12-1-2013

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JOURNAL OF MICROBIOLOGY & BIOLOGY EDUCATION, December 2013, p. 258-259
DOI: http://dx.doi.org/10.1128/jmbe.v14i2.595

Confluence: A Seminar Series as a Teaching Tool †

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INTRODUCTION

In 2007 Florida International University (FIU) received NIH, NSF, and internal support to create a curriculum that was quantitative in nature, and that incorporated some of the most contemporary approaches to the classroom. The QBIC (Quantifying Biology In the Classroom; http://qbic.fiu.edu) Program is a specialized program in the Department of Biology specifically set up to implement 'vision and change' principles in the department's overall approach to students. It is now an optional track within the Department of Biological Sciences. We discuss the major objectives of this series, the affect areas that it addresses, as well as how students incorporate the series' lessons for their own professional development.

It became apparent to us anecdotally that our undergraduates were making career choices without the awareness of the many other viable career options in biology. This is not an issue unique to our institution and other authors (1) have discussed steps to address career choice and exposure. At our institution, we created a number of career development initiatives, one of which was a seminar series called "Confluence: where life and science meet." For this series we invite science professionals from around the country to give a seminar, mostly to undergraduates, not only on the technical specifics of their field, but also on their personal life story, and how that story informed their career choice. After the seminar, the speaker sits down with a QBIC faculty member for a half-hour interview where he or she is able to go into more specifics about the themes from the seminar. The interview is videotaped in front of a live student-only audience in a film studio on campus. The recording is published on the series' website (http://qbic.fiu.edu/confluence). In this article we discuss using the series to address issues of identity, and how our video blog can be used in other classrooms to achieve similar objectives for science students nationally.

Informed career decision-making

Through interviews with our undergraduates, we discovered that while some of our students have developed a genuine passion for medicine, many others have made this choice due to family pressure, perceived future lifestyle, and a lack of awareness of other careers that fulfill the passion for science. We use the seminar series to expose students to professionals who have followed different career trajectories and give the students an opportunity to dialogue with them as to what it takes to get there. In FIU's demographic, it is sometimes the student's first time meeting someone who has a career in research. We use this event along with other strategies (aggressive marketing of summer research opportunities, lab tours, and targeted student advising) to increase the exposure of our students to alternate careers in science with the overall goal of having them make an informed decision for their future.

Contextualization and production

Lower classmen sometimes have difficulty seeing how simple biological processes have applications to everyday life. When our speakers describe their work, they illuminate the relationship between biology the subject and biology as it applies to the world. Our speakers purposefully shy away from the extremely technical terms that often characterize departmental seminars, and tailor their vernacular to a student audience that is trying to see the connection between their love of biology and a potential career in the field. Speakers are chosen based on diversity of careers, backgrounds, and demographics. Speakers spend at least one full day, so they can have time to give the seminar, a videotaped interview, and spend some time interacting with our students. The videotaping and all technical work specific to the production process is done by a hired video company, but some of the graphics, soundtrack, and interview voices are undergraduates and graduates who volunteered to assist with the project. This assistance is not required, but is

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†Supplemental materials available at http://jmbe.asm.org

a great way to involve students with secondary skills to be engaged with the production process.

Reflection exercises

The negative effects of stereotype threat (2) are present in our institution. To encourage students to confront their complex emotions on this issue, we assign one-page reflective writing pieces (see supplemental material) after having the students watch the interview (online if they did not attend in person). These assignments count for a small amount of credit, which students receive for simply having done it. This assignment reflects studies that suggest forcing students to come to terms with these psychological forces predisposes them to deal with them more comfortably in later college years (3). Typical student essays focus on complicated relationships between students and family members who are unsure of alternative science careers to medicine and the students' own perception of their ability to overcome income and academic obstacles.

Science Café

After students have been exposed to scientists from different careers, who take time to discuss their life story and science with them, we challenge our students to go into the local community and do the same. Our senior seminar class is called "Science Café," which students spend two semesters developing and implementing. The students (in small groups) choose their own topics, location, and style of presentation. The goal of this class is for them to develop the skill of explaining complex science to the general public. Cafés can be held in local public venues of the students' choosing. This process not only helps improve the communication skills of the students, but also forces them to understand the value of increasing public knowledge of scientific principles. The students' experience during the Confluence series helps them develop strategies for their own Science Cafés.

CONCLUSION

The Confluence series hosts approximately two scientists per semester. While students in the QBIC Program are required to attend, the audience draws students from other STEM disciplines within the FIU community. Our focus group conversations have indicated that students are being enlightened on how underrepresented scientists dealt with challenges of perception, but that the students' handling of these issues is still evolving. Questionnaires (see supplemental material) suggest that the seminars are making students aware of different careers in science and changing their perception about what pursuing those careers entails.

SUPPLEMENTAL MATERIALS

Appendix 1: Homework example and questionnaire responses

ACKNOWLEDGMENTS

The Confluence series has been graciously supported by NIH (National Institutes of Health) grant # 800001891. Details of the Confluence series were presented at the Ecological Society of America Annual conference in Portland, Oregon 2012. (Dewsbury, B. M., A. Reid, and O. Weeks. Confluence: where life and science meet. Ecological Society of America, August 2012, Portland Oregon.) The funding source for this project played no role in the collection, analysis, or the interpretation of the data from this project. The film crew used for the interviews is Dror Levi Films (a local Miami film company). The authors declare that there are no conflicts of interest.

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