

Online Technology Intervention for Secondary Hispanic English Language Learners

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Facts

- According to U.S. Census Bureau (2000), one fifth of the students enrolled in the public school system are second language learners.
- Of these second language learners, Hispanics represented the largest group.

Historically

- Hispanic bilingual students have had the lowest levels of education and the highest dropout rate of any ethnic group in the country:
- 30% for Hispanics, 13% for African-Americans, and 8% for Whites (U.S. Department of Education, 1996; Kaufman & Frase, 1990; Snow, Burns, & Griffin, 1998).

Resource

- **Public school membership, by race/ethnicity and state: School year 2001-02**
- http://nces.ed.gov/pubs2003/snf_report03/table_04.asp

Texas Student Ethnicity Profile Grades Pre K - 12

2000-2001

1,650,560 (41%)	Hispanics
1,713,436 (42%)	White
586,712 (14%)	African Am.
12,120 (0.3%)	Native Am.

2005-2006

2,047,308 (45%)	Hispanics
1,651,040 (37%)	White
665,799 (15%)	African Am.
15,037 (0.3%)	Native Am.

- TEXAS EDUCATION AGENCY. JANUARY 2006. PEIMS.
Georgina K. González, Director, Bilingual/ESL Education

TEA (Texas Education Agency) Reports

- There are a total of **711,737** Identified English Language Learners (ELLs) in Texas

TEXAS EDUCATION AGENCY. JANUARY 2006.
PEIMS. Georgina K. González, Director,
Bilingual/ESL Education

Increasing Number of LEP Students in Texas

<u>School Year</u>	<u>Number of LEP Students</u>
2000-01	570,603
2001-02	601,791
2002-03	630,345
2003-04	660,707
2004-05	684,583
2005-06	711,737

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Major Language Groups in Texas Schools

Spanish	655,074
Vietnamese	12,300
Urdu	3,476
Arabic	3,093
Korean	2,824
Mandarin Chinese	1,910

129 Languages are represented in Texas Schools

Texas Education Agency, PEIMS, Fall 2005. (Georgina K. González, Director, Bilingual/ESL Education)

TEXAS ELLS SPECIAL LANGUAGE PROGRAM PARTICIPATION

ELLs	711,737
Bilingual	376,170
ESL	280,660
ELL Parental Denials	46,528
Not Served	8,379

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Hispanics are Performing at the Lowest Level in Texas

- The performance of Hispanic students has been low on state-wide academic assessments (Texas Education Agency, 2005).
- The academic problems reflected in the assessments may be due to low levels of English language proficiency.

Second Language Acquisition

- Everyone is born with a potential to speak any language.
- The neurological wiring needed to distinguish sounds atrophies if it is not stimulated during the early years (Carter, 1998).
- Age is a factor that affects the second language acquisition process (Collier, 1987, 1987/1988; Harley, 1986).
- The classroom situation presents greater demands for older students' second language proficiency than for younger newcomers (Ovando, Collier, & Combs, 2003). They have further to go and less time to catch up than their younger siblings.

A Greater Challenge

- Educating second language learners at the secondary level represents a difficult challenge that must be overcome through further empirical research on effective aids for intervention.

Strong Need

- There is a strong need for new methodology that helps accelerate the second language acquisition process. Limited methodologically-rigorous research exists on reading instruction in a second language (August & Hakuta, 1997). More is needed (McCardle, 2005).

The Age of Technology

- Technology-based programs offer curricular and teaching support while being tailored to individual students' styles and needs.
- Technology is becoming an integral component of all education (Wolf & Hall, 2005) but its effectiveness needs to be monitored.

Purpose

- The purpose of this study was to evaluate the effectiveness of an intensive ESL reading online intervention among ELL/ESL students at the secondary level.

Research Question

An answer to the following question was sought:

- Over a several month time period, will the ESL reading online intervention implemented one hour per day and three days per week improve the acquisition of English of Spanish speaking ELL/ESL students at the secondary level?

Additional Questions

- Will this treatment improve English reading fluency on the students who use the program?
- What are the effects of the intensive ESL reading online intervention on the students who use the program?
- What are the effects of the intensive ESL reading online intervention on the teachers who use the program?
- How do teachers perceive the effects of the intensive ESL reading online intervention on their ESL students?
- How do students perceive the intensive ESL reading online intervention as a learning tool?

