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Summary: Three high school science classrooms were selected for analysis of how reading and writing activities were embedded in the curriculum and instruction. Over the period of 1 year, researchers looked for patterns of literacy activities in each of the three classrooms using data excerpts from videotaped classroom lessons, field notes, audio-taped transcripts, and interviews regarding teachers' philosophies of science instruction. The classrooms varied in significant ways both with regard to the instructional context and with regard to the use of reading and writing. Improving student reading and writing in science classes depends on acknowledging such differences.

Assumptions:

- Teachers' philosophies and beliefs regarding teaching and learning shape the classroom context. Teachers' beliefs about how students learn science frame the way reading and writing activities are embedded in science lessons.
- Classroom-based reading and writing activities should not be limited to text-based instruction, but should involve a broad range of reading and writing activities integrated throughout science lessons.

Results:

- Teachers' philosophies and beliefs of science teaching and learning affected how they structured reading and writing activities.
- A teaching philosophy that emphasized the teacher as a facilitator promoted collaborative peer reading and writing activities, including small group work and use of alternative texts.
- A teaching philosophy that emphasized student independence promoted individual organization as a foundation for learning, reading, and writing with a focus on individual skill acquisition.
- A teaching philosophy that emphasized the teacher as the primary source of knowledge promoted the use of teacher-guided learning, including such activities as guided reading and structured overviews.

Conclusions:

- Teachers' philosophies are closely related to their knowledge about learners, and they frame the way instruction is implemented. Teachers' philosophies about science teaching and learning shape how literacy practices are embedded in science classrooms.
- In science classrooms, text-based instruction is not the only avenue to understanding literacy in science learning. Rather, engagement with print via various activities such as reading, writing, and discussion illustrates more reflectively how and why teachers' and students' beliefs about science influence their literacy practices.
- A deep understanding of the settings and perspectives of participants involved should precede a call for change in the literacy practices.

Suggestions for Teachers:

- Reflect on and articulate your own philosophy and beliefs about science teaching and learning.
- Reflect on and articulate your own role: facilitator or primary source of information. Consider the implications of this role on students' learning.
- Consider the role of independent and peer learning in science.
- Consider the role of reading and writing in science learning.

Suggestions for Literacy Leaders:

- Provide time and support for teachers to reflect on and articulate their philosophies and beliefs about science teaching and learning.
- Help teachers see the influence of their philosophies and beliefs on curricular and instructional decision making.
- Provide opportunities for teachers to consider the role of non-textbook reading and discussion in science.