

## Using Multimedia Authoring to Increase Retention, Application, and Engagement

In *Computers as Cognitive Tools*, Richard Lehrer describes a study with high- and low-level eighth graders working on a project on the American Civil War. In this study, students in a multimedia group created interactive multimedia projects on topics such as the roles of women in the war, the perspectives of slaves toward the war, and "not-so-famous people" from that period. These products were to be used as study guides by their peers (p. 201). Students in a control group studied the Civil War using traditional classroom methods during the same period of time.

At the end of the study, students in the multimedia group and the control group were given an identical teacher-constructed test of knowledge. No significant test performance differences were found between the two groups.

However, a year later, when an independent interviewer unaffiliated with the previous year's work interviewed students in the multimedia and control groups, important differences emerged. Students in the control group could recall almost nothing about the historical content, whereas students in the multimedia group displayed elaborate concepts and ideas that they had extended to other areas of history. Most importantly, while students in the control group defined history as "the record of the facts of the past," students in the multimedia class defined history as "a process of interpreting the past from different perspectives." Interviewers discovered that **"the multimedia approach led to knowledge that was richer, better connected, and more applicable to subsequent learning and events"** (p. 221).

"The most striking finding was the degree of student involvement and engagement (p. 209)." Students of both high and low ability levels became very task-oriented and autonomous as they gained confidence with the technology tools used to create the interactive projects. The process of building a multimedia project required learners to transform information into dimensional representations, determine the relative importance of content, segment information into nodes, link the information segments by semantic relationships, and decide how to represent ideas. This highly motivating process results in ownership of the ideas in the multimedia presentation.

Using interactive multimedia tools to develop content helped engage students in the curriculum, increase knowledge retention, and build student ability to apply knowledge to other topics.

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Lehrer, R. (1993). Authors of knowledge: Patterns of hypermedia design. In S. P. Lajoie & S. J. Derry (Eds.), *Computers as Cognitive Tools* (pp. 197-227). Hillsdale, NJ: Lawrence Erlbaum.