Science Teacher Education for Hispanic English Language Learners in the Southeast (SHELLS)*

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What Questions Need to be Considered in a Research Agenda Aimed at Preparing K-12 Science Teachers of Southeastern Hispanic Students?

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Teachers of science (K-12) in the Southeastern United States are not well prepared to work with an influx of new Spanish speaking students in their classrooms. Teacher educators recognize the need to build and adapt preparation programs that address the problem. Research carried out in other regions of the nation considers preparation programs that are built within a cultural and historical context differing from that found in the southeastern region. The curriculum of teacher education programs, hence, cannot be imported as is from other regions within the nation but must take into account the regional context.

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.
The conference was focused on a set of key strands identified via an extensive review of the literature and from interviews of K-12 classroom science teachers (see Figure 1). The overall goal of the national conference was to establish and secure commitments to a research agenda to strengthen pre-service teacher education for teachers of science of new Hispanic, mostly Mexican and first generation Mexican American, students in the southeastern states. The Conference was designed not to solve the problem but to find directions that lead to solutions. The conference focused on these strands for developing a research agenda:

**Key Strands**

- **Status of pre-service education programs**
- **Academic and socio-cultural factors of Hispanic ELLs**
- **Effectiveness of new pre-service models**
- **Differences between pre-service models**
- **Regional differences of pre-service programs**

![Figure 1: Key Strands for Developing a Research Agenda](image)

Critical questions were identified for each key strand as follows.

- **Status**: What is the status of pre-service science teacher education programs addressing needs of Hispanic students in K-12 science classrooms?
- **Programs**: How widespread are pre-service programs specifically addressing science for Hispanic students? In these programs, are graduates succeeding in adapting new behaviors and strategies for teaching science? How do pre-service programs address the needs of the community as well as those of the families?
- **Effectiveness**: How effective are new pre-service science education models in addressing Hispanic students’ needs?
- **Process**: What differences exist between pre-service program models that address the teaching of science content to meet the needs of Hispanic students and program models that have not addressed such teaching?
Differences: Are there differences in the knowledge and skill base required by science teachers if they are to successfully assist southeastern U.S. Hispanic student populations as compared to populations in the longer established communities found in Texas or California?

The focus of the conference was on determining a research agenda to describe what we want and need to know, identifying key concerns for research in pre-service science teacher preparation for ELL students in the southeast, encouraging thought and discussion about the conduct and application of research, and inspiring researchers and educators to participate in this research agenda.

It is important to point out that the above strands address and identify existing research methodologies and research questions that consider the students' learning in and out of the classroom (e.g., academic and social) as well as across the curriculum. The conference focused on the cognitive and learning characteristics of Hispanic learners and related effective science instructional practices by teachers of science for these students (What is the research knowledge base?).

The research that was discussed, (1) considered possible means for identifying the specific science education needs of pre-service teachers in the southeastern region (What are the primary issues?); (2) identified gaps in knowledge needing further research (What do we need to find out?), (3) encouraged a focused research program to fill important gaps, (4) determined major priorities for research, (5) determined critical research areas, (6) determined key methodological issues, and (7) determined implementation of the research agenda. There were many opportunities for individuals from every facet of science and ELL education to participate, guide, and provide input to the aforementioned topics. The outcome of conference discussion was the identification and prioritization of components of a research agenda aimed at preparing effective pre-service science teachers for the instruction of new Hispanic ELL students in the southeast completing.

For additional information on this project see the following.


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