



Public Outreach in Linguistics: Engaging Broader Audiences¹

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Abstract

Linguistics is traditionally a university subject. We describe here comprehensive efforts that the University of Arizona's Linguistics Department makes to engage with additional audiences: K–12 and community college students, lifelong learners, and festival-goers. Our coordination of these efforts is relatively recent, and this article emphasizes what we are learning in areas like adjustment to different audiences and efficient use of resources. While many individual linguists and some departments are engaged in outreach activities such as those described here, our work is unusual in its breadth, in terms of both external contacts and department-internal participants.

1. Introduction

We describe here outreach by University of Arizona linguists, emphasizing how our department approaches community engagement in various settings. Initially operating independently, members of the department are now organized with a committee and pursuing a multi-pronged approach. Formed in 2011 by then department head Simin Karimi, the committee originally emphasized contact with secondary schools. Under Fountain's leadership next, the committee expanded to other groups and linked to McKee's focus on younger audiences and people of all ages who attend community festivals and science fairs. Our department has thus added to its university-level teaching extensive engagement with the public. Involving faculty and students, this work has brought us new collaborations as well. We are learning how to synchronize the approaches motivated by such different people and places, and this article is part of our own learning process.

Clarity about our message is crucial. For example, even an activity designed to be fun can illustrate the complexity of language and the analytical tools of linguistic research. But we do a better job of linking the fun to the illustrations if we are very clear on what we aim to teach. Simplicity thus matters. Heath and Heath (2007: p. 16) articulate this principle beautifully:

How do we find the essential core of our ideas? A successful defense lawyer says, 'If you argue 10 points, even if each is a good point, when they get back to the jury room they won't remember any.' To strip an idea down to its core, we must be masters of exclusion. We must relentlessly prioritize. Saying something short is not the mission – sound bites are not the ideal. Proverbs are the ideal. We must create ideas that are both simple and profound. The Golden Rule is the ultimate model of simplicity: a one-sentence statement so profound that an individual could spend a lifetime learning to follow it.

Empirical and theoretical research on learning in different environments also informs our efforts (e.g., Bell, Lewenstein, Shouse, and Feder 2009; Soska and Butterfield 2004). For example, the elements of informal science learning summarized in Table 1 help organize and prioritize our focus (Fenichel and Schweingruber 2010). As detailed below, what we do at festivals is meant

Table 1. Six strands of informal science learning (p. 27 in Fenichel and Schweingruber 2010).

Strands of informal science learning	
Strand 1	Sparking interest and excitement: Experiencing excitement, interest, and motivation to learn about phenomena in the natural and physical world.
Strand 2	Understanding scientific content and knowledge: Generating, understanding, remembering, and using concepts, explanations, arguments, models, and facts related to science.
Strand 3	Engaging in scientific reasoning: Manipulating, testing, exploring, predicting, questioning, observing, and making sense of the natural and physical world.
Strand 4	Reflecting on science: Reflecting on science as a way of knowing, including the processes, concepts, and institutions of science. It also involves reflection on the learner's own process of understanding natural phenomena and the scientific explanations for them.
Strand 5	Using the tools and language of science: Participation in scientific activities and learning practices with others, using scientific language and tools.
Strand 6	Identifying with the scientific enterprise: Coming to think of oneself as a science learner and developing an identity as someone who knows about, uses, and sometimes contributes to science.

to spark interest in language sciences (Strand 1). When engaging more homogenous audiences in K–12 classrooms, we can emphasize scientific reasoning (Strand 3). And, in situations where we have more time, we can guide people to use the language of and apply the tools of linguistics (Strand 5).

2. *Locations and Audiences*

The nature of each outreach activity depends on where it happens and who we design it for and/or with. So this section is organized by these locations and audiences: K–12 schools, community colleges, lifelong learners, and festivals.

