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What Needs Do Pre-Service K-12 Teacher Education Programs Have to Address to Prepare Science Teachers to Serve New Spanish Speaking Students?

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In the Southeastern United States, teachers of science in (K-12) are not well prepared to work with an influx of new Spanish speaking students in their classrooms. These teachers of science are finding great difficulties in working with this new group that include a large number of students from families of low socioeconomic status, with intermittent or no regular school attendance in their home country, and who may lack basic literacy skills in Spanish. Hispanic students, thus, are underserved in science classes and underrepresented in advanced science classes.

The Science Teacher Education for Hispanic English Language Learners (ELLs) in the Southeast (SHELLS) project is centered around a national conference that was held at The University of Alabama. The purpose of the project is to establish and secure commitments to a research agenda to strengthen pre-service teacher education for K-12 teachers of science of new Hispanic English Language Learners in the southeastern states. The Conference was designed not to solve the problem but to find directions that lead to solutions. A research consortium of 16 universities developed as a result of the conference to pursue the research agenda.
This rapidly growing southeastern population of Hispanic students is mostly new Mexican and first generation Mexican American (e.g. 74% of Alabama’s K-12 English Language Learners). Due to the relative recentness of this change in population dynamics, schools, and teachers in southeast have had little prior contact with this new cultural/language group.

Figure 1 below indicates the percentage of growth of ELLs over a recent 10 year period in the southeast.

Figure 1: Percentage of Growth of ELL Students from 1994-1995 and 2004-2005

Although a knowledge base has been developed by researchers across the curriculum that includes rigorous accountability standards (No Child Left Behind [NCLB], U.S. Dept. of Education, 2002) for assessment, instructional practices, and curriculum, less attention has been given to the "attainment of educational equity" (Lee & Fradd, 1998, p.12). Under Title III of NCLB, Limited English Proficient (LEP) students are entitled to the same opportunities to succeed in the K-12 content area classroom as are other students. These opportunities stem from the modifications that have to be made by the regular classroom teacher to assist students in learning science content, but also assist with the complicated and dynamic process of learning English. Although teacher education programs in the southeast have risen to the challenge as best they can, there is still a great need for development in pre-service teacher education programs to appropriately prepare teachers of science who are trained in teaching English Language Learners (ELLs) and in facilitating their science literacy, knowledge, and skills (Bryant &
Atwater, 2002). There is a need to bring together science education and ELL researchers and specialists in a forum that facilitates the re-conceptualization of pre-service teacher education so that it better addresses these new needs of the whole community in the Southeastern U.S.

Teachers in the southeast have to learn how to educate students who not only do not speak English, but also have a very different science literacy background than that of their teachers and also of the other underrepresented student groups served by schools in this region. Although there still are first-generation ELLs in, for example, Texas and California, the overwhelming majority of Spanish-speaking ELLs in the southeast are first generation students. Science educators who teach these students in states like Alabama and Georgia need to have the tools to make scientific concepts meaningful to these new Spanish speaking students.

Traditionally, in the southeast, the ELL teacher is responsible for the students’ adequate yearly progress (AYP). With increasing accountability standards and assessment instruments, responsibility for AYP for ELLs is shifting more and more to the regular classroom teacher, in this case, the science teacher.

The conference and pre- and post-conference activities, hence, are centered around the needs of teachers and target the needs of pre-service teachers specifically. The project is designed not to solve the problem but to find directions that lead to solutions.

References


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