Pathway – 24/7 Online Pedagogical Assistance for Teachers of Physics

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Teachers' Needs

- Immediate relevance
- Need it tomorrow
- Completeness
  - Little time for searching out additional information
  - Background in physics is limited

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Our Approach

- Web-based access to thoughts of experienced physics teachers
- ~7,600 Pre-recorded answers to questions about physics teaching
- Conversation mode interface
- Frequent improvements based on input & feedback

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Pathway

The Physics Teaching Web Advisory

http://www.physicspathway.org

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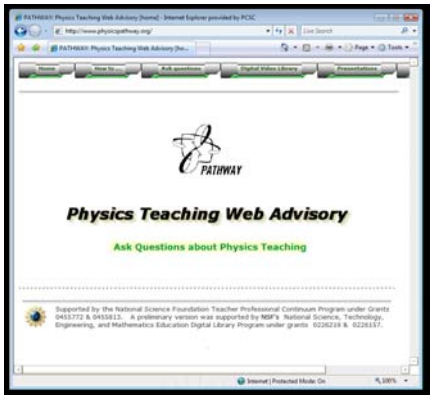

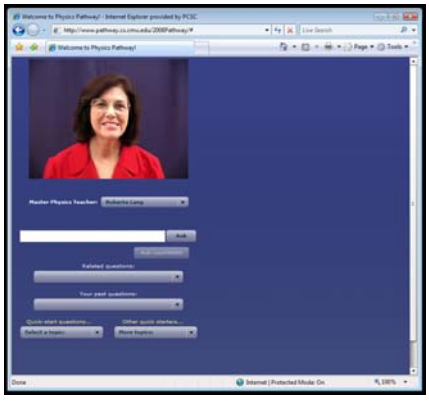

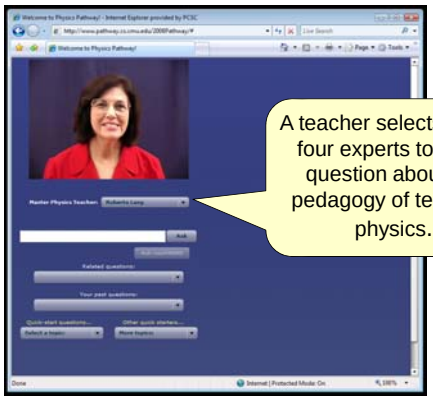

The Experts

Paul Hewitt
- Author of highly popular physics and physical science textbooks for both high school and college

Charles Lang
- High school physics teacher in rural Nebraska & Omaha; Presidential Award recipient

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The Experts

Roberta Lang
- High school physics teacher in Orlando; trained as a chemistry teacher

Leroy Salary
- Physics & teacher educator at Norfolk State University

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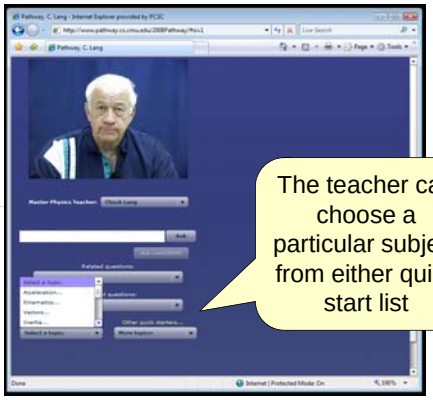
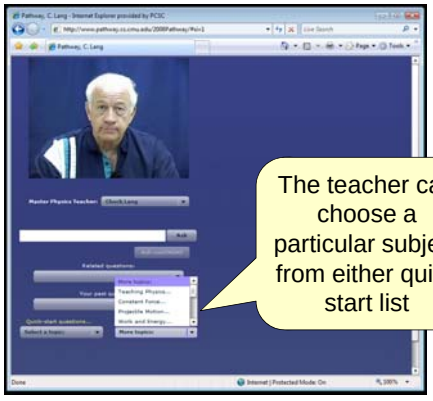
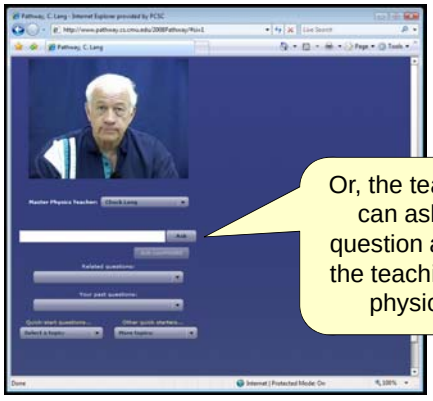
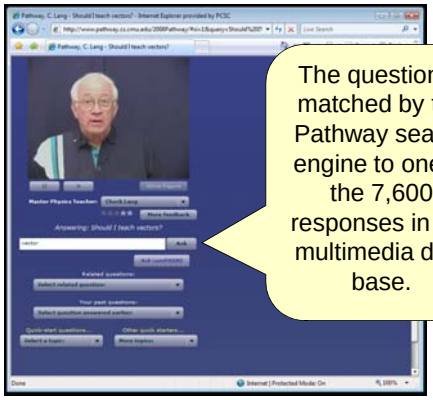
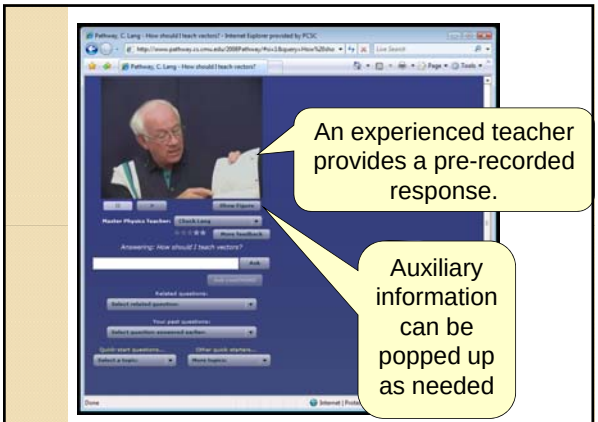
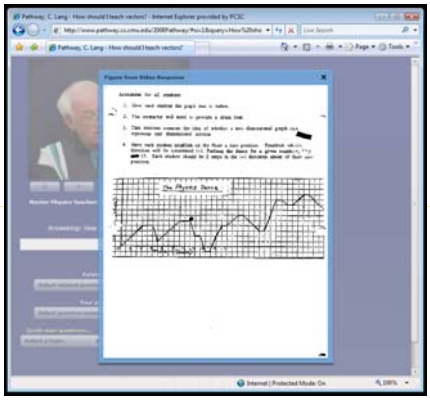


