

MINI-REVIEW | *Institute on Teaching and Learning*

Lurk or lead? The benefits of community participation

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WINSTON CHURCHILL said “To improve is to change; to be perfect is to have changed often” (4). For educators, change is a constant. We adapt our teaching constantly to new discoveries in education and science, new students, and new technologies. However, current reform efforts are driving significant change at a rapid pace (1, 2, 5, 17, 20). The movement of K–12 and undergraduate education toward student-centered learning is changing the preparation and perspectives of students coming to undergraduate and graduate/professional institutions, respectively. These students come with an expectation of a robust student-centered learning environment. Unfortunately, as educators, we may be just learning to create and manage this type of environment.

This creates new challenges for science educators to move from teacher-centered to student-centered learning environments. Pedagogies such as clickers, flipped classrooms, authentic research experiences, online teaching, problem-based learning, blended courses, team-based learning, and team teaching are exciting to try but can be challenging to master. Curricula must address core concepts and competencies, integrated and interdisciplinary courses, learning objectives at all Bloom’s levels, learning contexts, active learning, and authentic assessments. Most importantly, all of these changes must work with an increasingly diverse student body. Whether we are eager to try innovations or are required to add them to our courses, using new methods raises important questions:

- How do you do that?
- Does it work?
- Will it work with my students?
- What resources do I need?
- Who else is doing this? Can they help me?

The final question requires that we can identify and work with people who are more familiar with the pedagogy. Unfortunately, as educators, we often are likely to be working alone. In applications from undergraduate faculty members applying for American Physiological Society (APS) professional development programs, we asked how faculty members would benefit from being connected to a teaching community. Several important themes arose from those answers.

Themes Regarding Connection to a Teaching Community

Working in isolation. Many said they work without a network of science educators to look to for support, guidance, and information. They want to belong to a group of educators who

share their values and passion for teaching. Those who are new to teaching are looking for professional standards of practice that address newer pedagogies and the increasing diversity of the students in their classrooms. Some note the conflict between what they are reading or hearing about effective teaching and what they observe the senior colleagues in their departments doing. One person said that his/her students are changing and have different needs: “The traditional methods don’t seem to work for them. But I am a novice and don’t know how to implement change.” Another faculty member pointed out a disconnect between “old-fashioned” teaching styles and the needs of today’s students.

Mentoring when trying new methods. Several applicants were seeking support and guidance as they tried different teaching methods. One person referred to APS’ Physiology Education Community of Practice (PECOP) (7, 13) as a “community of mentorship.” Many applicants connected this type of support and guidance with gaining confidence in teaching, especially using new methods.

Learning from experts. Some applicants wanted to learn how to teach physiology from those who have experience teaching physiology. That is, they wanted to learn best practices for the specific discipline. They felt that generic training on pedagogies is useful, but they were seeking the direct application to the courses they teach.

Leveraging the community. Applicants who had participated in education networks in the past said that being part of a broader community provides leverage and encourages more department members to engage in reform.

Communities of Practice

To break the isolation and build networks to support the changing needs of physiology educators, we must build and support physiology education communities of practice. Communities of practice (COPs) are comprised of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly (21). COPs have three critical characteristics. First, their members share interest in a topic or issue. Community members have a commitment to the particular issue and a shared competence that distinguishes them from other people (21). Second, COP members are part of a community. They collaborate on joint activities, engage in discussions, share information, and help each other with issues and challenges (21). Finally, COP members practice in their field and community. They are not simply observers but are actively involved in the same work or interests as other community members.

Community members participate in a number of ways, and, for most people, their participation changes over time. First,

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there are visitors or “Lurkers,” that is, those who come to a community website or attend community events infrequently (9). While there, they may read website content or attend meeting sessions, but they never participate in the community by commenting on discussion boards, submit new content to the online community, or make presentations at meetings. Next, there are “Novices.” Novices are new to the community and are seeking to learn the rules of the community and how to participate. As they interact with community members and participate regularly in community discussions or activities, novices become “Insiders.” “Leaders” are insiders who not only participate but also encourage interactions and engagement by others. Finally, “Elder” members of the community are those who have been insiders or leaders but are leaving the community due to changes in personal interests, changes in the community, or other reasons (9).

