Positive impacts of a STEM-centered university service-learning course

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Positive impacts of a STEM-centered university
service learning course

Gretchen D. Perkins, Ashley D. Collins, David Knauft, PhD., and Nick Fuhrman, PhD.

What is Project FOCUS?

Fostering Our Community’s Understanding of Science
(Project FOCUS) is a service-learning program that began in 2002. Undergraduate students majoring in science and science-related fields are paired with a local teacher for a semester to help in the classroom by teaching hands-on, interdisciplinary science lessons.

“Service-learning is so transformative and powerful. Everyone should take a service-learning course at least once in their college career.”

Who Takes Project FOCUS?

Top Reasons FOCUS Students Participate in the Program
#1: Like working with children
#2: Enjoy sharing science with children
#3: Interested in teaching
#4: Interested in serving their community
#5: Want real life experience

Average GPA: 3.47

Major
- Life Sciences: 5%
- Education: 4%
- Physical Sciences: 2%
- Other: 15%
- Pre-Med: 16%
- Pre-Pharmacy: 9%

Gender
- Male: 21%
- Female: 79%

Ethnicity
- Caucasian/Non-Hispanic: 41%
- Hispanic/Latino: 21%
- Asian/Pacific Islander: 28%
- African American: 7%
- Other: 3%

Top 10 Collegiate Level Science Classes on Average

Course Requirements
- ≥ 3 hours per week in a K-8 classroom
- Reflection Section Attendance
- 14 Reflections
  - Educational Perspective
  - 12 Weekly Reflection
  - Summary Reflection
- Portfolio Project
  - Teaching Philosophy
  - 3 Lesson Plans with Reflection
  - Student Case Study
- Recruitment Presentation

Student Reflections

“Project FOCUS was one of the best programs I’ve been involved in. I loved teaching science to the kids. It was really a shock to me to see firsthand what a child living in Athens who is not that well off has to deal with.”

“The most enjoyable part of teaching for me was when a student had that “light bulb moment” and finally understood the concept I was teaching.”

“As a pre-medical student, I know this experience will be valuable in helping to teach patients about their health.”

“Being able to make a sincere bond with students in the class I volunteered in was really powerful. The way they looked up to me and enjoyed my time with them was very empowering. I always wanted to go above and beyond for them and give them the best experience possible.”

Recommendations

- Start small (with one school) and expand to others as your program grows
- Recruit students from all majors who are:
  - Highly motivated
  - Interested in working with the community
  - Sophomores, Juniors, or Seniors
  - Involved in science courses, clubs, or work
- Include an application process to help screen for specific candidates
- Host a mandatory orientation
- Weekly reflection section as a support group for students covering various topics in education

Data Sources

Multiple data sources were analyzed:
- Quantitative Data
  - Background Info Survey of former FOCUS students, 229 participants
  - Service Learning Survey of former FOCUS students, 28 responders
- Qualitative Data
  - Student assignments, Fall 2014
  - Course Evaluations, Spring & Fall 2014