

Education and Outreach in the Acoustical Society of America

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The Committee on Education in Acoustics is a truly interdisciplinary effort of the ASA.

At the core, all acousticians are educators. This mantle of educator can take many forms: from an architectural acoustics consultant making the distinction between sound isolation and sound absorption for the architect of a new multiuse high-rise building to an audiologist demonstrating the functions of a new cochlear implant for a patient. Even the nascent student acoustician who is penning her first poster for a meeting of the Acoustical Society of America (ASA), defining a vocal glottal stop for the conference's general audience, is participating in the long tradition of acoustics education: communicating the technical content of our science and its importance to others.

The Committee on Education in Acoustics (EdCom) of the ASA is the home for all of these acoustics educators. The committee currently consists of 66 members with interests ranging across all of the ASA technical committee areas. The EdCom is a unique committee within the ASA because it operates in both the technical and administrative spheres of the Society. As an administrative committee, the EdCom is charged with exploring, proposing, and implementing activities for improving and promoting education in acoustics at all levels. Working toward this aim, the committee oversees a variety of education and outreach programs and awards.

Education and Outreach at the ASA Meetings

Hands-On Acoustics Demonstration Session for Middle-/High-School Students

For the past 25 years, as part of the biannual ASA meetings, the EdCom has hosted a hands-on demonstration session for middle-/high-school students. The demonstrations are led by members of the Society who introduce the students to physics and the exciting world of acoustics; for most of the students, this is the very first time that they have seen any acoustics at all. In its current iteration, the session includes a hands-on tutorial, interactive demonstrations, and a panel discussion about careers in acoustics. The primary goals of this session are to expose young people to opportunities in science and engineering and to provide them with an opportunity to interact with professionals in many areas of acoustics. Typically, nearly 50 students from a school local to the meeting attend the session, with the ASA providing a pizza lunch and bus transportation to the conference center. This is one of the EdCom's longest running and most successful programs, and it is a fantastic way to introduce young people to the science of the ASA.

Listen Up and Get Involved

Building on the success of the demonstration session for middle-/high-school students, EdCom developed a similar session called "Listen Up and Get Involved" about five years ago. This session, now jointly sponsored with the Women in Acoustics Committee of the ASA, is designed to introduce young girls to acous-

tics through a partnership with local Girl Scouts troops during each of the biannual ASA meetings. Both the middle-/high-school and Girl Scouts sessions require a large number of volunteers to make them a success. Anyone interested in helping during one of these exciting sessions at an upcoming ASA meeting should contact the EdCom or Women in Acoustics Committee.

Résumé Help Desk

The EdCom has recently started sponsoring a résumé help desk at the biannual ASA meetings for anyone needing assistance with their CV, cover letter, and research and teaching statements. At the help desk, members of the ASA who are experienced in hiring are available to provide tips and suggestions to help applicants effectively present themselves in today's competitive job market. Appointments at the help desk are available via a sign-up sheet at the registration desk. Walk-up appointments are also available. Anyone interested in volunteering as a résumé/CV reviewer should contact the help desk organizer, Dr. David Dowling at drd@umich.edu.

Students Meet Members for Lunch (SMMfL)

This program is another long-standing tradition of the EdCom. It allows students to meet one-on-one with an ASA member over lunch during the ASA meeting. The purpose is to encourage students to network with more senior members as they embark on their acoustics careers. Each lunch pairing is arranged to ensure a good match between the student's and member's acoustical interests. Students and members who are interested in participating in this program should contact Dr. David Blackstock at dtb@austin.utexas.edu per the instructions in each meeting's Call for Papers. Also see the recent article in *Acoustics Today* (<http://acousticstoday.org/issues/2015AT/Spring2015/#?page=74>).

Education and Outreach Beyond the ASA

Teacher Activity Kit

The EdCom recently developed an activity kit for teachers that includes the supplies and teaching instructions for a variety of lessons addressing acoustics for a range of K-12 students. This kit includes materials to teach a class of 30 students plus a USB thumb drive containing over 40 research-based, interactive, student-tested lessons and laboratory exercises along with several assessments and video clips of a class using the materials. The examples and applications included in the kit relate to a range of topics including medical imaging, animal bioacoustics, physical and psychological acoustics, speech, audiology, and architectural acoustics.

The ASA offers the kit free to K-12 teachers. For universities and colleges, the kits are offered at cost (\$100). To acquire an activity kit, email asa@acousticalsociety.org. All electronic materials that are available on the USB thumb drive can also be found on the "Explore Sound Website."

Explore Sound Website

The EdCom developed the Explore Sound Website (www.exploresound.org/) for young people and teachers who are interested in learning about acoustics and scientists who study sound. The site houses several resources for students and teachers, including games, science fair projects, acoustician profiles, and class activities.

Directory of Graduate Education in Acoustics

For students interested in graduate education in acoustics, the EdCom oversees an online directory of graduate programs (<http://asa.aip.org/asagrad/gpdir.cm.html>). In this directory, graduate programs in acoustics from across the world can be searched by geographic region, institution name, and 17 subdisciplines in acoustics. With the ASA Student Council, EdCom has also cosponsored graduate studies in acoustics poster sessions, which highlight the various programs available for students interested in acoustics.

