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Peer Leading Helps More Than the Students Being Led

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Abstract

Workshops help the peer leaders learn the content in their own STEM majors' courses by enhancing the understanding of the basic concepts taught in introductory science courses. Because each peer leader teaches at least two 2-hour workshops a week and spends a minimum of three hours preparing for those workshops, the leaders have a more in-depth understanding and command of the basic principles. Because of this better grounding in the discipline, the peer leaders have an advantage when it comes to taking standardized entrance exams for higher education such as MCAT, GRE, PCAT, and DAT. In addition, peer leaders have the further advantage that Workshops force them to continue to review the material for years after taking the course. Peer leaders improve leadership and communication skills; skills they will continue to use throughout their lifetimes in whatever career they pursue.

Introduction

Peer-led team learning (Gosser and Roth, 1998; Gosser, et al. 2001; Cracolice and Deming, 2001) is a peer-assisted learning (Fuchs, et al, 1997) program in which undergraduate students that have done well in a course become mentors for other students in later semesters taking that particular subject. In chemistry at UTEP, the peer leader is usually responsible for two workshops each semester (Becvar, 2012c; Becvar, et al, 2008); each workshop with about fourteen students and lasting an hour and fifty minutes. This format allows time in a given workshop for a chemistry Exploration (Becvar, et al, 2003; Becvar, 2004; Frederick and Becvar, 2009; Campos-Flores, et al, 2010; Ronquillo, et al, 2010; Becvar, et al, 2012a; Becvar, et al, 2012b), a simple hands-on activity (see "Explorations" article in these Proceedings) and to go over content from the course. In the workshops at UTEP, peer leaders encourage students to learn the material using fun and interactive methods. The peer leaders are often encouraged to come up with their own ways to reinforce the material that the students are learning in lecture (see "Free-Style PLTL" article in these Proceedings). Peer-led team learning has the advantage to provide a mentor (the peer leader) that the students are not intimidated by as well as someone who has taken the same course recently. The small group size of workshop allows each student to experience a more specialized, even a more individualized, way to learn (Becvar, 2007). Although studies have been done to provide evidence for the effectiveness of learning of the students in course, research studies that look at the benefits of workshops for peer leaders are not as available. In the current study, a survey was constructed that focused on the

benefits leaders believe they received from the peer leading experience. This survey was emailed to current and previous peer leaders from UTEP.

Procedure

Using surveymonkey.com, an online survey (Figure 1) was created that asked questions of the leaders about the benefits coming from peer leading for workshops and how the experience of being a leader had affected them. The survey was emailed to both previous and current peer leaders at the University of Texas at El Paso. Each peer leader was allowed to take the survey only once and each participant's responses were kept anonymous, meaning that neither the other participants taking the survey nor the survey conductor were allowed to see who responded to the survey.

1. What is your classification?
Freshman Sophomore Junior Senior Other (please specify)
2. What courses have you been a peer-leader for?
General Chemistry Organic Chemistry General Physics Pre-Calculus
Other (please specify)
3. My overall grade point average increased because I am/was a peer-leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
4. My grade point average in science, technology, engineering, and math courses increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
5. My MCAT, DAT, PCAT, or GRE scores increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
Not Applicable
6. My leaderships skills increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
7. My interest in science, technology, engineering, and math increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
8. My interest in teaching increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree
9. My communication skills increased because I am/was a peer leader.
Strongly Agree Agree Neutral Disagree Strongly Disagree

Figure 1. Survey for "Peer Leading Helps More Than the Students Being Led"

Results and Discussion

Fifteen (15) current and former peer leaders responded to the survey and their responses are represented in the pie charts shown in Figure 2. The results support the

