What is the American Physiological Society’s ITL and who are the members of PECOP?

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Submitted 21 March 2016; accepted in final form 21 March 2016

Goodman BE, Matyas ML. What is the American Physiological Society’s ITL and who are the members of PECOP? Adv Physiol Educ 40: 239–242, 2016; doi:10.1152/advan.00045.2016.—The American Physiological Society Teaching Section has developed a biennial Institute on Teaching and Learning (ITL) through the APS Conference Program. The first ITL was held in June 2014, and the second ITL will be in June 2016. A Physiology Education Community of Practice was created to help connect the institute participants and other physiology educators to share evidence-based teaching in physiology at all education levels and ideas for the Scholarship of Teaching and Learning and Discipline-Based Education Research in physiology. This editorial describes the origins and outcomes of the ITL and the advantages of joining the Physiology Education Community of Practice.

Institute on Teaching and Learning; Physiology Education Community of Practice; Scholarship of Teaching and Learning; Discipline-Based Education Research

The American Physiological Society (APS) Conference Program has supported a new recurring biennial conference request from the APS Teaching Section for an Institute on Teaching and Learning (ITL) to provide opportunities for APS members and other teachers of physiology to learn about and discuss evidence-based teaching in physiology and to encourage and develop collaborative opportunities for the Scholarship of Teaching and Learning (SOTL) and Discipline-Based Educational Research (DBER) in physiology. This editorial is intended to describe what the ITL is, how it came about, what the outcomes of the 2014 ITL have been, and what the plans are for future ITLs, including the upcoming ITL the week of June 20–24, 2016, in Madison, WI. In addition, this editorial will describe what the Physiology Education Community of Practice (PECOP) is, what opportunities being a member of PECOP provides, and how PECOP can help physiology educators share ideas and set research and scholarship goals.

History of the ITL

For a number of years, members of the APS Teaching Section have been informally discussing the need to offer more programming to assist physiology educators. While the Teaching Section annually offers two symposia, a featured topic, a distinguished lecture, and sponsored posters at the Experimental Biology (EB) meeting, both the number of participants and amount of teaching programming are limited. The APS Education Office (along with the Human Anatomy and Physiology Society and the National Association of Biology Teachers) offered a program called Physiology Insights from 1997 to 2001, with the goals of providing professional development opportunities for faculty members at 2- and 4-yr colleges through a summer research opportunity and a 1- to 4-day faculty development workshop. The workshops on effective pedagogy were offered in a variety of models, including an independent 3- to 4-day workshop, in conjunction with an education or research meeting (including EB), and a 1- to 2-day workshop focusing primarily on online resources. Members of the Teaching Session were recruited to facilitate portions of the workshop at EB. Since the EB meeting always occurs in a large and expensive convention city in the middle of the spring semester, EB makes it difficult for predominantly teaching faculty members to get away or to afford to participate. Thus, providing a separate institute at a relatively inexpensive cost after the semester ends seemed like a much better option for broader participation of physiology educators from a variety of institutional types, especially those where travel funding is limited.

Thus, in early 2012, the Teaching Section (spearheaded by its chair B. E. Goodman) submitted its initial proposal to the APS Conference Committee for an APS education institute for SOTL and preparing future faculty members for teaching. The proposal was supported by the APS Education, Careers, Trainee Advisory, Porter Development, and Women’s Committees. After approval of the request by both the Conference Committee and the Council, an Organizing Committee was formed to prepare a program to offer plenary talks and workshops of interest to the physiology education community and to find a suitable location with the assistance of the APS Meetings Services Office for the initial institute in 2014. The position of ITL Organizer was added to the Steering Committee of the Teaching Section, and B. E. Goodman was appointed to the position.

2014 ITL

The 2014 ITL met June 23–27, 2014, at the College of the Atlantic in Bar Harbor, ME. The 90 participants in the ITL filled the sleeping rooms available and attended the 9 plenary presentations on key education issues and the 12 interactive workshops on various education topics, the 3 thematic poster sessions and discussions, the mealtimes table topic discussions, and the networking collaboration sessions during a busy week of sharing with colleagues at the ITL. Simultaneously, at the same location, the APS Education Office offered a Professional Skills Training Course on Becoming an Effective Teacher, which attracted 12 participants, including graduate students, postdoctoral fellows, and early career instructors and assistant professors at undergraduate, graduate, and professional schools. Additional teaching Professional Skills Training Courses will be offered biannually, starting in summer 2017.
Support for the ITL was obtained from a National Science Foundation Research Coordination Network for Undergraduate Biology Education Incubator grant (DBI 1346220) awarded to APS with M. L. Matyas, B E. Goodman, and Dr. Jenny McFarland (Edmonds Community College, Lynnwood, WA) serving as co-principal investigators. The project objectives were to:

1. Expand and support a highly interactive community of practice of physiology educators committed to evidence-based scientific teaching and SOTL;

2. Empower physiology faculty members from diverse institutions to become leaders in science education and reform efforts by increasing their understanding of best teaching practices, current issues in physiology education and education research, and available leadership roles;

3. Catalyze collaboration among physiology discipline-based professionals in education reform to enhance student learning;

4. Develop and disseminate evidence-based professional development training materials and courses that prepare future faculty members for excellence in science teaching and SOTL; and

5. Assure the involvement and engagement of faculty members from diverse institutions and who serve diverse student bodies, especially those from institutions serving underrepresented students.

