Bringing teaching, learning and research to life

SAGE video
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Education
Teaching with Documentary Video
Content Type

Documentary videos are generally done by a licensed film that handles a subject matter in a long form. Such videos aid seminar, classroom discussions, and assignments. An instructor can use clips and segments of the video to elucidate and highlight issues.

Algebra Handshake
http://sk.sagepub.com/video/algebra-handshake-teaching-support

In this documentary, Isaac Anoom, a Grade 6 mathematics teacher, implements a classic math problem called the “handshake problem” by having students think algebraically. Students record their observations, identify the pattern, and explain or justify the pattern they see. The goal of the handshake problem is for students to notice patterns by using different representations and start thinking about how to generalize the pattern into symbols.

Suggested Courses or Topics

This documentary can be used in a teacher preparation course where students are learning how to become mathematics teachers at the elementary and secondary levels. The documentary focuses on encouraging students to think algebraically and reason about their answers—traits that are indispensable as a good mathematical problem solver. The documentary highlights how to create a mathematics environment that is safe for students to share and justify their thinking, ask questions, make conjectures, and take risks, which can help prospective math teachers rethink how to design their future classroom to facilitate mathematical learning for all students and engage students in mathematical discourse. Course examples might include:

- elementary math methods,
- secondary math methods,
- problem based learning, and
- inquiry based learning.

Specific to the SAGE taxonomy of education, suggested topics are as follows:

- student engagement and motivation,
- elementary math,
- secondary math, and
- constructivist and social theories of learning.

Classroom Clips

Listed below are a few examples of clips that focus on key concepts:

- Implementation of the handshake problem. Clips 0:00 – 0:38, 1:01 – 2:05, and 3:26 – 4:43.
- Teacher reflects on the handshake problem. Clip 0:38 – 1:00.

Research Assignment

See below for an example assignment that you might use for students

This documentary shows Isaac Anoom implementing the handshake problem and the different strategies or representations students produce (Clip 2:06 – 2:20). Implement the handshake problem with a group of students in your field experience, practicum, or clinical setting. What representations or strategies do your students produce? How are they similar or different from the ones in the video? Also, reflect on your mathematics teaching practices, focusing on how to develop problem solving and algebraic thinking in your learners—what would you change in your implementation of the task and why? What would you keep the same?

Classroom Discussion

Here are some examples of questions which might be used for in-class discussion.

4. How did the teacher handle the response (Clip 2:28 – 3:13) to the young boy who thought he came up with a generalization of doubling? What questions did the teacher ask so the student could revise and rethink his work?
5. How does the teacher find teaching algebra tricky? (Clip 4:55 – 5:27). What can you do as a future mathematics teacher to make algebra “less tricky” for students?