Awards and Prizes

Undergraduate Research Exposition Award

The Undergraduate Research Exposition is a special poster session for undergraduate students to present their research pertaining to any area of acoustics. Typically held at the fall meeting of ASA, this session is designed to inspire and foster the growth of undergraduate research in the ASA while providing undergraduates an opportunity to express their knowledge and interest in acoustics. Interested students should consult the fall meeting Call for Papers for application details. Typically, four awards, up to \$500 each, are made to help undergraduates with travel costs associated with attending the meeting and presenting a poster. All Society members are encouraged to stop by the exposition to engage with the undergraduates and their posters during the meetings.

Robert W. Young Award for Undergraduate Student Research in Acoustics

This award, made possible by a gift to the Acoustical Society Foundation from the family of the late Robert W. Young in his honor, has been established to grant undergraduate student research awards. Through this award, a student intending to perform an independent study (beyond the regular

classes) can apply for funding to pursue an undergraduate thesis, honors project, or the development of teaching, experimental demonstration, or web-based tutorial materials. Normally, two awards for up to \$500 each are given to juniors enrolled in 4-year degree programs. The EdCom reviews applications for the Young Award and selects the grantees once a year in the fall. For more information on ASA fellowships and scholarships see <http://goo.gl/9iwP3X>.

Rossing Prize in Acoustics Education and Acoustics Education Prize Lecture

The Rossing Prize in Acoustics Education was established in 2003 from a generous gift made to the Acoustical Society Foundation by Thomas D. Rossing to recognize an individual who has made significant contributions toward furthering acoustics education through distinguished teaching, creation of educational materials, textbook writing, and other activities. The EdCom reviews applications for the Rossing Prize and makes recommendations to the Prizes and Special Fellowships Committee of the ASA. For more information on ASA prizes see <http://goo.gl/3LdhDa>.

Technical Initiatives and Sessions

Although the EdCom is not one of the official 13 technical committees of the ASA, it is able to sponsor technical sessions at the biannual meetings of the ASA. Recent technical sessions have covered such topics as distance education in acoustics and tools for teaching acoustics in undergraduate and graduate-level courses. The EdCom also cosponsors sessions with other technical committees of the ASA such as the recent *Communicating the Science of Underwater Sound* (cosponsor: Animal Bioacoustics) and *Demonstration of Physical Acoustics* (cosponsor: Physical Acoustics) programs.

The Future of Education in Acoustics

Both within and outside the ASA, the EdCom has a strong history of successful education and outreach programming. The vision for the future of the committee is to build on and expand this programming, with a particular focus on activities that resonant with the goals identified by the recently launched ASA Strategic Leadership for the Future Initiative. For example, this initiative has identified the need to increase awareness of acoustics by expanding the promotion of ASA activities and resources through emerging media and online content. EdCom will address this need by adding undergraduate- and graduate-level interactive demonstra-

tions and laboratory activities to the Explore Sound Website. The committee will also work with *Acoustics Today*, the ASA Panel on Public Policy, and the ASA social media team to highlight and promote these activities and other programming sponsored by the EdCom.

Another major goal of the Strategic Leadership Initiative is to increase the diversity of the ASA membership. Diversity in a group of people refers to differences in their demographic characteristics such as their cultural identities, gender, ethnicities, and sexual orientations. Research and experience have shown that increased levels of diversity in an organization yield more varied and innovative ideas and outcomes. As the society we live in continues to become more diverse, it is imperative that organizations such as the ASA develop and maintain additional approaches to recruit and retain members from underrepresented groups if we want to continue to grow and exist as an organization. The EdCom is a natural home for these diversity and recruitment efforts given its continuing outreach initiatives and, as such, will collaborate with the Women in Acoustics and other administrative committees to work toward this important strategic leadership goal.

Increasing the engagement of the ASA membership has been identified as another primary goal of the Strategic Leadership Initiative. The EdCom can address this goal by providing additional value-added benefits to ASA members, particularly in the sphere of professional development. Building on programs such as the Résumé Help Desk and the recent EdCom-sponsored session “Preparing Graduate Students for Careers in Academia,” additional inclusive professional programs will be developed, including mentor/mentee training, networking training, interview skills strengthening, career development, career pathways roundtables, and work-life balance discussions.

The EdCom is also likely see an increase in the technical commitment to acoustics pedagogy research. Discipline-based education research, particularly Physics Education Research (PER), has seen dramatic growth in the past 30 years. As such, research specifically dealing with acoustics pedagogy is on the rise and will likely become a larger component of the EdCom's technical initiatives.

This is an exciting time for the EdCom, and the committee is actively seeking new members; anyone interested in joining should contact the committee chair, Dr. David T. Bradley,

at dabradley@vassar.edu. Additionally, each technical committee of the ASA has a liaison to EdCom who can provide a conduit to the EdCom and its activities. If you don't know who your EdCom liaison is, you can speak with your Technical Committee chair. The EdCom meetings are typically held on Wednesday at 5:00 pm during the ASA meeting as detailed in the meeting program. These meetings are open to all conference attendees and we hope to see you there!

Biosketch



David T. Bradley is an Associate Professor of Physics at Vassar College in Poughkeepsie, New York, where he teaches a broad range of undergraduate courses in physics, acoustics, and media studies. He is also director of the VAR-Lab (Vassar Acoustics Research Laboratory), which

houses an active, externally-funded research program focused on projects ranging from the study of sound energy diffusivity in reverberant spaces to acoustics pedagogy. He has served the ASA on a variety of committees, including as a previous chair of the ASA's Student Council, and currently serves as chair of the ASA Education in Acoustics Committee.