2.1. K–12 SCHOOLS

As many linguists do, we visit K–12 schools. Because of space limitations, we will only describe our contact with secondary schools. In recent years, our committee has coordinated visits to BASIS Tucson North, a public charter school, and to University High, a regular public school. In English, foreign language, and/or psychology classes at each school, we arranged one or two days in which department volunteers shared their specializations. While some graduate students and professors tailored their presentations to the school's curriculum, these visits resembled guest lectures more than anything else. We also invited 6th, 7th, and 8th grade students from BASIS to visit some of our research labs. Comments and questions from such visitors reveal that scientific approaches to language are new to them, echoing lessons learned in the University of Maryland's work with high school students (Lidz and Kronrod 2014), a program that includes thematic data analyses. Another noteworthy connection we have is with Has:an Preparatory and Leadership Academy, a public charter school near our campus. It is designed for Tohono O'odham and other Native American students. On Fountain's initial contact with Has:an's principal, it became clear that only a few university units had reached out – remarkable given the school's proximity and the importance of this community. Fountain is now exploring the possibility of including linguistics in a capstone course for 12th graders there. Regular and enduring relations with such schools are beneficial across the board. And, among the goals for our work in these schools is showing students that linguistics is a varied field and presenting linguistics as a university-level major.

Note that some linguists have been engaged in such activities for decades and honed collaborations with K–12 teachers over generations of students. Wayne O’Neil, for example, started working with Oregon schools in 1962 (personal communication; January 23, 2014). (See also O’Neil and Kitzhaber 1965; and Kitzhaber 1968.) We have not yet developed the kind of long-term and focused collaboration with K–12 teachers exemplified by the morpho-phonology lessons for 5th graders described by Honda, O’Neil, and Pippin (2010). But we are working on resources similar to what one finds in TeachLing from Western Washington University, another reflection of a multi-year collaboration with K–12 teachers. Hurry et al. (2005) illustrates yet another tack that linguists take with K–12. In this study of teachers who took a course on morphology and spelling, one finds several conclusions relevant to the general enterprise we are describing here, including relations between policy and pedagogy. Denham and Lobeck (2010) provide an excellent overview of projects in which primarily university-based linguists work with K–12 educators.

2.2. COMMUNITY COLLEGES

Our location in the Southwest United States gives us wonderful contact with linguistically diverse groups, including students and teachers from bilingual households. The US Census Bureau (2013) reports that 26.8% of Arizonans over 5 years of age speak a language other than English at home, compared to 20.7% nationwide. The most common language after English is Spanish, which is much more prevalent here than nationwide. A noteworthy number of Arizona families continue to use indigenous American languages in the home. Siebens and Julian (2011) report that of the estimated 372,000 Americans who speak such a language, about 45% (169,000) speak Navajo. The Navajo Nation is located in Northern Arizona, and language use is most active in Arizona and New Mexico. Other speaker populations of note include Apache (with 13,063 speakers of the various Apache languages reported), Zuni (9686 speakers), Pima (7270, including Tohono O’odham, Akimel O’odham, and Gila River populations), Hopi (6634 speakers), and Tewa (5176, of which a small population referred to as the Arizona Tewa are Arizona residents).

Arizona is home to two tribal colleges – Diné College (Tsaile, AZ) and Tohono O’odham Community College (Sells, AZ). These schools are important sites for outreach because we want to recruit interested students to our university and to build on existing relationships with these communities. Department member Ofelia Zepeda has served for several years on the Board of Trustees for the Tohono O’odham Community College (TOCC). TOCC faculty member Ronald Geronimo, a graduate of our Native American Master of Arts Program, facilitated our first visit in 2013 to talk with interested students about linguistics and about our department. Rather than focusing on one class, Geronimo scheduled a two-hour drop-in session during which 20–30 students and faculty came to ask questions while each of us shared individual research interests. The success of the session resulted in the TOCC trustees endorsing a plan for regular visits from our department to include both drop-in sessions like in our first visit as well as guest lectures. A group of graduate students and faculty returned in 2015 to present at a language class taught by Geronimo. We hope to arrange similar visits every year for the foreseeable future.

Most of our TOCC presentations have focused on indigenous language documentation and revitalization. But we also referenced children’s language development, language immersion instruction for indigenous language teachers, and variation in American English dialects. Participant reaction revealed a striking interest in the general study of languages and linguistics (apart from language documentation and revitalization). As one participant noted with regard to the discussion of language endangerment, ‘We get a lot of that here.’ Students and faculty

clearly wanted to learn about the full range of phenomena that linguists study, and about opportunities to extend their studies after completing their two-year associate's degrees. So we expect future visits will address topics of more general interest and be less focused on language endangerment issues.