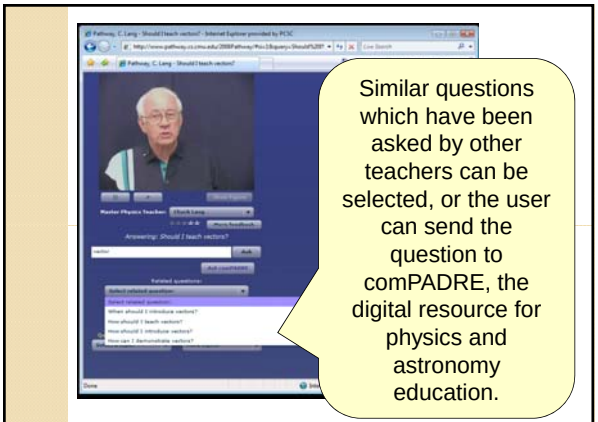


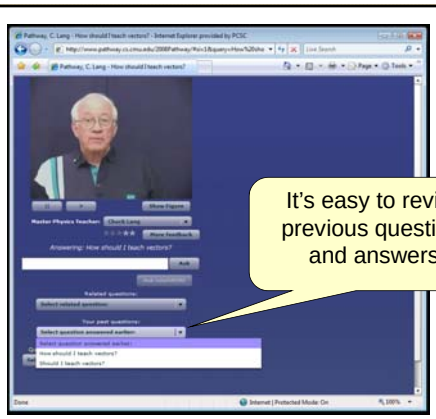


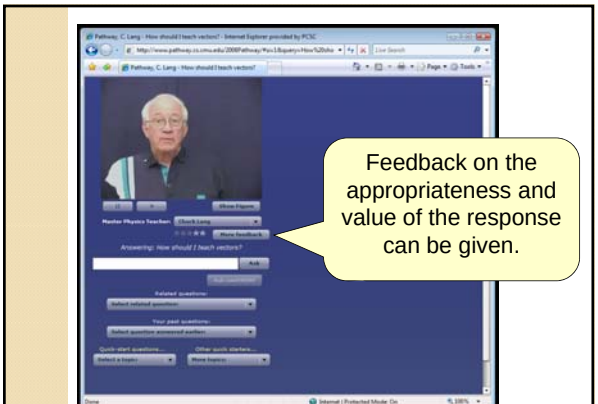

The question is matched by the Pathway search engine to one of the 7,600 responses in our multimedia data base.


An experienced teacher provides a pre-recorded response.
Auxiliary information can be popped up as needed




Similar questions which have been asked by other teachers can be selected, or the user can send the question to comPADRE, the digital resource for physics and astronomy education.


It's easy to review previous questions and answers.


Feedback on the appropriateness and value of the response can be given.

The Answers – Paul Hewitt

- What general advice would you offer to a first time physics teacher? (2:50)
- My advice … is not to get bogged down with kinematics …. Get it so that your students at least have an exposure to the whole experience that first term. … If a student's first encounter with physics is one of delight, they will welcome the rigor of the second course. …

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The Answers

- Prerecorded answers were shown at this point.

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Feedback & Evaluation

- Primarily formative so far
  - Significant changes in the interface
  - Provide help without calling it help
    - E.g. Related questions
- Added many questions & topics
- Connections to comPADRE
  - Access to other PER research materials
  - Provides additional print resources
- Technical changes
  - Improved searching
  - Flash video

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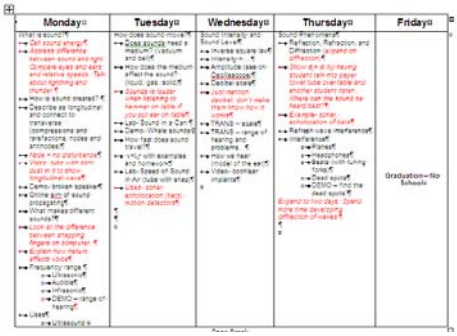
Lesson Enhancement Case Study



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Future Work

- Additional changes based on feedback
- Summative evaluation
  - Need assistance
- ALT-Pathway
  - Online tutoring system to assist students

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THANK YOU!

HTTP://WWW.PHYSICSPATHWAY.ORG

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