Developing Decision-Making Skills with *Convince Me*

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Cognitive science researchers have found that people exhibit flaws in reasoning that can be overcome through instruction. Decision making is a crucial reasoning skill that I am currently investigating. I am studying students in the nationally recognized Science Education for Public Understanding Program's (Thier & Nagle, 1994) new high school course, *Science and Sustainability*. Part of the decision-making curriculum I have developed utilizes computer software called *Convince Me* (Schank, Ranney & Hoadley, 1996).

Convince Me possesses a computational representation of a particular theory of reasoning, the Theory of Explanatory Coherence (Thagard, 1989). This theory assumes that people have multiple, conflicting goals and beliefs. The plausibility of a belief increases with, for instance, a) the simplicity with which it is explained, b) increasing breadth of evidential coverage, and c) decreasing competition with alternative beliefs (Ranney & Schank, in press). Students enter alternatives, beliefs and evidence about an issue and connect these with explanatory or contradictory weights (cf. Thagard & Millgram, 1995). Convince Me assists students in thinking about an issue while providing them with simulation-based feedback about the coherence of their decision.

I am comparing three subject groups: a) students using SEPUP materials in addition to my curriculum, b) students using SEPUP materials only, and c) students using only traditional science materials. Data for my study will include computer logs of student work, computer-generated activation scores, in addition to written tests, interviews and videotapes. Research questions regarding experience with Convince Me, such as the following, will be addressed: 1) Do students become more successful at distinguishing between beliefs and evidence? 2) Do students incorporate more evidence into their decision? 3) Are reasoning biases, such as not taking future consequences into account, reduced? In addition to helping adolescents make complex decisions, my research results will eventually contribute to theoretical models of cognition and decision-making processes.

References

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