Phantastic in Physics Problem Solving (PPPS) in Introductory Physics for Life Science Students  
Tabetha Dobbins  
Dept. of Physics & Astronomy, Rowan University, Glassboro, NJ 08028

WHAT IS PHANTASTIC IN PHYSICS PROBLEM SOLVING (PPPS)?

Phantastic in Physics Problem Solving (PPPS) in Introductory Physics using Video Lectures, adds a new dimension to established physics education research (PER) approaches. While those approaches focus primarily on conceptual understanding or in-class problem solving, PPPS teaches students to problem solve by demonstrating examples via video. Since the problem solving videos are viewed by the student outside of class, the student is free to tailor the educational experience to their own needs by simply using rewind, pause, and fast forward. This is a major benefit to the student.

COMPARISON TO OTHER PHYSICS EDUCATION RESEARCH

Physics education research (PER) is a developing field.1,2 Active learning approaches such as: (a) conceptual learning with “Just-in-time Teaching”3,4; (b) peer instruction5,6; (c) cooperative learning/problem solving7,8; and (d) flipping the classroom9,10 are all targeted toward improving student outcomes by moving the professor into the role of “guide on the side” rather than the traditional role of “sage on the stage”.11,12

WHY IS THE PPFS TECHNIQUE INNOVATIVE?

WE’LL DO PHANTASTIC IN PHYSICS

Student Exam Performance

Table 1. Video Lecture Page Views

Table 2. Average Exam scores for fifteen survey participants.

EINSTEIN SAYS...

REFERENCES


ACKNOWLEDGEMENTS

Funding for this conference attendance was provided by the Rowan University Faculty Center for Excellence in Teaching. I also thank Mr. Ronald Bruner, Dr. Karen Magee-Sauer and Dr. Taryl Kirk (Rowan University, Dept. of Physics and Astronomy) for many useful PER and best practices discussions.