Methodology

- This study uses a multiple-baseline design, single-case research methodology (Kazdin, 1982). The study examines if the students receiving more of the technology-based treatment make greater progress in acquiring the second language than the students receiving less.

Dependent Measures

- Dependent measures include:
- *Woodcock-Muñoz Language Survey-Revised*
- *Texas Reading Proficiency Tests in English (RPTE)*

Intervention

- The intervention involved student access to program use 45 minutes per day, three days a week, over 10 school months with approximately 66 students from five ESL (English as a Second Language program) secondary classrooms including two “Newcomer Centers.”

Time Sequence of Intervention Use

- Group 1 started receiving the treatment as a pilot the last two months of the Spring semester, 2005.
- Group 2 started receiving the treatment at the beginning of the intervention in the Fall of 2005.
- Group 3 started in February, Spring of 2006
- The total duration for this study was 10 school session months .

Testing Procedures

- In addition to formal pre- and post-testing, some formative assessment of fluency was measured.
- One instrument (WMLS-R) assessed reading levels in Spanish and English.

Random Assignment

- Students were placed in groups using random assignment to conditions.
- This was accomplished by randomly assigning two groups of students per classroom.

Purpose of Design

- To establish if significant differences existed among the baseline and the treatment phases: to determine if the students receiving the treatment improved their English language development (as reflected by reading scores) more than the delayed treatment group.
- For this purpose, differences were established among the treatment phases and the groups.

Testing

- Individual assessments were administered as pre- and post- tests
- Ongoing fluency checks on some students were obtained during the study
- District group test data were obtained for additional analysis

Data Analyses

- Data were analyzed in four ways:
- (a) visual analysis of data,
- (b) changes in mean level between phases (baseline vs. intervention),
- (c) changes in slope (rate of learning) between phases, and
- (d) changes from the first to the last assessment.

ESL Reading Smart Online Program

- Comprehensive, flexible online program with resources
- Over 118 lessons with reading selections, interactive illustrations, lesson plans, printable worksheets, online student activities, and student progress reports

Instructional Materials

- Four different levels of difficulty
 - JumpStart (newcomers)
 - Level 1 (beginner)
 - Level 2 (intermediate)
 - Level 3 (advanced)

Program

- Designed to improve the language skills of upper elementary, middle and high school ESL students.
- Complies with challenging state and nationwide academic standards
- Has been effectively used in nearly 300 schools since the academic year 2001-2002.

Program Design Continued

- Uses culturally relevant content
- Integrates reading, listening, writing, and speaking activities
- Incorporates literature-based teaching of language skills
- Uses multimedia, computer-based instruction to accommodate different learning styles and proficiency levels

Each level

- Provides a syllabus with recommended order - based on language development sequence
- Provides detailed lessons for the teacher
- Addresses critical thinking and ESL standards
- Provides activities for use before and after work on computer

Levels 1 - 3

- Instructional materials are aligned to the Lexile Framework for Reading
- Allows the educator to easily determine the reading level of the student and their progress

For Information

- ESLreadingsmart.com

Assessment Instruments

- Woodcock-Muñoz Language Survey-Revised (WMLS-R)
 - English and Spanish forms
 - Individually administered
 - Generates quantitative data for individuals and for clusters
 - Also allows gathering of qualitative data: subject's native language and number of years exposed to language of the test

Seven Tests in WMLS-R

- 1. Picture Vocabulary
- 2. Verbal Analogies
- 3. Letter-Word Identification
- 4. Dictation
- 5. Understanding Directions
- 6. Story Recall
- 7. Passage Comprehension

Advantages

- Norm-referenced. Provides:
- Measure of CALP (Cognitive-Academic Language Proficiency) (6 levels)
- Grade-equivalent
- Age-equivalent
- Percentile Rank
- Standard Scores
- W scores: equal-intervals, well-suited for use as a growth scale

Analysis At This Time

- Letter-Word Identification
- Passage Comprehension
- These two tests make up the Reading Cluster, providing a measure of reading achievement. This cluster has a median reliability of .95 in the age 5 to 19 range.