2.3. LIFELONG LEARNING

In 2012, Simin Karimi organized our first course at the Osher Lifelong Learning Institute (OLLI), a mechanism through which our university teaches older adults. Because Tucson is home to many retirees, OLLI provides a superb link between outreach-minded academics and a refreshingly motivated audience. The courses, which have no tests or grades, are eclectic; titles from recent offerings include *Faulkner and Twain*, *SETI and Mathematics*, and *Cosmology*. Our OLLI course was titled *Speaking our Minds*; each of its 12 lectures was given by a different member of the department. Our topics included the evolution of language (Andy Wedel), genes and language (Massimo Piattelli-Palmarini), Maltese (Adam Ussishkin), Hiaki/Yaqui (Heidi Harley), and language games (Mike Hammond). We learned from that first course to prepare differently for this audience. In particular, most of us were surprised by the number and type of questions asked. Guided discussion turned out to be a better format than a lecture series. We offered another OLLI course in 2014 that was similarly well received. This too has become part of our regular outreach efforts.

The semester after our first OLLI course, Cecile McKee added films that were open to the public to one of our department's General Education courses. The film titles and years of release were as follows: *A Serious Man* (2009), *Children of a Lesser God* (1986), *Chinese Take-Out* (2011), *Do the Right Thing* (1989), *La Grande Illusion* (1937), *L'Auberge Espagnole* (2002), *Snatch* (2000), *The Color of Paradise* (1999), *The King's Speech* (2010), and *The Undiscovered Country* (*Star Trek VI*) (1991). Half the classes were for enrolled students only and emphasized linguistic issues from relatively conventional reading material. The other class each week was longer than normal to accommodate the feature-length films. To mix university students with public audiences, the film classes were originally scheduled at an art-house theater (with which the university had no contract). But the theater pulled out on the first day of the semester, and so we learned the hard way about film licensing and marketing to external audiences. Each film class with the broader (and ever changing) audience ended with discussion of the film that the enrolled students helped link to linguistics. To illustrate, for the class before *The Color of Paradise*, an Iranian film about a blind boy, enrolled students read an excerpt from Landau and Gleitman (1985) regarding blind and sighted children's learning of color terms and verbs like *look* and *see*. The excerpt emphasized how differences in experience might yield differences in the meanings acquired. This topic and the film's central character led to consideration of blind children's development, including literacy, as the boy refers to colors and is a proficient reader of Braille. Post-film discussion included delightfully different perspectives articulated by the generally younger students and the generally older community visitors. Simin Karimi, who is Iranian, joined that class to answer questions about visual and cultural symbols in the film. The next class included alphabets and a discussion of Braille and other variants. Interestingly, some community visitors were from the OLLI course offered the semester before. This latter point relates to one of our outreach goals, namely to develop long-term relations with community members.

Although we probably need to streamline our work in some way or another, we aspire to add and evaluate new connections with this audience. For example, we are working on a miniseries to OLLI/Green Valley, a retirement community further away from Tucson, extending our reach to an active retirement community. As such aspirations show, there is always more to do.

2.4. FESTIVALS

Battistella (2010) notes that linguistics is often perceived as ‘irrelevant and academic’ (p. 9). Our festival work addresses that perception by emphasizing – to put it plainly – fun. We have developed ‘road shows’ that teams of volunteers take to small venues for a few hours or large venues for multiple days. The National Science Foundation funded a festival kit for this work that includes two utility carts that carry computers, printers, a big monitor, signs for our exhibit, games, giveaways, and so on.² A small-venue example is Summer Science Saturday in 2011, an outreach event in the space sciences (this particular one counting down the seconds to Curiosity’s landing on Mars that drew 700 people to our university’s Lunar and Planetary Lab). Linguistics was in the Earth-is-special room, which featured insects and people. Our team showed that ‘people are special’ because people talk. We recorded people’s names with Praat and then followed wherever their interests led as we reviewed their spectrograms on a laptop – the syllables in their names, or forensic uses of voice prints, or typical vs. clinical dysfluencies. It being a space sciences event, we also emphasized how spectrograms could represent frequencies in several types of signals. We especially enjoyed children who wanted to compare the noises of neighboring Madagascar hissing cockroaches to human speech sounds. In our team training for such events, we specifically address ways to use curveballs like this. For festival-goers who wanted to learn more, we gave out nametags written in the International Phonetic Alphabet (IPA), showed how this alphabet is used in language documentation and in clinical applications, played speech sounds from across the world’s languages and greetings in 30 languages spoken in Tucson (combining Census Bureau data and Omniglot), manipulated the MLA Language Map to answer questions about our state, and more. The video hyperlinked here samples the whole event; our activities start at 0:40, where we make a spectrogram that a child then explains to her father.³

