Students’ Performance on Text Editing, Jeopardy and Problem Posing Tasks
Fran Mateycik,1 N. Sanjay Rebello,1 and David Jonassen2
1Kansas State University, 2University of Missouri - Columbia

1. BACKGROUND
Facilitate the development of Conceptual Schema using Case Reuse.
- Conducted semester long treatment in algebra-based physics
- Collected Multiple Choice data from five in-class examinations
- 3 problems per exam are non-traditional

2. QUESTIONS
To what extent does the treatment facilitate solving non-traditional problems?
- Text-editing
- Problem Posing
- Jeopardy

3. THEORY
Non-traditional tasks (modified for multiple choice style exams)

Text Editing: Students are given a problem statement and asked to find, if any, irrelevant information.

Problem Posing: Students are given a statement describing a situation, then asked to add a question that would turn it into a problem that uses specified principles or equations.

Physics Jeopardy: Students are given a fragment of a solution to a problem, then asked to identify a scenario that corresponds to the solution.

4. METHODOLOGY
Participants:
- All students in 1st semester algebra-based physics
- Includes students in Group Learning Interviews

Data Collected:
- Multiple choice data on all questions on all five examinations
- Includes data on three (extra credit) non-traditional problems at end of each exam.

5. RESULTS

Average student performance
Jeopardy > Text Editing > Problem Posing
(63% correct) (53% correct) (31% correct)
Lower than traditional problems (70% correct)

Problem Posing

NO statistically significant difference except on Exam 5

Text Editing

NO statistically significant difference on any exam for Traditional problems OR Text Editing

Physics Jeopardy

NO statistically significant difference except on Exam 5

6. Summary
- Student performance on average is lower for non-traditional problem types
- There are statistically significant differences on the last two exams:
  - Problem Posing (Exams 4 & 5) & Jeopardy (Exam 5)

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REFERENCES