

**PERCEPTIONS OF SECONDARY SCIENCE EDUCATORS OF LIMITED ENGLISH PROFICIENT  
(LEP) LEARNERS IN THEIR CLASSROOMS.**

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## Abstract

Most information on the teaching of ESL/LEP students is directed towards elementary students and academic areas other than science. Secondary science teachers need research and information on teaching ESL/LEP students. Secondary science educators in the Louisville Metropolitan area were surveyed in 2007 on their perceptions of LEP students. Over 80 surveys from 100 were returned with upbeat and encouraging trends that found that LEP students are welcomed in the classroom and teachers want additional information on how they can “bridge” the language gap and help them to be successful learners. Educators identified that students are able to practice their English language in a natural setting, and develop cultural skills with native speakers whom they would not have had the opportunity to work with. The science curriculum is where language arts, mathematics, and science integrate together. If the ESL/LEP student is successful in science, they will be successful students in all academic programs.

## Introduction

This survey queried secondary science teachers in southern Indiana and north-central Kentucky were chosen as centers of this study because the Louisville, Kentucky metropolitan area is the 16<sup>th</sup> largest urban area in the United States, a representative demographic economic and social microcosm. Trends for Indiana and Kentucky are representative of every state that is struggling with coping with the fluctuations in enrollment as shown on figure 1 and figure 2. Figure 1 shows a steady decline in overall enrollment in Indiana, until recently and dramatic decline in Kentucky schools from 1993-2003. This data obtained from the Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students show a steady increase in Limited English Proficient learners which has enhanced school enrollments despite declining enrollments.

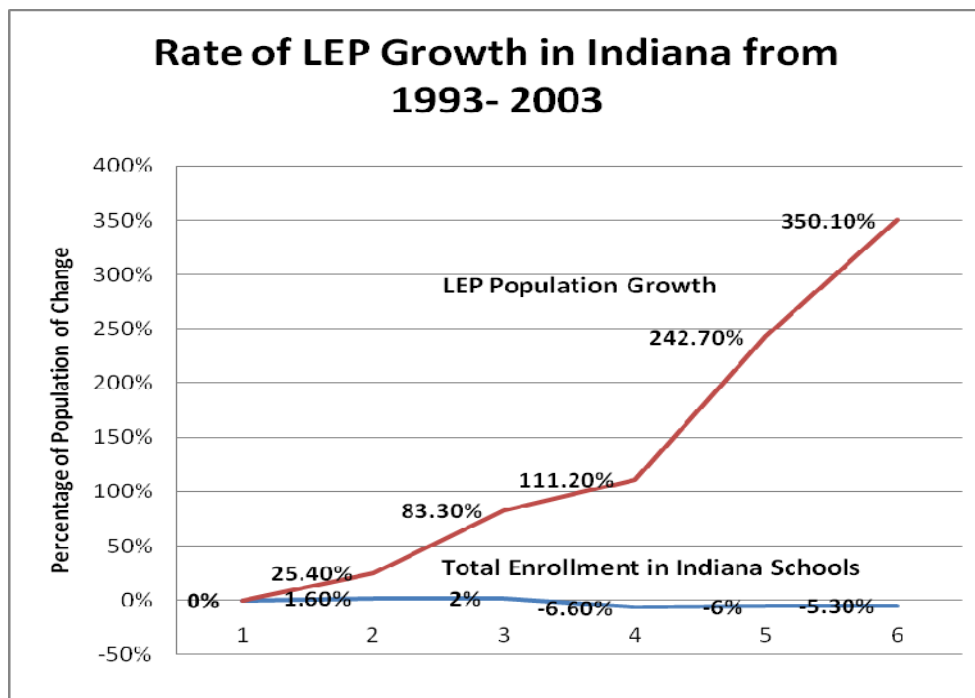


Figure 1.

