

ORAL PRESENTATIONS

Friday, May 31

2:15-3:55 pm

Group I

Room: A300

Moderator: Jim Becvar

Recruiting and Selecting Peer Leaders

Christopher Kirk Greer, Amanda Yi
University of West Georgia, Georgia, USA

We will present an overview of workshop leader retention, recruitment, and selection process undertaken by the workshop staff and “super leaders.” This includes, but is not limited to: recruitment posters, informative classroom presentations by veteran leaders, encouragement by current leaders of potential leaders within their workshop groups, group interviews of potential new leaders by Workshop program staff and super leaders, and the actual selection process. The retention and hiring of new leaders into the Workshop program can be an overwhelming process with a large pool of applicants and a finite number of spaces, and through our presentation we will show how the process has been perfected and streamlined at the University of West Georgia. Participants will see the actual processes, applications, and recruitment materials used by the workshop program at UWG.

PD for PLTL Leaders: How to make the interview process both a self-evaluation and team-building exercise for veteran leaders

Lisa Kuehne, Regina Frey, Megan Daschbach
Washington University, St. Louis, Missouri

PLTL is an integral part of the first-year experience of many calculus and chemistry students at Washington University. Each year, 40-50 new leaders are hired. An effective selection process is essential to the program's success, and has been developed to be part of the ongoing leader training. The structure of the interview process for the Calculus PLTL program includes assignments required for the weekly seminar attended by PLTL leaders as well as direct involvement in the development, implementation and evaluation of the interview process. A short overview of the process will be presented, including dissemination of materials to aid in the evaluation of candidates that could be adapted for other institutions' use. Post-interview leader survey results for the 2013 selection process will be shared, and a discussion of benefits as perceived by current leaders and further evaluation strategies will follow."

Training tutors to be Peer Leaders

J. Brett Kimbrell
University of West Georgia, Carrollton, Georgia

New peer leaders in chemistry workshops at UWG are enrolled in an academic course, “What Do You Know about Leadership” for 2 semester-hours credit. The bulk of the formal training process occurs during a three-day period prior to the start of classes each semester. This pre-semester program is carried out by the faculty workshop coordinators along with a staff of seasoned peer leaders (superleaders). The agenda includes both theoretical aspects (development of the PLTL model, the art of questioning, metacognition, Bloom's taxonomy, learning theory) and practical experience including simulated workshops in which new leaders practice leadership on each other. Speakers from other campus departments are invited for presentations on stress management, learning styles, professionalism, handling disruptive students and campus resources. The formal training process ends with a “leaders' meeting” going over the content of the first week's actual workshop and preparing to lead the students they will have that semester.

Transmission: A Stronger Learning Modality

Jessica G. Salazar and James E. Becvar[†]
[#]The Department of Physics, [†]The Department of Chemistry
The University of Texas at El Paso, El Paso, Texas

A typical introductory college course: 100 students in a lecture hall listening to the instructor for approximately an hour. This setting can be categorized as students in a mode of “reception”. Reception involves little engagement of the students and yields outcomes of lower assimilation, grasp of material, reduced interest and reduced retention, particularly in STEM disciplines. In contrast, Peer-Led Team Learning increases comprehension and retention by fostering an environment of “transmission”. The “transmission” mode of curricular dissemination requires students to be active participants in the teaching of the material. In this “transmission” setting, students in 16-student workshops must mentally process, then communicate with their team members, the peer leader, and others within the workshop cohort through oral explanations, Socratic

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question and answer sessions, or written work. The “transmission” mode complements the “reception” mode prevailing in lecture with the overall outcome being the maximization of understanding of the material.

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Room: Auditorium Moderator: Ongard Sirisaengtaksin

Mandating PLTL workshop sessions: the key to success

Yuanyuan Kang, Elsy Rivera, Kafayat Busari

Natural Sciences Department

University of Houston-Downtown, Houston, Texas

In the Spring of 2011, we launched PLTL workshops with a general biology 1 class at UHD. The workshops were effective, however, only benefited 1/4 of the class who attended the workshops. With 3/4 of the class not attending, the passing rate of the whole class was around 40%. We hypothesized that the lack of success was due to the voluntary student participation and decided to mandate the workshops to the whole class in Fall of 2012. The class passing rate increased from 40% to 60%. In addition, the class showed better engagement, had a low drop rate and performed the best in the departmental final exam. We believe that the mandatory attendance of PLTL workshop sessions helps broaden their impact which ultimately led to the success of the whole class. Therefore, our model provides valuable insights into a crucial component of successful PLTL implementation and may prove useful especially for those institutions with diverse student populations.