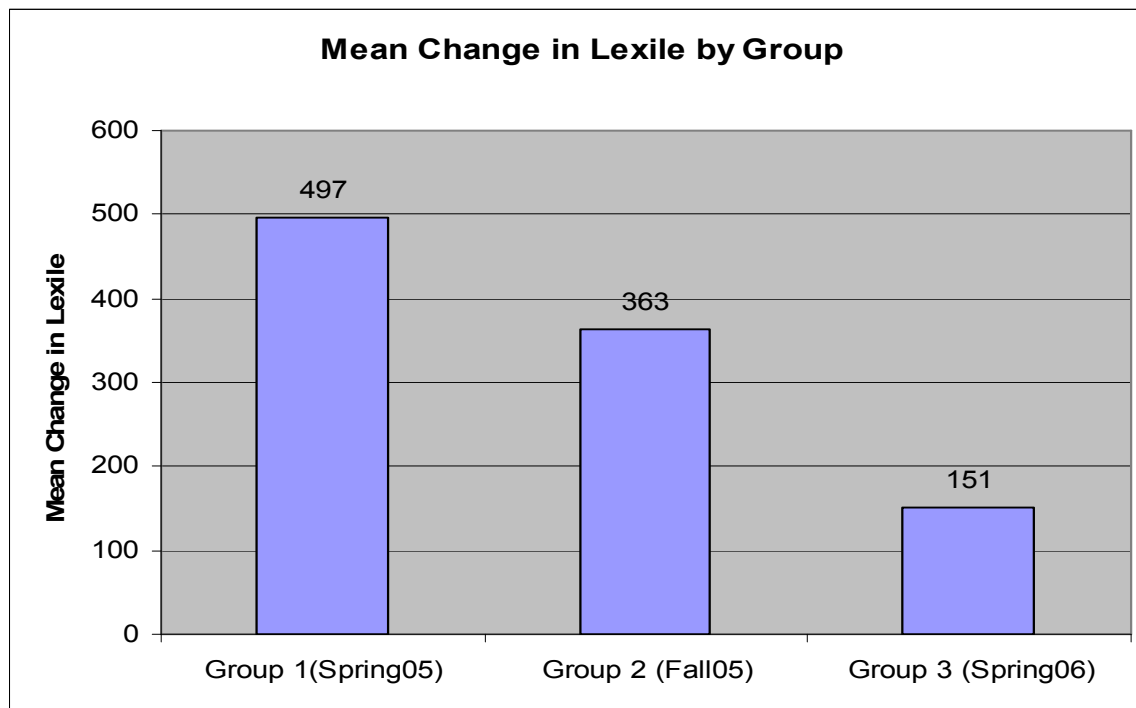
Alvarado, C. G., Ruef, M. L., & Schrank, F. A. (2005). Comprehensive Manual. *Woodcock-Muñoz Language Survey-Revised*. Itasca, IL: Riverside Publishing. P. 14.

Results

The following slides report the statistical comparison results used in this study:

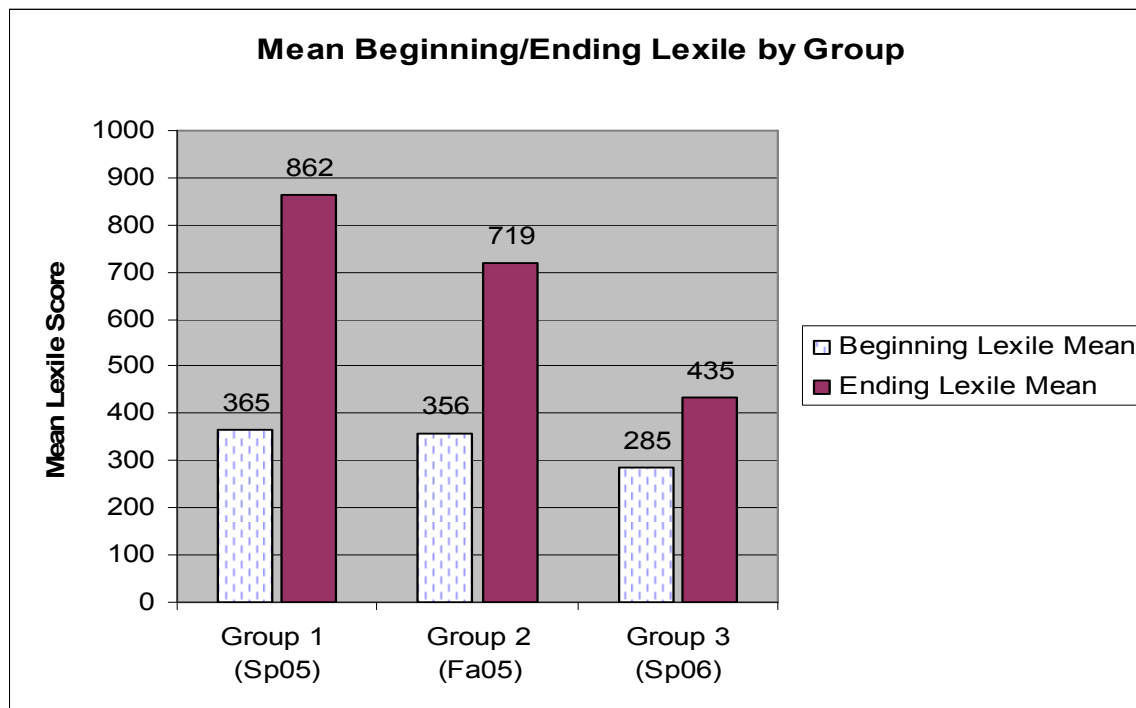
- Mean change in “lexile” by group. The “lexile” is the formula for reading ability/reading level or the measure of difficulty.
- Mean number of activities and lessons by group.
- Paired-sample t test. This test is commonly used to compare two means, as in our pre-post test design.
- Mean differences on grade equivalents of the pre-post scores.