These funds supported 15 PECOP Fellows, who were recruited from community colleges and colleges serving students underrepresented in science, technology, engineering, and mathematics (STEM) to participate in the 2014 ITL. In addition to the PECOP Fellows, 10 Thought Leaders and their Helpers were also supported to facilitate sessions and table discussions at the 2014 ITL and to serve as speakers and workshop presenters, in-person and online discussion leaders, blog authors, and collaboration leaders. The ITL featured a number of different types of programming, including stand-alone plenary sessions on reform in physiology education and funding for educational research and plenary sessions accompanied by workshops on developing and using core concepts and competencies, designing and publishing educational research including the use of statistics, student-centered learning, and aligning teaching and assessment with Blooming questions. In addition, a number of thematic workshops on innovative teaching techniques were offered, including case-based learning, transforming cookbook laboratories into inquiry-based laboratories, designing good clicker questions, and best practices for classroom undergraduate research experiences. Twenty-eight abstracts were submitted to the ITL and were divided into three different poster discussion sections: one section on best practices in undergraduate physiology teaching, one section on best practices in medical physiology teaching, and one section on assessment, programs, and courses.

Participants in the ITL filled out an online survey at the beginning of the ITL, again right after the ITL, and again 8 mo after the ITL. Results on the immediate exit surveys were very positive. The exit survey also provided evaluation data for the ITL and is assisting with plans for future institutes and upcoming grant writing. Seventy-four participants responded to the exit survey (84% response rate). Some key findings from the surveys are highlighted below:

- 75.7% of the participants came from community colleges or 4-yr colleges, while 55.4% came from graduate/professional schools (some came from both types).
- 72.6% of the participants teach lower-division undergraduates, 68.5% teach upper-division undergraduates, 30.1% teach graduate students, and 24.7% teach professional students.
- 95.8% of the participants said that they gained new ideas at the ITL that would be useful for their teaching and/or professional development, while 91.4% made or heard about useful contacts, and 94.3% found useful resources.
- 68 of the 74 participants (92%) listed actions that they planned to take as a result of the ITL.
- Due to the low cost of the ITL, many participants had departmental or institutional support to attend the conference, with 49 individuals contributing 0–20% of the cost of the institute and only 6 individuals paying the full cost out of their personal funds.
- 94.3% of the participants responded that it was highly likely (54 participants) or somewhat likely (12 participants) that they would plan to attend a future ITL.
- 77.1% of the participants responded that they would be registering for the Life Science Teaching Resource Community (LifeSciTRC; formerly the Archive of Teaching Resources) in the next 6 mo.

The results of the followup survey 8 mo after the ITL were also favorable. A majority of participants responded to the followup survey (n = 46, 62%) describing the kinds of actions that they had taken related to the ITL.

- Of 122 planned actions that responding participants listed on the ITL exit survey, 66% had been completed by the time of the followup survey.
- Most respondents registered for the LifeSciTRC (61%).
- Most respondents read the PECOP blog (59%).
- Nearly half of the respondents had collaborated with a colleague on curricular development.
- Nearly half of the respondents had collaborated on an educational research project.
- More than a third of the respondents participated in discussion boards, blogs, and/or reviewing and rating resources at the LifeSciTRC.
- More than a third of the respondents had developed an education abstract for a meeting.
- More than a quarter of the respondents had submitted a resource to the LifeSciTRC.
- A majority of the respondents (85%) said that it was highly likely (62%) or somewhat likely (23%) that they will attend the next ITL.

Other outcomes from the 2014 ITL are that three abstracts were presented at EB 2015 based on discussions and collaborations at the ITL. Two separate pairs of PECOP members (a Thought Leader and a PECOP Fellow) presented workshops on student-centered learning at two different regional Human Anatomy and Physiology meetings. Seventeen ITL participants attended a reunion event at EB 2015 and gave “testimonials” about the impacts of the 2014 ITL on them, their teaching, and their colleagues. Two ITL participants (one participant in Wisconsin and one participant in New Hampshire) wrote a successful University of New Hampshire ADVANCE Visiting Women Scholars...
grant (funded by the National Science Foundation) for a faculty exchange between their institutions to design reflective work for experiential learning opportunities. The PECOP blog site (http://blog.lifesciTRC.org/pecop/) has featured 36 bimonthly blog posts, all from guest bloggers (initially PECOP Fellows, Thought Leaders, and Helpers; now other interested physiology educators). After the 2014 ITL, a subsequent proposal was submitted by B. E. Goodman to the APS Conference Committee to offer a second biennial ITL in 2016. After the approval process was completed, the conference was organized by the committee formed at the 2014 ITL.

