Mar 28th, 4:00 PM - 5:30 PM

Living and Loving Biology: A Learning Community with Research for College First-Years

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Recommended Citation
Gobetz, Katrina, "Living and Loving Biology: A Learning Community with Research for College First-Years" (2013). SoTL Commons Conference. 36.
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Living and Loving Biology:
A Research-Based Learning Community at James Madison University
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The Trelawny Learning Community
JMU’s Biology Learning Community started as a group of 24 students who lived in one dorm and took intro courses together as well as a seminar.
I changed “TLC” to research-based experience where students entering college could begin research right away and explore their interests in Biology.
The group is small (10-12) so each student can join a department research lab. Often TLC’s shadow a lab team and then progress to hands-on research.
Main Objectives of TLC:
1) Provide research for first-year Biology majors
2) Increase student/department connection
3) Build teamwork skills

A Trelawny Year
Application & Selection
Students apply through Residence Life. Current TLC’s and mentors help select the next generation of students with a passion for research and motivation to pursue science as a career.

Arrival at JMU, Placement in Research Labs
Students meet with mentors to discuss possible research options.

Trips & Social Events
At Virginia Safari Park, Lexington, VA.

Spring Research Symposium
Culmination of the year; TLC’s help organize and curate the symposium and participate themselves with poster presentations. The symposium simulates a conference, promoting interaction with faculty and peers in a professional yet relaxed setting.

Mastery and an Independent Project
Focus on young undergraduates benefits student learning. Once first-years are trained, they can stay in a lab 3 more years, living important roles. Example: A 2010 first-year is heading to Costa Rica this summer to study saltamontes which he helped feed and observe as a TLC student.
Students may find research is NOT for them - and they find out early enough to aid vital life decisions.

Interchange with Mentors: Another Generation of Learners
Past TLC’s enroll as mentors. About 5 mentors from different research labs guide the first-years in lab and in seminar. They also read journals (examples to right). They gain insight and experience by teaching their peers.

How to Assess Learning Outcomes?
This data represents the first application of qualitative techniques to TLC. To start, student journals are theme-coded with nVIVO to assess what students learn from their first-year experience. Themes are coded in the context of research, and include:
Motivation/Eagerness
I am eager to finish training quickly… and am looking forward to our first experiment and finding out what kind of role the other freshmenn and I will play.

Revelation/Discovery
I realized that this research includes a lot of down time while things are processing. The experiment took place till the next day and possibly longer.

Realization of Failure leading to Growth
“Today didn’t go too well… He looked at my results and noticed that they were wrong! … On the other hand, now that I’ve had all that practice, I’m a lot faster at inputting the data.”

Emotions
“When I went back over my pictures, they were missing important data points. I was shocked because I thought I had done a thorough job.”
“I am a little disappointed that there is nothing hands on that I am allowed to do this semester.”

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I would be interested to read more into your insight. The quality of the experiment is always the predominant focus. How, as a student who is learning much still about lab, does that make you feel as a scientist?"

“Only critic about your notebook would be that you could split it into sections so you can keep your Treawny assignments and stuff for lab separate.”

“I’d suggest reading everything you can get your hands on. Now is the time to get ahead in your field ad make strong foundations.”

“Mostly a unique experience, but TLC’s mentors also run a group ecology project to allow sharing of research knowledge.

Future Plans for Assessment
Teamwork and Mentor Learning Outcomes:
In Fall 2013, mentors will continue their journals in their new teaching/learning role. Their writing will provide a source of coded themes for comparison with first-years. Teamwork skills will be assessed in the near future as well.

Add a Control:
Now that a few semesters of data from TLC are being collected, outcomes must be compared to those of non-TLC Biology majors. This comparison will require a different method of assessment to compare levels of understanding and retention of Biology course and research-related material.

SoTL is New to Many Biologists:
Qualitative research will lend many insights to help this program evolve!

Fallbacks of this New Program
Many students don’t research because they CAN’T:
“Dr. C is concerned about the lack of space he has in the new building and doesn’t know how many people he can take on.”

The comment above describes the biggest hurdle to the TLC program: Difficulty placing each student in a lab where they can have a reasonably active role and stay on if they wish. Competition for research is high. In 2014, we will target labs with graduate students who can train new students while increasing their own productivity.

Faculty involvement is a challenge:
The same individuals tend to take on TLC students - and so far, the only faculty incentive is a Sierra credit.

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