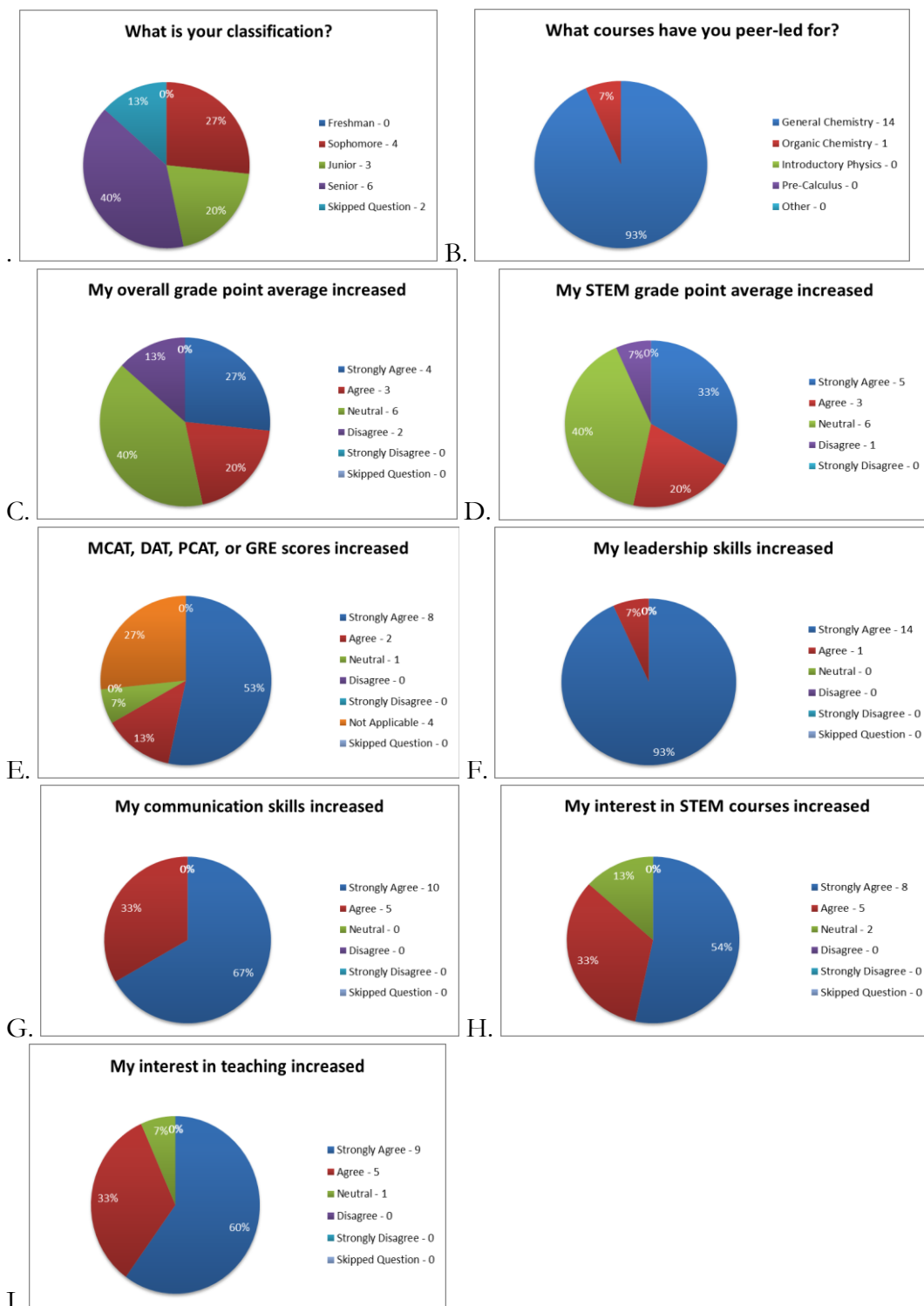


Figure 2. Survey Results. Note that some answer choices (e.g. ‘strongly disagree’) were not chosen for some questions.

hypothesis that peer leading is not only useful to the students in course, but also beneficial to the peer leaders themselves (Becvar, 2004; Becvar, 2007; Loya, et al, 2008). About half the peer leaders

believed the experience had increased their GPA overall (Figure 2C) and their STEM GPA (Figure 2D), while 40% were neutral in both cases. Two-thirds felt peer leading had resulted in higher standardized test scores on the professional entrance tests like the MCAT, DAT, and GRE (Figure 2E). All 15 respondents strongly agreed or agreed that their leadership (Figure 2F) and communication skills (Figure 2G) had improved because of the experience (Becvar, 2004). Peer leaders almost unanimously agreed that the workshop experience had increased their interest in teaching (Figure 2I) (Becvar, 2012c; Becvar et al, 2008). The benefits greatly relate to making peer leaders more likely to be successful in a variety of careers. Workshops give peer leaders opportunities as undergraduates (often reinforced for several years) that students at other universities do not receive until they are in graduate school (Luna de Lara, et al, 2011). This is a very beneficial program that helps all of those involved in it. Further evidence supporting this hypothesis is shown in Figure 3 obtained from a previous study at this institution. Figure 3 shows that a large number

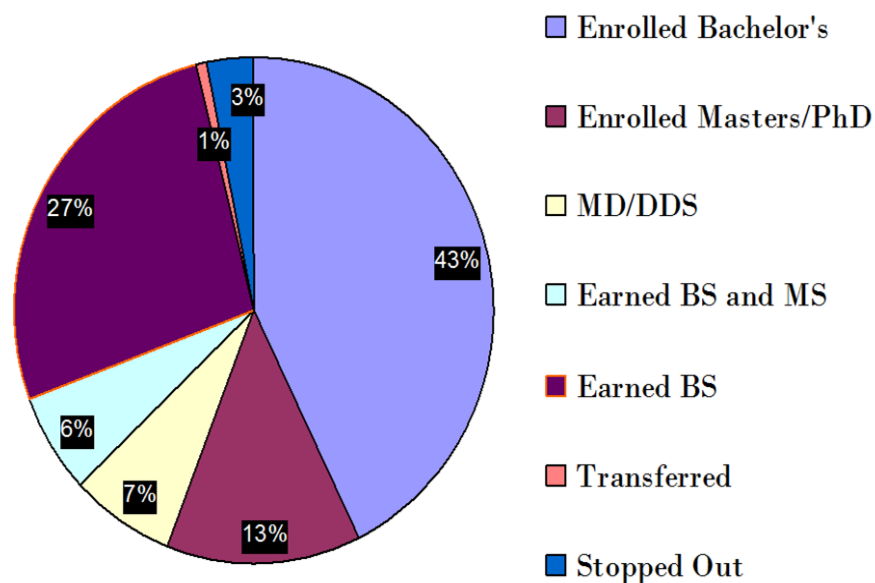


Figure 3. Professional Fate of UTEP Peer Leaders Participating in Project I-STAR. The National Science Foundation STEM Talent Expansion Program (STEP) grant to UTEP has funded over 200 peer leaders in chemistry, physics, and mathematics. This pie chart shows what has happened to those peer leaders; some are still students at this institution.

of peer leaders are going on to obtain advanced degrees (Kim and Becvar, 2007; Becvar, et al, 2008).

These data support the hypothesis that the experience of leading within the peer-led team learning program is not only beneficial to the students, but is also beneficial to the students that are leading them. Because of the small sample size of the current study, additional data is warranted for confirmation. Such data can be obtained by distributing this survey or one like it to additional peer leaders, including those at other universities. The survey can and should be amended, supplemented, and modified by PLTL practitioners everywhere to become part of the on-going business of the

Peer-Led Team Learning International Society to document the benefits of the PLTL experience on the leaders.

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