2016 ITL

The 2016 ITL will occur June 20–24, 2016, in Madison, WI. A diverse program of 9 plenary presentations and 18 interactive workshops has been planned. The 2016 ITL has been specifically designed to target both physiology educators of undergraduate students and physiology educators of professional students in the workshop and plenary topics and in informal collaborating sessions. The opening keynote lecture will be given by Jay Labov of the National Academy of Sciences on “The National Landscape in Undergraduate STEM Education” with a subsequent workshop facilitated by J. Labov on “Discovery-based Research in Undergraduate STEM Courses.” There will be additional plenaries on “The Faculty Role in the Classroom and Appropriate Tools” by Harold Modell, “Team-Based Learning in a Large Enrollment Class” by Jon Kibble, “A New Paradigm for Student Learners” by Terry Doyle, author of The New Science of Learning, “Testing and Evaluation” by Stephen Haist and Aggie Butler from the National Board of Medical Examiners, “Supporting Faculty: Resources From Professional Societies and Online Communities” by M. L. Matyas, “The Central Role of Physiology in the Professional Curriculum” by Robert Carroll, “The Pipeline of Physiology Courses in Community Colleges” by J. McFarland and Pamela Pape-Lindstrom, and “Educational Leadership: Benefits of Stepping Outside the Classroom” by Thomas Pressley. After each plenary presentation, there will be three workshops modeling various innovative teaching methods from which participants may choose. The poster sessions will be led by a physiology educator as a poster discussion format among the presenters and participants. Informal time for table discussions during breakfast and lunch and scheduling of dinner and evening small group activities/meetings will be facilitated to encourage sharing of ideas and future collaborations. In addition to the input from the organizing committee, planning for this ITL was coordinated with the assistance of an informal network of PECOP colleagues. They have arranged a special preconference workshop on the use of ultrasound in teaching in professional schools. In addition, the newly formed Physiology Majors Interest Group for physiology educators involved in programs that offer undergraduate physiology majors will be meeting and consulting during the ITL. The final session at the 2016 ITL will form an organizing committee and conduct preliminary planning for the 2018 ITL.

PECOP

PECOP (pronounced pea-cop, like the bird with a “p” at the end) was designed as an outgrowth of the ITLs. The ITLs serve as 1) a forum to build the PECOP structure and manage and recruit participants, encouraging educators to interact, share resources, and collaborate on an ongoing basis, and 2) an opportunity for physiology educators to learn how to use SOTL methodologies to improve their teaching.

For both children and adult learners, “Learning is influenced in fundamental ways by the context in which it takes place,” and a community-centered approach involves not only the classroom but connections to the outside world that support the value of what is being learned (1). Communities of Practice (COPs) are composed of “...groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (3). The concept of COPs developed from learning theory and business practices in fields ranging from manufacturing to medicine and as early as medieval apprenticeship models (2). COPs have three critical characteristics. First, their members share a “domain of interest,” that is, a topic or issue (3). Community members have a commitment to the particular domain and a shared competence that distinguishes them from other people. Second, COP members are part of a community (3). “Members engage in joint activities and discussions, help each other, and share information.” Finally, COP members practice in their domain and community (3). “Members of a [COP] are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, and ways of addressing recurring problems—in short, a shared practice” (2). Physiology educators clearly constitute COPs, with participants having shared interests (enhancing student learning), roles in the community (as a teacher, facilitator, and scholar), and practitioner status (authors and collaborators).

Joining PECOP is free and can be done online at the APS LifeSciTRC (www.lifesciTRC.org). PECOP is a community for individuals at any academic level who are excited about physiology education. Our goals are to:

- Support physiology educators at all levels.
- Encourage physiology educators to explore and engage in evidence-based scientific teaching, SOTL, and DBER.
- Empower physiology educators to become leaders in physiology education reform efforts.
- Catalyze collaboration among physiology educators in education and research to enhance student learning.

To join the community, simply select “PECOP Member” in your user profile at the LifeSciTRC and then introduce yourself on the discussion board. There is no application process or membership fee; everyone is welcome to participate. When one is a member, one can receive announcements of relevance to the community, read the PECOP blog posts twice a month and their complete archive since November 3, 2014, participate in targeted online discussions with community members, and check out recommended resources and recommended collections. PECOP members and any other educators are also encouraged to volunteer to write a blog post for the PECOP blog by contacting barb.goodman@usd.edu and signing up.

In conclusion, APS is reaching out to its members with teaching responsibilities to provide colleagues, collaborators,
and resources to assist them in their teaching lives. Please join PECOP and register for an upcoming ITL!

DISCLOSURES
No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS
Author contributions: B.E.G. drafted manuscript; M.L.M. edited and revised manuscript.

REFERENCES
