Tablet PCs: An educational aid for lecture-based survey meteorology courses

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Motivation

- Incorporate Latest Technology in Classroom
- Improve Student Note-taking
- Provide More Complete Notes
  - Note-taking is more predictive of class performance than class attendance and critical thinking skills (Williams and Eggert, 2002)
Lecture & Tablet PC

- Outline of Class Notes Posted on Compass Prior to Class
- Lecture Given with PowerPoint
- Instructor Fills in Notes on Tablet PC
Example Annotation

tropical cyclone

extratropical cyclone
Classes / Students

- 2 Gen Ed Courses
  - Intro to Meteorology
    - Lecture/Discussion
    - 2 sections (150 students each)
  - Severe & Hazardous Weather
    - Lecture
    - 3 sections (150 students each)

- Diverse Demographics

[Pie chart data: Freshman 39%, Sophomore 26%, Junior 18%, Senior 17%, Grad/Other <1%]
<table>
<thead>
<tr>
<th>Instructors</th>
<th>Taught</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlevoix</td>
<td><em>Intro Met</em></td>
<td>10-years</td>
</tr>
<tr>
<td></td>
<td><em>Svr Wx</em></td>
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<tr>
<td>Jackman</td>
<td><em>Svr Wx</em></td>
<td>1-year</td>
</tr>
<tr>
<td>Twine</td>
<td><em>Intro Met</em></td>
<td>1-year</td>
</tr>
</tbody>
</table>
Data

- 3 Surveys
  - Beginning of semester
  - Mid-Semester Informal Feedback
  - End of Semester

- ICES forms (free response)

- Data Coded & Analyzed in Excel
Student Opinions

- **Mid-Semester**
  - Should We Continue Using Tablet PC?

- **Final Survey**
  - Did You Like Our Using the Tablet PC?

N=542

- 9% Continue
- 91% Stop

N=750

- 9% Liked
- 91% Disliked
Student Opinions

Do You Find Annotation of Slides Beneficial in Understanding Difficult Material?

Mid-Semester

- Yes: 96%
- No: 4%
  
N=542

End of Semester

- Yes: 92%
- No: 8%
  
N=750
Instructor Opinions

- **Pre-Semester**
  - Tablet PC would engage students
  - Tablet PC could integrate notes & figures
  - Student note-taking would be improved

- **Post-Semester**
  - Tablet PC was effective tool for instructor
  - Student note-taking did not appear to change
Note-taking Habits

- Accessed Notes Prior to Class → 25%
- Accessed Notes After Class → 45%
- Notes Available Before Class was Beneficial → 46%
- 85% → Having Annotated Notes Posted on Compass Would be Beneficial
Implications for Teaching

- Unique Opportunity for Figure & Weather Map Annotation
- Need to Inform Students of Potential Benefits Early-On
- Releasing Annotated Notes to Students Must Be Considered
Next Steps

- More Data Gathering Spring 2006
- Evaluate Student Learning via Final Grade Analysis