PATHWAY
Physics Teaching Web Advisory
A Dynamic Web Environment for Exploring Physics Pedagogy
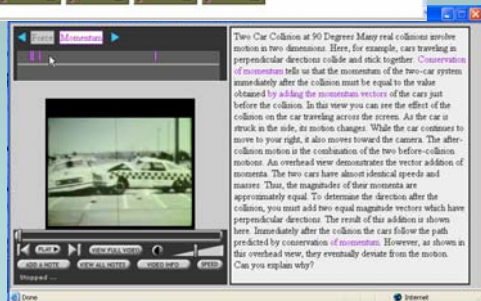
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Informedia Digital Video Library

The *Informedia* digital library automatically extracts metadata from video and audio to create a database which can be searched in a variety of ways.

The Informedia physics database contains a large number of digital video scenes that have been created during the past 20 years for physics instruction.

Pathway has created a prototype digital library for physics teaching. More than a collection of materials, Pathway combines Carnegie Mellon University's digital video library technology with pedagogical advances developed at Kansas State University and with materials contributed by teachers.

The system provides contemporary ideas about the teaching of physics and applications of physics education research.

We are expanding the system and will conduct research and evaluation on its effectiveness for teachers who are working in a field in which they may not have been trained.

Analysis of Logged Questions

Out of approximately 2500 questions that have been logged, only 11.6% are about physics content while 70.5% ask about various issues of physics pedagogy. This result indicates the inexperienced teacher is much more interested in and concerned about the methods of teaching than the physics subject matter.

Fewer than 1% of the teachers request information about assessment. A small number (1.4%) have asked questions directly related to student engagement in hands-on activities. These small numbers for assessment and activities require some further investigation. Both areas are very important to contemporary teaching techniques. It may be that activities and assessment are embedded in some of the other pedagogy questions. If not, future work with Pathway may need to focus on helping the inexperienced teachers see this importance as they develop into experienced teachers.

Synthetic Interview

The **Synthetic Interview** provides the teacher with an interface that is very similar to conversing with an expert. The video and other information are stored in a database and are presented when a teacher asks a question.

Four teachers – Paul G. Hewitt, Leroy Salary, Charles Lang & Roberta Lang – provide expert advice through the Synthetic Interview. Additional teachers will be added soon.

Carnegie Mellon

K-STATE Kansas State University