Why Attendance is Mandatory in Workshops: Comparison of Course Grades of Workshop Attendees vs. Non-Attendees with Similar GPA and SAT Scores. Part II: Results for Second-Semester Students

Brenton A. Bishop and Lucille B. Garmon

Department of Chemistry, University of West Georgia, Carrollton, Georgia

Many studies have compared course success of students who do and do not participate in PLTL workshops. These reports have been criticized when the students participating are self-selected. The students most consistently attending workshops, it is claimed, are those who are most motivated, mature, and capable of doing well anyway. To counter this objection, students regularly attending workshops in second-semester general chemistry were paired with occasional- and never-attendees with similar SAT scores and GPAs.

Students not attending workshop regularly included those who simply chose to miss many sessions; those enrolled in an honors section, which did not include a workshop; and those taking the course online, for which workshops were not available. Students with similar GPA/SAT scores who attended workshop regularly averaged higher course grades than those who did not, even when matched with similarly prepared and motivated students such as those in honors sections.

Training and Supervision: Redefining the Role of the Peer Leader

Jose Luis Alberte, Alberto Cruz, Nataly Rodriguez, Thomas Pitzer

Department of Biology, Florida International University, Miami, Florida

Student engagement in Peer-Led Team Learning (PLTL) can vary depending on the experience, dedication, and communication skills of the Peer Leader. At Florida International University, all Peer Leaders are trained in content, pedagogy, and classroom management during an extensive training program. To further decrease inter-peer variability, sessions are supervised by an experienced peer or PLTL staff member. Experienced Peer Leaders also train new Peer Leaders weekly on content and pedagogy. Peer Leaders are able and willing to take on this role, given the proper training. We have developed a tiered mentor system for the supervision of workshops and training of Peer Leaders.

Tools for Conducting Online CS I PLTL Workshops

Mitsue Nakamura and Ongard Sirisaengtaksin

University of Houston-Downtown, Houston, Texas

In general, students find a programming course difficult, especially those who are not computer science majors. This is true no matter what programming language is being taught and used in the course, whether it is C++, Visual Basic, or Java. Students must have both good problem-solving skills or logic, and a command of the programming language syntax to be able to write a complete program from the start to the end. This implies that in order to create a program, one must be able to come up with an algorithm for the solution to the problem and then convert the algorithm into code according to the programming language used. Most students lack problem solving skills or logic. Some students have difficulty understanding programming constructs and logic. Some even have a hard time comprehending the syntax of the programming language. One possible solution to alleviate these

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learning problems is to engage students in a programming environment that requires only logic skills, not syntax. Furthermore, students can also visualize the structure and logic of the program as well as the flow of execution of the program.

Workshop materials are created by faculty to focus on specific concepts, and workshop leaders guide students through the materials to make the concepts clearer to understand. PLTL workshops provide active high impact learning experiences for participants and focus on improving students' understanding of difficult concepts. In both fall 2012 and spring 2013, one of the CS I sections at UH-D was offered as an online course, with online PLTL workshops. In order to run CS I online workshops efficiently, what is needed are tools such as video conferencing and a white board - for a peer leader to share information with students as with face to face workshops - as well as an application that allows students to visualize programming logic.

The main objective of our project is to develop PLTL workshop materials that will improve students' programming skill using a programmable and executable flowchart application, called Raptor. Raptor allows students to create a program with very minimal syntax and independent of any programming language. Students will be able to create a program using block symbols that are used in a flowchart. Symbols used in the application are limited to a small set of symbols such as input, output, and condition, to avoid confusion as to which block symbol is to be used. Students can concentrate on the logic of the program, and can create a program by adding a block symbol and a programming code/statement into the block symbol one by one until the program is complete. Then, students have an option either to run or step through to the program. This allows students to visualize the flow of execution of the program and focus on the logic of the program rather than the syntax of the language. This application can also be used to demonstrate concepts such as if and loop constructs.

Saturday, June 1 10:30am-12:00pm Group I Room: A300 Moderator: Bonnie Gunn

Peer Learning and Social Participation: Insights from Inside

Chris Keenan

Bournemouth University, Poole, UK

This session will draw on the findings of a nationally funded UK project (2011-2012) which investigated the role of Peer Assisted Learning (PAL) in supporting new undergraduate science students. The benefits for first years who engage with PAL are well understood, however, the project also investigated the benefits of being a Peer Leader. This session will explore some of the key benefits identified by peer leaders (including enhancement of their own personal development, improved graduate attributes and confidence building) through the lens of legitimate peripheral participation (Lave and Wenger 1991) in order to develop an understanding of why and how peer leaders develop the enhanced attributes that they report. Participants will be invited to join in a discussion about how the findings might be used to inform leader training.