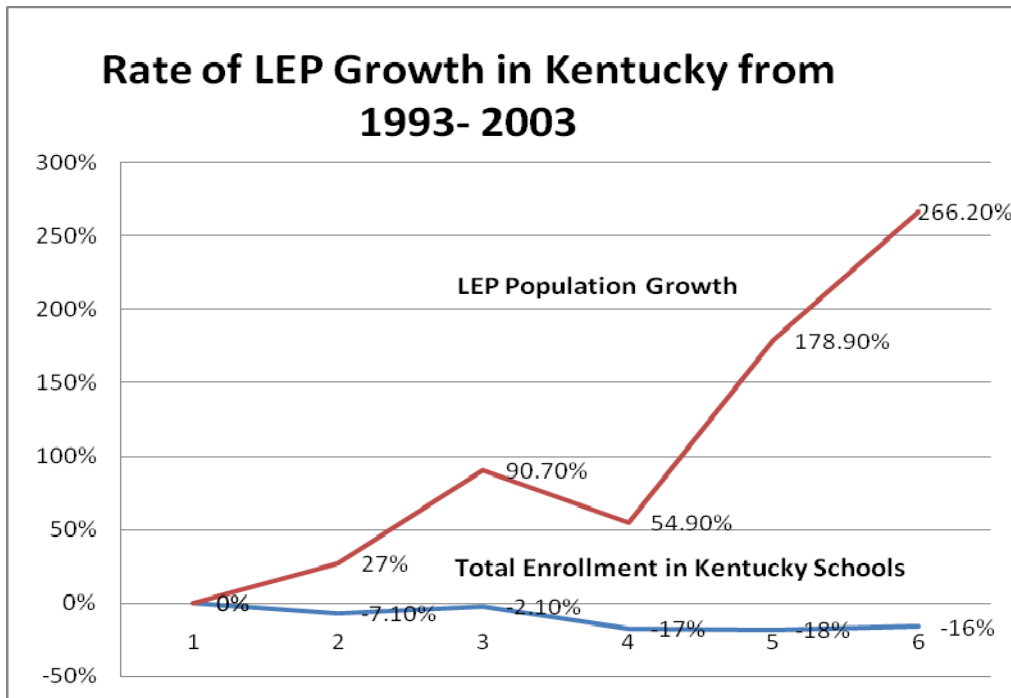


Figure 2.

The addition of these students complicates the job of the secondary science teacher as the majority of materials prepared for English as a Second Language (ESL) /Limited English Language (LEP) is Spanish. Surveyed schools reported students from Mongolia, Czech Republic, India, Laos, and Somalia to list a few. One school reported over 40 languages spoken in its classrooms and hallways. These students are obviously different from their instructors their classmates because of race, religion, native language, etc. are unique and are often subject to categorization and stereotyping as teachers try to manage the various impressions they receive of all their students. While the need/ability to create a framework to organize our perceptions of others is a human trait and we often use stereotypes as “shortcuts” to understand anticipated human behavior. If this categorization becomes stereotyping, it can harm individuals by denying

them educational, work, and social opportunities (Gudykunst and Kim 1984: 84; Miller and Steinberg 1975: 6-7; Nelson 1998: 728; Sokal 1977: 185; Wright, S.A. 2004.).

### **Materials and Methods**

This study was designed to determine the perceptions of secondary science teachers of their new English Language learners and what are they doing to promote success in their students. Thirty science teachers responded to this survey. The survey was mailed anonymously to schools with identified LEP/ESL populations with anonymous self addressed return envelopes to assure candid responses. The survey is in Appendix 1.

### **Discussion of Data**

The survey revealed that the educators had an average of 12.73 years of teaching experience with a ranging 1-24 years of experience. The teachers relied heavily on their experience in the classroom making connections for the LEP students working with ESL/ENL teachers if available, and tutors if available. The survey identified the respondents, all 9-12 educators with primary teaching assignments as: 13 Biology, seven Chemistry, five Earth-Space Science, two General Science, and three Physics. The majority of teachers (73.33%) lacked second language skills; only eight teachers had studied a second language. Seven of the eight believed that their skills were good to fluent. The teachers who had studied another language all stated that their studies enabled them to understand the challenges of the students and provided three of them some skills to explain their content in Spanish to the Spanish-speaking students.

Because individual schools and teachers are not identified one can not ascertain population per school. Given that the surveyed schools in the Louisville metropolitan area have enrollments that range from 2400- 900, it can be assumed that the ESL/LEP populations fluctuate. The 30 teachers identified 276 students among their classes. In figure 3, the breakdown of language proficiency is shown. Most of the students (51%) needed some assistance reported by their classroom teachers. Less than half the students identified need substantial assistance in the classroom with 15% lacking English skills all together.

