Assessing collections-based learning in online classes

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1. Opportunities
2. Distance Education
3. Assessment

Educational Value
Are delivery methods equivalent?

Academic Dishonesty
How prevalent is it?
Your subjects

• Insects are everywhere
• Everyone can go outside; hands-on learning
• Local reference materials available

Few Exceptions:
  Deployed Students
  Particular habitats
The Value of Collection-Based Projects
Application to Other Fields

Collections management!
Courses with Insect Collections (Face-to-Face and Distance)

**Introductory**
Principles of Entomology

**Advanced**
Insect Classification

**Undergraduates:** Entomology Majors, Minors / Gen-ed students
Workplace Advancement / Pest Control Certificate

**Graduates:** MS, Distance MS, PHD / REC Grads / Other universities

_Diverse backgrounds and goals!_
The Online ‘Lab’

• **Goal**
  Provide experience *equivalent* to classroom

• **Methods**
  Translate in-class activities
  Assess learning / course success

• **Results (ideally)**
  Same *goals* met by same or different activities
  Equivalent *assignments* work equally well in class & online
Collection Assignment

Collect  Curate  Identify

Specimens

 SEND IN

Documentation

Field Notes
Distance Education

Too bad!

Too good...

Unique Challenges...
1) Are delivery methods equivalent?
   • Are there differences in learning gains between face to face and online sections?

2) How prevalent is academic dishonesty?
   • Is academic dishonesty more of a concern in distance learning than in the classroom?
Advanced: Insect Classification Survey

- 50 insect ID questions
- Ungraded
- First and last assignments
- 157 students over 10 semesters
  - Online (5 semesters)
  - Face to Face (5 semesters)
1) Are delivery methods equivalent?
   • Are there differences in learning gains between face to face and online sections?

2) How prevalent is academic dishonesty?
   • Is academic dishonesty more prevalent in distance learning than in the classroom?
Academic Honesty
Academic Honesty

Insect Specimen Police
Mark-Release-Recapture

1. Mark
2. Release
3. Recapture

Look for red flags ...
Academic Honesty

Technology
- Forensic marking methods

Teamwork
- 2 courses, 4 faculty, online/in-class

Expert Witnesses
- Entomologists, UF IT Help Desk, student TAs
Collections-based courses benefit online learners

No distance / face to face knowledge disparity

but...

Academic dishonesty is more prevalent online

Plagiarism is not very common (< 2% of all students);
Online students 9.5 x more likely to cheat;
Cheating is equally common across courses
• Established departmental policy and procedures
  – Dean of Students Office
  – Updated course Syllabus

• Online improvements
  – More & better interactions with students!
  – Clarity, Reminders, Opportunities to ask questions
• Colleagues: Marc Branham, Rebecca Baldwin, Christine Miller and Teaching Assistants 2012-2017
• UF CALS Distance Education Mini Grant
• UF E-learning Helpdesk, Dean of Students Office
• UF Teaching Resources Center Travel Award
• UF IRB #201700949
Abstract

Assembling and curating a specimen collection is a valuable activity to integrate lessons on finding, preserving, identifying, organizing and interpreting an assemblage of objects - be they insects, plants or something else. Traditionally, collection projects are used in face-to-face classes, but they can also be successfully adapted for distance education. Challenges in doing this are similar to those in modifying lecture or laboratory classes. Primary concerns about using collection projects in distance education are 1) whether online students gain as much benefit as in-class students and 2) if academic dishonesty is a greater problem online than in-person. To address both concerns, this study assessed learning outcomes in pre- and post-course surveys in an advanced course and specimen-based plagiarism (students submitting specimens collected by someone else) in two entomology courses with in-person and online sections. A five-year ‘mark-release-recapture’ experiment involved marking thousands of specimens submitted in student collections, which were released back to students. In subsequent semesters collections were checked to detect recaptured specimens. Comparison of advanced entomology students’ identification abilities revealed that online and in-class students entered the course with significant differences in knowledge (T test: t=4.557, p<0.0001), but end-of-course outcomes were equivalent (T test: t=1.028, p=0.153). In contrast, academic dishonesty was more prevalent in online than face-to-face sections of both classes (logistic regression: z=2.473, p=0.0134). These results highlight the fact that collections can be effective teaching tools in online education, but underscore the need for instructors to consider how to maintain academic integrity and deter cheating in online classes.

15 min slot (12-min talk)