: Students value the tool and want to make it work.
- Why do they value the tool?
- Do they see the iPad as a tool for learning or for games?

Finding #6: Students are engaged in iPad activities.
- What is guiding this engagement?
- How can it be maintained?

Finding #7: Students enjoy using some tools.
- Why are certain tools enjoyable?
- How can this enjoyment be transferred to the learning of physics?

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