

# Chapter 10

## Training Students to Conduct Outreach in an Informal Science Learning Environment

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### ABSTRACT

*This chapter reviews a science outreach training course designed for the Language Sciences Research Lab, a working research facility embedded inside of the Center of Science and Industry (COSI). The course integrates training in informal science education theory, background in a specific science area (language science) and extensive hands-on work at COSI where students engage museum visitors in interactive language-focused activities. Key components of the course are described and a formal evaluation of the course outcomes is reported. The authors discuss how the course enhances an existing partnership between COSI and Ohio State University, as well as ways in which its core elements have been adapted to other fields.*

### INTRODUCTION

Academic research has long had a reputation for being done inside of an ivory tower, with little regard for how it connects with the concerns of society or is perceived by the general public. In recent years, however, there has been a growing interest in making such academic work more accessible (Baron, 2010; Meredith, 2010; Wu, 2017) and training scientists to communicate effectively with the broader society (Besley and Tanner, 2011; Neeley et al, 2014). Fostering public understanding of science has the

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potential to foster a more pro-science societal climate at a time when trust in science is a matter of some concern (Pew Research Center, 2019). Moreover, there is evidence that the process of engaging with the public may help researchers clarify their goals and provide a source of inspiration for new research (Lidz & Kronrod, 2014). However, effective public engagement, like any skill, is one that benefits from training in core techniques and opportunities for practice. Informal science institutions (ISI), such as science museums, are well attended by the public and serve as important venues for learning across the lifespan (Falk & Dierking, 2010). As such, they can play an important role in the advancement of science communication by scientists: they are key sites for accessible science communication to happen, and ISI educators can support the training of scientists and future scientists in the theory and practice of science communication.

We describe in this paper an Ohio State University (OSU) training course that teaches undergraduate and graduate students to engage in accessible public communication about language science topics within a science museum, the Center of Science and Industry (COSI). The course has a strong experiential learning component (Moore, 2010; Perrin, 2014) and reflects aligned goals of a longstanding partnership between OSU and COSI, devoted to promoting both the practice of science (through the collection of scientific data) and public understanding of science. We begin by contextualizing the course within this larger partnership and then discuss the course more specifically.

## **The PARTNERSHIP**

The training course is taught in conjunction with the Language Sciences Research Lab (<https://u.osu.edu/thebln/language-pod/>), an OSU working research lab embedded within COSI (Wagner et al., 2015). Affectionately known as the “Language Pod,” the lab is dedicated to the study of language and the dissemination of knowledge about language sciences. It is one of three research pods, called the Labs in Life, located in COSI’s Life exhibition on the human body and mind. These glass-enclosed research spaces allow museum visitors to observe actual scientific research as it is occurring in a research-in-real-time experience (see Figure 1). Many science centers invite scientists to carry out experiments at the museum so that visitors may have firsthand exposure to the research process (King et al 2018), but COSI is the rare science center that has permanent working research laboratories integrated into the museum’s public floor. The Labs in Life were created jointly by COSI and OSU to showcase Ohio State research and foster interaction between researchers and the public, with the goals of creating excitement about science and encouraging children and youth to pursue careers in science. Researchers from the College of Optometry and the School of Education’s Exercise Science program were previous residents of the exhibit. Currently, the exhibit hosts researchers from the Communications department and the College of Pharmacy, in addition to the Language Pod.

The research projects conducted within the Language Pod are run by OSU faculty from multiple departments, with the majority coming from the departments of Linguistics, Psychology, and Speech & Hearing Sciences. The faculty work in a collective fashion, with each faculty member taking responsibility for their own research projects. The specific topics studied by the Language Pod have included the development of children’s perception of regional dialect differences, the online processing of intonation and stress, the conceptual-semantic processing of plural marking, children’s understanding of verb endings, and the ways that adults’ expectations about individuals influence how their speech is perceived. Visitors to COSI are able not only to see this real research being conducted, but also have the

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