Plants, Pathogens, and People (PLPA 200)

- uses plant disease epidemics to introduce issues in agriculture
- fulfills general education requirements: natural science, advanced composition
- capped at 75 students
My initial question:

Who are the students in my class?
First Day Survey

- sophomores, juniors, seniors
- from 6 to 8 different UIUC colleges
- some have lots of college biology; some have one course in high school
- most are taking the class to fulfill General Education requirements
These are interesting demographics,

but how do these diverse students *learn*?

This led to the literature about how students learn, and specifically about learning styles and instruments to identify learning styles.
Gregorc Style Delineator

- uses 2 scales:
  - how perceive information: abstract/concrete
  - how organize information: random/sequential

- to define 4 learning styles:
  - abstract-random (AR)
  - abstract-sequential (AS)
  - concrete-random (CR)
  - concrete-sequential (CS)
Some Results for PLPA 200

- preferred learning styles of 215 students
  
  AR  65
  AS  70
  CR  82
  CS  131

- over time, a variety of teaching formats and media have been incorporated into the class
  
- “scholarly teaching”
Scholarly teaching becomes SOTL…

- discussions with colleagues
- a study is designed to answer: Are we reaching all of the learners in our general education class?
A Quantitative and Qualitative Study of Relationships Between Students’ Learning Styles and Their Perception of the Effectiveness of Different Instructional Formats and Media

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Methods

- **subjects**: undergraduate student volunteers
- **learning styles**: Gregorc Style Delineator
- **format/media preferences**: survey, focus groups
- **analyses**
  - survey: frequency and correlation analyses
  - focus groups: trend analysis
Formats and Media

- lecture
- handouts
- visual aids: chalkboard, overheads, color slides, PowerPoint slides, videotapes
- IClickers
- discussion: small group, whole class
- review grids
- writing: in class, out of class
- textbook
- PPP web site: text, images, interactive exercises
- WebCT web site: on-line quizzes, PowerPoint notes
Frequency Analyses Results

Formats/media preferred every semester by individual learning style groups

- **AR** prefer: PowerPoint slides/overheads, IClicker, review grids, on-line quizzes
- **AS** prefer: IClicker, review grids
- **CR** prefer: PowerPoint slides/overheads, review grids, on-line quizzes
- **CS** prefer: PowerPoint slides/overheads, IClicker, review grids
Frequency Analyses Results

learning style group differences

- **AR** preferred out of class writing 3/4 semesters
- **AS** preferred out of class writing 2/4 semesters
- **CR** preferred videotapes 2/4 semesters
Selected Focus Group Results

- Comments focused on formats/media perceived as useful for most learning styles.
- PowerPoint slides and overheads helped students to be organized and focused their attention on lectures. Images appealed to visual learners.
- Review grids helped students “bring it all together”.
- Weekly online quizzes encouraged students to study regularly and to stay current.
- IClickers were a “fun” way to encourage class participation and to check their understanding.
Conclusions

- Of 19 formats/media in the study, 5 were consistently preferred by students.

- Eight formats/media were effective for students of all learning styles in our class.

- Selective preference by learning style was found for 2 formats/media.

- Five formats/media were positively or negatively correlated with students’ scores in a particular learning style.

- Focus groups explained why certain formats/media were more or less effective.
The Bottom Line

Use of a variety of instructional formats and media can provide students with different learning styles the opportunity to master a subject.
Made public through:

- peer-reviewed presentations at
  - professional society meeting
  - teaching and learning meetings
- publication (in preparation)