Introduction

- DyKnow software (www.dyknow.com) is designed to promote engaged classroom communication through various techniques for real-time feedback and information exchange among all participants in the learning process.
- Tablet PCs provide a critical advantage in fields where formula writing, graphing, schema sketching or free drawing play a vital role (mathematics, sciences at large, engineering and art as well as Japanese language, music, special education, medical imaging etc.).
- This paper describes modalities and summarizes results of using DyKnow software and Tablet PCs in several college level, introductory physics and physical science courses at several universities.

Tablet PC & DyKnow Instruction

Results


Fort Hays State University

Hrepic at al. (2007, 2009b)

DyKnow and university-provided Tablet PCs deployed in:
- 1) Calculus-based Modern Physics Course: Results compared with previous semester without deployment.
- Same instructor, curriculum and textbook.
- 2) Conceptual-based Physical science course: Results during three semesters of deployment compared with three semesters without deployment. Same instructor, curriculum and textbook.

Course | Semesters | DyKnow used | N | Pre Test Score Mean (± SD) | Post Test Score Mean (± SD) | Normalized gain Mean (± SD)
--- | --- | --- | --- | --- | --- | ---
Modern Physics | Fall 07 | NO | 10 | 78 (±10.9) | 80 (±11.9) | 2% (±10.9)
Physics | Spring 08 | YES | 10 | 85 (±6.9) | 89 (±3.6) | 5% (±9.6)
Physical Science | Spring 09 | NO | 10 | 68 (±10.3) | 72 (±5.7) | 6% (±10.3)

Columbus State University

Hrepic and Shaw (2010)

DyKnow and voluntarily brought students' personal computers deployed in:
- 1) Algebra-based Introductory Physics Courses: Results compared success in the same class based on how much they used technology. Same course – same instructor, curriculum, textbook, tests etc ...

Classroom Observation Results

Advantages

- More interaction for the whole class
- Easy to get back and review material
- Helps students organize notes
- Can telecommunicate to class

Disadvantages

- If you have no computer you are at a disadvantage
- Technical issues can cut up class time
- Temptation to check email during class
- Couldn’t take notes by hand if using laptop in class

References


Students’ Perceptions on Productivity of Using DyKnow Software in Teaching (FHSU and CSU Deployments)

Students’ Attitudes and Recommendations (FHSU and CSU)

Students’ Recommendations for Future Usage of DyKnow Software and Tablet PCs in the Physics Courses (FHSU and CSU Deployments)

Columbus State University (Contd)

Test and Survey Results

Students’ scores measured against Cumulative Computer Presence and DyKnow Activity

Students’ Perceptions on Productivity of Using DyKnow Software in Teaching (FHSU and CSU Deployments)

Students’ Attitudes and Recommendations (FHSU and CSU)

Students’ Recommendations for Future Usage of DyKnow Software and Tablet PCs in the Physics Courses (FHSU and CSU Deployments)

Tablet PCs and pen