Strengthening Foundational Mathematics Courses through the Implementation of Peer-Led Workshops

Janet Liou-Mark, Mursheda Ahmed, Frederic Anglade

New York City College of Technology, CUNY, Brooklyn, New York

The consistent low pass rates of undergraduate students taking entry level mathematics courses are a national trend. Many students are entering college deficient in the necessary quantitative skills needed to fulfill their mathematics requirements for their majors. To address this dire concern, the Peer-Led Team Learning (PLTL) instructional model was adopted by New York City College of Technology to increase the retention, persistence, and pass rates in two fundamental mathematics courses (MAT 1175: Fundamentals of Mathematics, MAT 1275: College Algebra and Trigonometry). The results from this study showed that this pedagogical paradigm of student engagement is effective in promoting success in these gatekeeper courses.

Modifying Active and Collaborative Learning to Make it Work for You: "Hands-on" in the Science Classroom

Stamatis W. Muratidis

Palo Alto College, San Antonio, TX

Students come to class with the expectation of being lectured to, often reluctant to participate in group activities and disinclined to lead their peers. Science faculty often perceive their role as a lecturer they deliver on students' expectation and do not effectively promote a team learning climate. Even more so in the science classroom since faculty view the science laboratory as the sole place for collaborative efforts and informal peer learning to take place. The spirit of learning communities must begin in the classrooms. Students need to be lead and molded into peer learning cohorts in class through active and collaborative activities. Participants will be shown the merits of organizing different types of groups within their class. Best practices for forming and nurturing collaborative peer-led groups will be discussed such as the importance of appropriately sequencing activities, whilst identifying and mitigating some of the common pitfalls of implementing activities. Some of the presentation

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will take place in a collaborative group format wherein information will be experienced in groups. However given the 20 minute time constrain some information on how to initiate student collaboration and peer teaching within the classroom will be presented.

Saturday, June 1 10:30am-12:00pm Group II
Room: Auditorium Moderator: Geoffrey Saupe

Building a Community among Engineering Students

Melanie L. Villatoro, Yineng “Alex” Liang, and Khalil Rouchdy
New York City College of Technology, CUNY, Brooklyn, New York

All Construction Management and Civil Engineering Technology (CMCE) students at City Tech are required to complete Statics as a prerequisite to their Design Courses. Grade distributions over the past decade indicate that only about 53% of students pass Statics with a grade of C or better. PLTL is in its third semester of implementation and data indicates that the students in the PLTL inclusive Statics classes are performing better than those in sections without PLTL. The success of PLTL is due to workshops creating a sense of community among our diverse student population. The diversity in the classroom has a natural tendency to divide the students into “cliques” and discourages them from working together or asking peers for help. PLTL works against the natural tendencies and encourages students to overcome their differences and work as a community towards a common goal.

Educational Partnerships To Encourage STEM Participation

Poonam Gulati and Maria Bhattacharjee
University of Houston, Downtown, Houston, Texas

US rankings in education, especially in STEM fields, are below many developed countries. One third of the STEM doctorate students are international. Thus, there is an urgent need to creatively teach students about STEM fields that they can pursue as careers, and our proposal addresses this issue. The approach is a collaboration developed between General Microbiology and Urban Education (UD) classes. The microbiology students teach project design and implementation to the UD students, who more effectively teach hands-on science to elementary school students. Preliminary conclusions are (1) the microbiology students appreciate applying microbiology knowledge, (2) the UD students are more comfortable and encouraged to conduct science experiments in the classroom, (3) both sets of students are happy to contribute to their community, and (4) the elementary school students are excited about working on science projects. Participants to this presentation will become informed about an excellent and relatively easy partnership, which can be easily adapted to other courses.

The Experience of Peer Leadership and Its Impact on STEM Success

A.E. Dreyfuss, GuanNian Zeng, Yanna Chen, Janet Liou-Mark, Mursheda Ahmed, Frederic Anglade, Yanira Garcia, Yineng “Alex” Liang, Khalil Rouchdy, Jodi-Ann Young, Suhua Zeng

How do Peer Leaders view their leadership experience? A survey, created partly from Dreyfuss (2012) study of leading by peer leaders, was administered to former and current peer leaders at New York City College of Technology during the Spring 2013 semester. The survey examined peer leaders persistence and retention in their STEM disciplines, and their views on how the facilitation experience had impacted their personal and leadership growth and skills were analyzed. Factors that affect leadership will be presented.