Larger venues include the Tucson Festival of Books (TFOB) and Tucson Meet Yourself (TMY), annual festivals that gather over 100,000 people each. Held in March, TFOB emphasizes literacy of all kinds; our exhibit in TFOB’s popular Science City contacts about 1000 people every year. Held in October, TMY emphasizes diversity and community building; our exhibit there contacts the most varied audience we have worked with. Festivals require a lot of flexibility, and responding to the audience is only part of this. These events tend to be noisy, and we work among many distractions. A visitor may stay for only a minute, and we have to regroup quickly without worrying over anyone’s lack of interest. Rarer is the visitor who wants to stay too long, but that person also requires special handling so that our resources have maximum effect. We often talk to whole families and so use activities that engage a full range of ages: real-time MRI of a beat boxer and an opera singer to compare consonants and vowels, movie clips (e.g., ‘Moses supposes’ from *Singing in the Rain*), phonology and morphology puzzlers, and elevator speeches on topics like Google’s speed and accuracy. We use a processing load task to show that our left hemispheres handle language: With their right hands, people tap a board for 30 seconds; each person decides whether to talk or stay silent during this. Despite ignoring factors like age and sex, averages after about a dozen people show slower tapping in the ‘talking’ cell of our data board and faster in the ‘silent’ cell. We explain contralateral connections while fitting each visitor with a left-hemisphere headband. (This activity is illustrated in a video describing our 2014 NSF-supported participation in the USA Science and Engineering Festival.) Tangible giveaways like these headbands bring us more visitors as time passes. A favorite example of this occurred an hour into one TMY: People started coming to our exhibit asking, ‘Is this where I can get a brain?’ Hilarity ensued, and we invited them to do the processing load task.

Volunteers at such events may work on the activities for months before a festival. We debrief afterwards and adjust the activities to improve them, crucially using observations of different

types of visitors and insights from different types of volunteers. This brings up the variety in our festival teams. For larger or national events, community volunteers and students from local universities may join us. Both graduate and undergraduate students volunteer, including linguists and non-linguists. Graduate students sometimes have a harder time adjusting their pitch to the public, while undergraduates are sometimes less knowledgeable pinch hitters. But we train ahead of time, and each volunteer prepares to cover several activities. We aim for fun at all times (but are ready for serious discussion, e.g., when a child's engineer parent surprises us with knowledge of acoustics far beyond our own). At festivals, it helps if some volunteers can be bold and/or silly (e.g., wearing tattoos on their faces, giving out IPA nametags like carnival hawkers).

We also work to tailor our interactions with children. With toddlers, the best options may involve stickers, tattoos, toys, and/or candy (if parents approve) while directing our main efforts to their siblings and parents. With some primary school students, our dialogue is relatively simple and avoids technical distinctions. We also take into account that young children have less metalinguistic awareness than adults and older children (e.g., Edwards and Kirkpatrick 1999). Activities with older children though might draw on their metalinguistic judgments. For example, one of our demonstrations compares simplified tree structures for the sentence *The man poked the monkey with the banana*. We encourage visitors to find two interpretations of the sentence. Then we explain how sentence trees illustrate relations among words. We give visitors pictures representing two interpretations to match to the trees. This shows the abstract structure of language and gets visitors to tap their linguistic intuitions. We find that adult L2 learners of English are especially interested in this, some having already noticed underlying similarities between our structures and counterparts in their native languages. The reactions of older children and adults to activities and discussion vary considerably. Therefore, it is necessary to be attuned to their interest level and adjust the length and complexity of our demonstrations accordingly. We are often honored by a serious interest in the linguistics behind an activity. At one festival, for example, a boy wearing a t-shirt with the periodic table asked Elly Zimmer to explain every sound on the IPA chart. Most children, however, prefer shorter exchanges. Older children also have more knowledge of terminology that can be helpful in discussing language. For example, a four-year old is unlikely to know the term *syllable*, but middle schoolers typically know this term.

