

## Chapter 5

# Bolstering Content by Promoting Language and Literacy in the Urban Science Classroom

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### **ABSTRACT**

*This chapter focuses on the creation and implementation of lesson modules related to developing language skills in the middle school science classroom. These modules, which focus on academic language development for students who are English learners or speakers of non-standard dialects, are part of the curriculum in a Master of Arts in Teaching (MAT) program for middle school science educators at a large urban U.S. university. Drawing on the literature surrounding the academic language of science and language development, the content of these modules is appropriate for teacher educators and science teachers at all levels. The module content was designed around three components, linguistic understandings, critical language awareness, and pedagogical modeling, and exemplifies the Standards of Professional Development Excellence established by the Center for Applied Linguistics. This chapter describes the module creation, observations from the module delivery, and program participant responses to the materials and content.*

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## **INTRODUCTION**

Despite the growing diversity in urban U.S. classrooms, most pre-service and in-service content teachers receive little to no training on how to work effectively with linguistically and culturally diverse students who are in need of linguistic support. This lack of preparation often results in teachers approaching students who are in the process of acquiring English as an additional language (also referred to as emergent bilingual students, English learners, or ELs) from a deficit perspective rather than leveraging the knowledge, skills, and abilities that students bring to the classroom (Valencia, 1997). Attitudes are often similar for speakers of non-standard varieties of English, including African American English, where teachers make assumptions about students' abilities based on their language (Rickford, 2005; Alim, 2005). Rickford (2005) notes the parallels between students who speak a language other than English at home and students who speak a non-standard variety of English at home. In both cases, he recommends viewing the language these linguistically and culturally diverse students bring to the classroom as a resource in engaging with content concepts.

Viewing linguistically and culturally diverse learners from a deficit perspective can have serious negative long-term consequences for these students. Research suggests that one way in which this has manifested over the last few decades is through the representation of students of color in special education programs (Counts, Katsiyannis, & Whitford, 2018). While studies have shown that minority students are often overrepresented in certain special education categories (Artiles, Harry, Reschly, & Chinn, 2002; Waitoller, Artiles, & Cheney, 2010; Sullivan, 2011), in some cases they may also be under identified for receiving needed services (National Education Association and National Association of School Psychologists [NEA/NASP], 2007). For example, Shifrer, Muller, and Callahan (2011) found that EL students who had caregivers that spoke a language other than English were less likely than those with English-speaking parents to be identified for special education services. Since teacher referral is a primary factor in determining student placement in special services, it is critical that teachers are making recommendations based on an educated assessment of students' abilities and needs, distinguishing linguistic variation from disability or behavioral issues.

In addition, research has shown that preparing teachers to work within a multicultural classroom has a positive impact on both students and teachers (Sleeter & Owuor, 2011). Reviews by Hollins and Guzman (2005) and Sleeter (2008) found evidence that courses designed to prepare teachers to work with diverse students resulted in positive changes of attitudes and gains in cultural consciousness, especially when the courses contained activities that incorporated self-reflection. Such changes in teacher attitudes and perceptions trickles down to impact students. Studies show

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