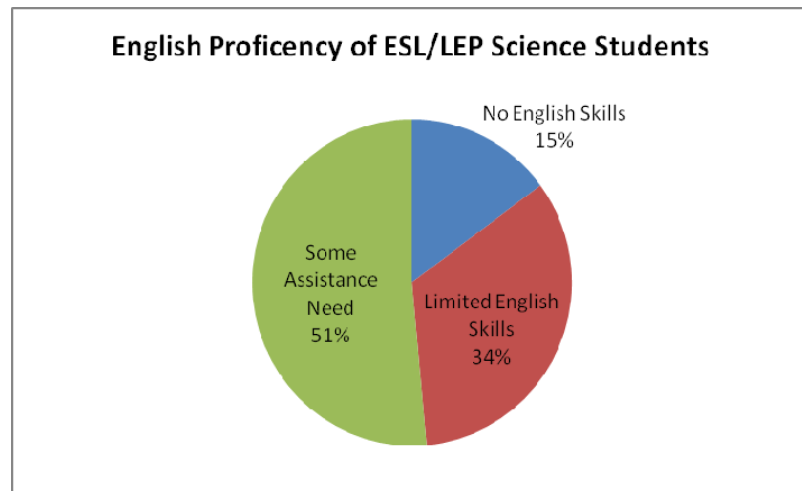


Figure 3.

The most helpful information was from items 6, 7 and 8. The selected antedodal responses were as follow:

Question 6. Describe modifications you have made in your teaching to assist LEP students.

The majority of respondants cited that they provide one on one tutoring and teacher guided assistance to their students in the following: Provide more time on assignments;

rephrase question to use simple sentences; reduce number of problems in HW; pair students up with high performing English speaking students. Four teachers are able to utilize teaching assistants and their ESL/ENL teachers for support. One teacher used these listed strategies and cited that all of his students regardless of language skills benefited:

“Visuals, word walls, demonstrations, daily content objectives, videos, peer tutor, small groups, conferencing, recorded texts, Read-a louds, repetitions, role play, simplified text and vocabulary, chunking, compose/contrast, incensed wait-time, open-notes, graphic representation, etc.”

Question 7. What teaching practices work best in assisting LEP students?

This question can be best described in a consensus report. The best practices that the teachers shared were that teaching ESL/LEP students were no different from teaching native English speakers. Group work with hands on activities with visual aids were cited by the majority of teachers, as it combined students of different skill levels to help students build and reinforce skills. Simplifying instructions and assignments were cited and providing students extra time to complete assignments. Some teachers allowed their students to use a bilingual dictionary in class. One teacher reported that he/she would communicate in class in their native language for clarification.

Question 8. How do you evaluate your LEP students?

Most of the teachers responding to the survey reported that they used the same grading scale as they apply it to the general student body. They would allow flexibility on individual student work, relaxed standards on spelling and grammar. Some teachers

integrated student performance in the grading and analysis of performance based tasks. Only a few teachers actually used a grading scale that was openingly reduced for the ESL/LEP students. The surveyed teachers all noted that student attitude, and perceived effort was important in grading.

### **Conclusion**

A general finding is there is no “size-fits-all” in teaching methodology to address ESL/LEP students. The perceptions of the secondary science teachers are positive, and caring about the success of their “new students”. Teachers expressed little distress about the presence of ESL/LEP students and are ready to assist them and secure services to help their students. These upbeat and encouraging trends that were found indicate that our students welcomed in the classroom and teachers want additional information on how they can “bridge” the language gap and help them to be successful learners.

Most information on the teaching of ESL/LEP students is directed towards elementary students and academic areas other than science. Secondary science teachers need research and information on teaching ESL/LEP students. Because of the opportunity for students to communicate and work in groups, science classrooms among the most idea teaching situations for ESL/LEP students. Students are able to practice their English in a natural setting, and develop cultural skills with native speakers whom they would not have had the opportunity to work with. The science curriculum is where language arts, mathematics, and science integrate together. If the ESL/LEP student is successful in science, they will be successful students.



Appendix 1.

Survey Instrument

**“English Language Learners (ELL) and the Secondary Science Classroom;  
Science Teacher Attitudes and Perceptions of English Language Learners in their  
Classroom”**

1. Please check the years of teaching experience you have.  
\_\_\_ 0-5 \_\_\_ 6-10 \_\_\_ 11-15 \_\_\_ 16-20 \_\_\_ More than 20.
2. Do you speak and/or understand a language other than English? How would you describe your proficiency in it?  
\_\_\_\_\_
3. Please circle your primary teaching area:  
A. Biology. B. Chemistry. C. Physics D. Earth-Space Science E. General Science.
4. How many Limited English Proficiency (LEP) students do you currently teach?
5. What category would you estimate that each of your LEP students belong in?

Divide your total (provided in Question 4) between the following three categories.

- \_\_\_ Speaks no English
  - \_\_\_ Limited use of English
  - \_\_\_ Speaks English but requires assistance
6. Describe modifications you have made in your teaching to assist LEP students.
  7. What teaching practices work best in assisting LEP students?
  8. How do you evaluate your LEP students?
  9. How do you communicate with the parents of your LEP students? What methods are the most effective?

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