Youth in secondary school can help with outreach. For example, Cecile McKee's festival team now includes a high schooler who we met at an earlier festival. He stayed at our exhibit for hours, polishing off every puzzler and studying every website that we had. He volunteered at our next festival, operating the name spectrogram laptop. At these events, children seem to greatly enjoy interacting with someone closer to their age. This volunteer also arranged for McKee, Zimmer, and Vento to visit his 8th grade social studies class. His father reports that he now wants to study linguistics in college. We will emphasize two points about this. First, it illustrates the trajectory that initial excitement in informal science learning can launch (Fenichel and Schweingruber 2010). Second, this teenager also shows how outreach efforts can expand relationships with community members. This is important evidence of the effects of this kind of outreach.

3. Motivations

We have described several activities to engage new audiences in new places. Together, these efforts further our mission of education in the language sciences. Our department has particularly strong links to psychology, philosophy, anthropology, and computer science, as well as historical links to Southwest language communities. But our movement down the path described here is relatively recent. So it is important to see whether our outreach efforts have

changed department members' vision of what it means to be a linguist and how we teach and do research.

To gauge opinions about these efforts, we surveyed our department and linguists elsewhere on campus. Eleven faculty members and 18 graduate students responded. (Unfortunately, we had no responses from undergraduates, likely because the survey came at the end of the year.) Of the 29 respondents, 23 had participated in an outreach event – 13 students and 10 faculty. All 23 indicated that they would participate in more such events in the future. We found three explanations of why they participate especially interesting:

- 'Responsibility to department, field, the joy of sharing something I love, and the challenge of making it interesting and accessible to others.'
- 'I think that [it] is important that what we do as scientists reaches the public. If you do the research, but do nothing to propagate it, you're only doing half your job as a scientist. I also know how exciting it would have been to have people tell me about linguistics when I was in middle/high school.'
- 'I think it's important to let the general world know there is a science about language, and to show kids and teens that math and science are in everything around them, including subjects that are typically considered liberal arts, like languages.'

Because these efforts do take time, we also asked whether outreach was worth the additional work. We found slightly more agreement on that among students than among faculty. A question regarding whether participation in such activities had improved the participant's teaching found a similarly more optimistic response from the students. We also probed changes in opinions about the value of outreach. Three comments on that question are especially compelling:

- 'I thought of it as a duty, as a funded graduate student, to do some outreach for the benefit of the department. Since then, I've become more and more involved as I've come to appreciate the importance of inspiring and educating the public, especially the youth.'
- 'My experience with outreach has improved my estimation of how interested people are in language and how capable they are of grasping linguistics concepts, including young children.'
- 'My opinion [about the value of outreach] was already high, but the events have been so much fun, they've raised it further.'

Before the survey, we had already observed varying motivations across department members. Reasons to engage in such outreach often change as we become more knowledgeable, as availability waxes and wanes, and as new opportunities appear. Some goals may be relatively practical and short term, like getting more majors and increasing contact with potential donors. Some of us have broader institutional goals, like educating the public about social and behavioral sciences. Some of us are interested in the scholarship of learning and believe that reflecting on our outreach efforts can improve our teaching more generally; Purnell, Raimy, and Salmons (2013) make a similar point. We are all working to show that linguistics is interesting in itself, and in its connections to other sciences and to community members. We are all working on contacting people from diverse backgrounds, including children and K–12 teachers. Linguistics can serve as a gateway into science for children and teachers who feel more comfortable with language arts. People who solve linguistic puzzles use analytical thinking as they look for patterns. They may learn through such puzzles to view language as composed of parts that can be analyzed. Another goal of our activities is to exemplify science as a process. Honda et al. (2010) link linguistics literacy to the American Association for the Advancement of Science's Project 2061. Among this initiative's publications is *Benchmarks for Scientific Literacy* which can guide efforts like what we describe here. We encourage children, for example, to

make hypotheses based on small data sets and then compare their hypotheses to a larger data set and either revise or keep their original ideas.