Lurkers tend to be the dominant group in community membership, particularly in online communities. In 2006, the Nielsen Norman Group found that 90% of online community members are lurkers, 9% of members comment occasionally, and only 1% of members actively contribute significant content (15). More recent data suggest that engagement is increasing, and, by 2011, engagement looked more like 70-20-10% for lurkers-commenters-content creators (18). Nevertheless, the vast majority of community members continue to be lurkers. Why do so many of us lurk rather than engage in online communities? Blogger Joel Lee suggests that many feel they have nothing worthwhile to contribute, whereas others fear negative reactions to their comments or questions (10). Alternatively, as a commenter to Lee’s blog noted, users may simply have better things to do with their time than to engage. Yet there are benefits to lurking. The visitor starts to understand important aspects about the community, such as the community goals and how the community works. It allows the visitor to determine whether this community has value for him or her and whether it is worth coming back to visit again. And, ultimately, lurking is the first step toward contributing.

An active and productive community needs members at all levels. What motivates lurkers to begin interacting? People share their knowledge when they perceive that it enhances their professional reputations, they have experience or knowledge to share, and when they are connected to the community or its members (14). They also engage because they want to help others by sharing information, ideas, and experiences, participate in a professional community of colleagues and peers, and state their thoughts and share their knowledge of a subject (6).

What do community members gain by contributing? Active users appear to receive more useful help than do lurkers (19). Furthermore, visible and useful contributions lead to a positive reputation in the community, and actively contributing helps users feel that they have a real impact on their communities (19). Online recognitions (e.g., badges) also can be important motivators in online communities. Badges can help community participants set goals, learn about the types of things they can do in the community, build a reputation within the community, be recognized for their community accomplishments, and confirm their community membership (3). The benefits of engagement are substantive: “challenge, positive affect, endurability, aesthetic and sensory appeal, attention, feedback, variety/novelty, interactivity, and perceived user control” (16). In summary, COPs,

whether online or in person, offer diverse options and numerous opportunities for colleagues to engage around a topic.

What is the role of professional societies in building and maintaining communities of practice in education? Traditionally, science, technology, engineering, and mathematics (STEM) professional societies have actively set professional standards of practice for research, teaching, and professional ethics and offered opportunities for professional socialization, networking, and collaboration. They typically carry out these functions through journals, websites, teaching materials, meetings, and professional development workshops and courses. More recently, they have used online social media portals such as Facebook and Twitter and networking portals such as Higher Logic (8). This holds true for education as well as bench research: many STEM professional societies support education activities. A recent study of 30+ life science societies found that education activities and programs are common among life science societies and that activities are growing, especially at the undergraduate level (12). By 2014, nearly a third of the societies in the study provided support for at least one online community for faculty teaching in their scientific field.

A Community of Physiology Educators

Like many of its sister societies, APS has been actively working to build the infrastructure and activities to support an active physiology education COP. With funding from APS and the National Science Foundation, APS developed the Life Science Teaching Resource Community (LifeSciTRC), a collaborative of 10 life science societies (Fig. 1) (13). In addition to housing >7,000 peer-reviewed teaching resources, LifeSciTRC has tools to promote user interactions and sharing, providing infrastructure for active COPs. Currently, LifeSciTRC supports nine communities with two additional communities in development. Some communities are open to all users, whereas others are private communities on specific topics. LifeSciTRC can support many communities simultaneously through its current structure.

One of its larger communities, the Physiology Education Community of Practice (PECOP) was launched in 2014 with support from a National Science Foundation planning grant (11) in conjunction with the first APS teaching conference, the 2014 Institute on Teaching and Learning (ITL) (7). PECOP is a dynamic and growing (+100 since June 2014) community of physiology educators at all education levels that interact, share resources, and collaborate on an ongoing basis, learn and apply effective scientific teaching methods in their classrooms, and use scholarship of teaching and learning methodologies to improve their teaching. PECOP seeks to achieve the following (7):

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



Life Science Teaching Resource Community
LifeSciTRC.org

- 10 Society collaborative
- 7,000+ peer-reviewed resources
- Blogs
- Discussion boards
- User rated items
- Public & private communities

- American Assn. of Anatomists
- American Physiological Society
- Genetics Society of America
- Human Anatomy & Physiology Society
- American Society of Plant Biologists
- Massachusetts Society for Medical Research
- Northwest Assn. for Biomedical Research
- Society for Developmental Biology
- Society of Toxicology
- The Physiological Society

Fig. 1. The Life Science Teaching Resource Community (www.lifescitrc.org) is an on-line digital library and community site providing peer-reviewed resources and discussion tools. It is a collaborative of 10 life science societies.

