

Beyond the Podium

April 15, 2016

Student to Student Learning

Discussion Leaders: Christine Davis and Alice Harmon

Students Teaching Students (Learning Assistants – LAs)

- Biology learning assistants are trained and paid
- Peer leaders ask questions answer questions
- Because of the success of this program from Boulder Colorado there are now 70 programs
- Infusing the classroom with active learning
- Dealing more conceptually with the topic and providing real applications and deep understanding
- Challenge: Low completion of stem degrees across the nation
 - the grade students get in intro Biology courses impacts the desire to complete a degree in this field
 - 18% retention reduction in sciences after intro bio1
 - And 14% more lost after intro bio 2
 - The grade received in these intro courses is correlated to the retention rate of students in stem disciplines
- Transform courses
 - Reduce identified achievement gaps and increase retention
 - Disparity exists in particular for certain ethnic groups

What Do LAs Do?

The class meets three times each week. The first two meetings are traditional lecture and the third consists of group activities led by an LA.

- They attend class every period and sit next to their group
 - Each LA is assigned 25 students
 - There is no lecture the LA leads them through an activity
 - Instructor walks around the room asking clicker questions to check overall comprehension.
 - These activities were written by faculty and LAs give constant feed back
 - Groups are clusters with their LA and work on active learning
- LAs also run 6 additional study sessions a semester
 - LAs create activities specifically for these sessions
 - These study sessions are a learning community with food and fun
 - Study sessions are actually valuable because they break down barriers

What are the Benefits for the LAs?

- LAs receive a \$1,500 stipend each semester
- While working as an LA students must take a course on pedagogy in sciences:
 - A Biology Education seminar which is 2 credits
 - LAs reflect on what they have done and learned and regularly meet with faculty
 - The teaching seminar counts towards the degree students are seeking
- LAs learn quality communication skills

- LAs immerse themselves in the groups they are working with and build a community of friends and really develop relationship
- The program encourages students to be more accountable
 - They don't want to disappoint

Program Outcomes

The program has been piloted starting summer of 2015 through spring of 2016. The data is still being collected and analyzed, but early results seem to show improvement.

- Took measurement in Spring 2015 as baseline
- 3 sections of the same course were taught:
 - 2 "traditional" lecture classes
 - 1 with two lectures and one LA session each week
 - Pre- and post-test assessment data has been collected to determine learning gains
- The Biology Department funded the program internally for first semester
- Graduate TA training is different than the LA training

Thus far the program has shown greater improvements among minorities and overall all groups showed improvement.

- Under Represented Minority students did better as well as first generation students when compared to the baseline
- Hispanic and Latino students did better overall, even though those who took section with an LA had a lower GPA than those in the non-LA section
- Questions for LA sections in exams were more difficult
- Improve understanding of concept: yes
- The LA section appears to have reduced identified achievement gaps:
 - It is too early to determine if there is an improvement in retention

Lessons Learned

- Just the exercise of faculty talking with each other and the LAs is making the course better overall
 - The input of all LA is most valuable to a greater teaching learning experience
 - The LAs feel comfortable with telling faculty when course material is unclear
- Design a pre/post test
- Increase the dosage of active learning
- Ultimately give students the choice to self-select either section
- The LAs are not allowed to give the activity questions to students if they missed the activity

The best LA to student ratio seems to be 20 – 25 students in each group.

- Show up show up regularly do best
- Course format may be challenging at first but as the semester progresses students become self-sufficient
- Accountability comes in with clicker questions for which students get credit
- Students shift around at the onset of semester based on student self-assessment/survey
 - they self-select
 - This seems to encourage those individuals who are more creative by nature.

Resources

Learning Assistant Alliance: <http://laa.colorado.edu/>