We are also well aware of the benefits of recruiting and training linguists of varied language backgrounds (Alvarez and Hale 1970). This is in part because of their linguistic insights, and also because this can strengthen relations across a variety of language communities. This benefits language communities in that community members with training in linguistics are integral to work on language preservation and revitalization. Many linguists appreciate this point. It is especially important for us in Arizona; our department began with an emphasis on languages of the Southwest.⁴ A general lesson that our outreach brings home is the importance of clarity regarding our goals. For example, we are overtly recruiting Native Americans to our university, hoping to cultivate linguists who are native speakers of O'odham, Navajo, and Hiaki/Yaqui. Continuing our historical links to our state's languages is a critical goal.

4. Conclusion

As he did so often, Mark Twain articulated a pertinent truth: 'When we know a thing, we have only scorn for other people who don't happen to know it' (1896: 213). But contact with 'people who don't happen to know' linguistics helps us translate the academic into the relevant (Battistella 2010). This process engenders greater respect for people in other walks of life, and it shows us that we have more to learn – even about linguistics itself and new ways to teach it. In our case, engaging broader audiences is also bringing our department clarity on a shared theme.

Short Biographies

McKee is a professor in the University of Arizona Linguistics Department and directs its Developmental Psycholinguistics Lab. She taught K–12 in the 1980s, chaired the LSA's Language in the School Curriculum Committee in 2000, and has used some of the activities described here for over 30 years.

Zimmer is a graduate student in the department.

Fountain is an associate professor in the same department and former chair of our outreach committee.

Huang is a graduate student in the department.

Vento is a graduate from our BA program who participated in outreach while with us.

Notes

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² This was a supplement to National Science Foundation grant BCS-0822457.

³ We also collaborate with a local museums as a venue for research on informal learning. Those interested in designed environments like museums are encouraged to see Ohio State University's Language Pod.

⁴ This history deserves more attention than we can give it here. The National Endowment for the Humanities funded a pilot study to establish a language center at the University of Arizona, through which Ken Hale was hired to teach Navajo and Hopi (1976–77, PIs Adrian Akmajian and Dick Demers). In 1978, our department was officially approved with Adrian Akmajian, Dick Demers, Adrienne Lehrer, and Sue Steele as its first faculty. Several administrators and faculty (including Deans Hermann Bleibtreu and Paul Rosenblatt; Professor Mike Harnish) and students (including Ofelia Zepeda) were central players. NEH followed its initial investment with a more substantial grant along similar lines (1978–81, PIs Adrian Akmajian and Dick Demers), cementing our link to languages of the Southwest.

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- U.S. Census Bureau. 2013. State and county quick facts: <http://quickfacts.census.gov/qfd/states/04000.html>, May 24, 2015.

Hyperlinks

- AAAS Project 2061 *Benchmarks for Scientific Literacy*: <http://www.project2061.org/publications/bsl/>
- Language Pod: <http://buckeyelanguagenetwork.osu.edu/LanguagePod.php>
- MLA Language Map: http://www.mla.org/map_main
- NAMA: <http://linguistics.arizona.edu/NAMA>
- NSF/BCS grant: http://www.nsf.gov/awardsearch/showAward?AWD_ID=0822457
- OLLI: <http://olli.arizona.edu/>
- Omniglot: <http://www.omniglot.com/language/phrases/index.htm>
- Real-time MRI: <http://sail.usc.edu/span/>
- Summer Science Saturday: <http://uanews.org/videos/lpl-builds-excitement-mars-landing-summer-science-saturday>
- TeachLing: <http://www.teachling.wvu.edu/>
- TFOB: <http://tucsonfestivalofbooks.org/>
- TMY: <http://www.tucsonmeetyourself.org/>
- USA Science and Engineering Festival: <http://www.usasciencefestival.org/> and <http://www.youtube.com/watch?v=6kXK6W8s0II>