LifeSciTRC, ITL, and PECOP work in concert to encourage participation among physiology educators at all community engagement levels. We encourage visitors and lurkers in the community by providing free access (no registration required) to all library search functions, to access and download all teaching resources, and to read all discussion boards and blogs. In fact, most LifeSciTRC users are not registered users. In 2015, >95% of the resources viewed were accessed by unregistered users.

What encourages a LifeSciTRC user to register at LifeSciTRC and become a “novice” PECOP member? First, registered users have access to a wide range of tools and resources including the ability to save searches, create folders to save resources and share them with colleagues and/or students, rate and comment on resources, and receive customized recommendations of resources matched to the courses they teach. The PECOP blog includes posts on a wide variety of topics and by educators with diverse backgrounds (senior and junior professionals teaching at K–12 through professional school levels); novices are encouraged to sign up to write a blog post on their experiences. They also can post comments and questions at the PECOP blog and discussion boards and receive visible badges for their engagement in the community, including initial engagement badges (rate items, comment, etc.).

In-person meetings also are a catalyst for early engagement of novice members. ITL organizers and speakers promote PECOP involvement. At networking sessions each spring at the APS annual meeting, Experimental Biology, PECOP members share their successes and questions in a roundtable discussion. At ITL meetings, attendees are also encouraged to join discussion groups on PECOP topics, present posters, and write articles for *Advances in Physiology Education* (research or descriptive articles). They are also invited to sign up to write a post for the PECOP blog at LifeSciTRC. This has proven to be

a good catalyst for writing about teaching for many physiology educators, and the blog has a full schedule of planned topics and authors for the coming year. At the first ITL, numerous community college and undergraduate faculty members were awarded PECOP Fellowships to not only attend the meeting but to blog, submit resources to LifeSciTRC, and continue to work with the PECOP community. ITL also attracts new members to PECOP. Less than 40% of 2016 ITL attendees had also attended in 2014, so the meeting continues to attract new potential PECOP members.

Finally, PECOP has, from its inception, planned for leadership roles in the community. PECOP Thought Leaders with expertise in specific education and research topics were identified before the first ITL to lead roundtable discussions, write blog entries, and host discussion boards. Many PECOP members contribute to the community through blogging and reviewing submitted LifeSciTRC resources. A LifeSciTRC Scholars and Fellows program recognizes exceptional expertise in using the digital library, rating and reviewing resources, and contributing new resources to be used by the broader community. The PECOP Blog Editor is a community member who recruits blog entries and coordinates blog submissions. ITL conference proposals are developed by a team of PECOP members. Most recently, a 2014 PECOP Fellow became the first LifeSciTRC Community Review Editor, coordinating peer reviews for the PECOP community. We welcome additional ideas for leadership roles for community members and encourage all physiology educators to register at <http://www.lifescitrc.org/> and select “PECOP member” on your profile questions.

Physiology educators face difficult challenges as what we teach, how we teach, and who we teach continue to change. We are looking for connections to other educators, mentorship, access to experts, and community support to leverage change. PECOP has begun to address these needs through online interactions and in-person meetings. In the future, we hope to

launch community-driven collaborative research projects and professional development on designing and conducting classroom research and writing educational research papers. Do you teach physiology? If so, join us. Feel free to “lurk” in PECOP, but consider the benefits of engaging in your COP.

DISCLOSURES

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AUTHOR CONTRIBUTIONS

M.L.M. conceived and designed research; M.L.M. analyzed data; M.L.M. interpreted results of experiments; M.L.M. prepared figures; M.L.M. drafted manuscript; M.L.M. edited and revised manuscript; M.L.M. approved final version of manuscript.

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