Mean Change in Lexile by Group



Group1 N=10
Group2 N=22
Group3 N=33

Mean Beginning and Ending Lexile by Group

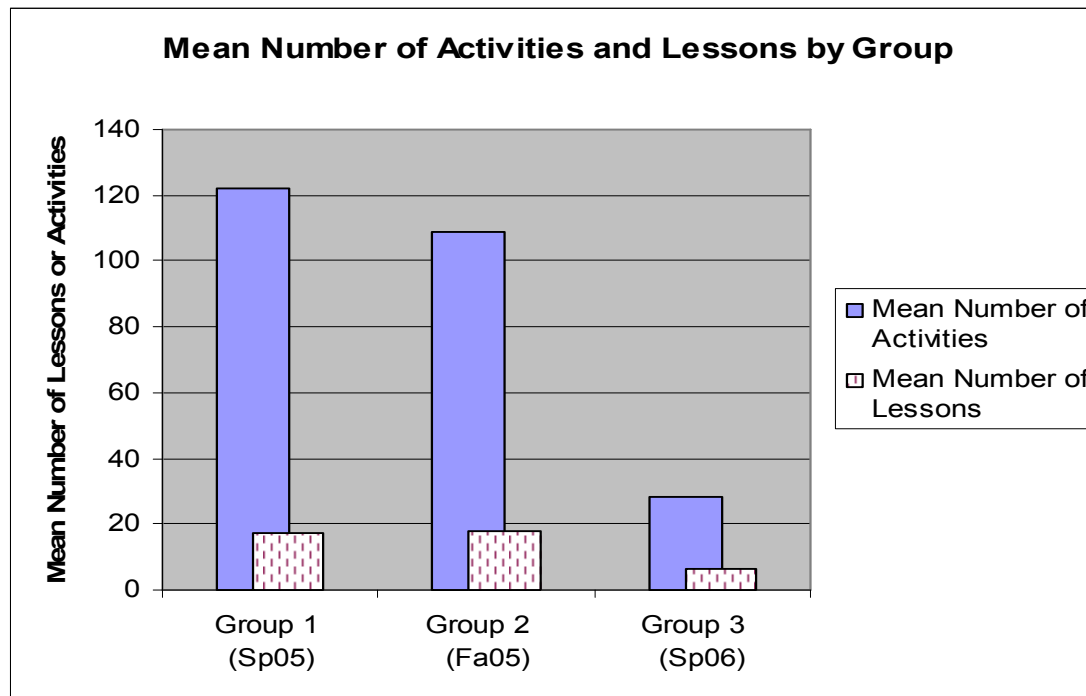


Group1 N=10

Group2 N=22

Group3 N=33

Mean Number of Activities and Lessons Mastered by Group



Note: some lessons contain more activities than others.

Group1 N=10

Group2 N=22

Group3 N=33

Comparison on mean scores (Paired-sample t-tests)

	Pre/Post Pairs	Mean	Std. Dev.	t	Number	Significance
Pair 1	PostletW - PreletW	9.091	24.75	2.724279915*	55	0.00866
Pair 2	PostpcW - PrepcW	7.019	20.36	2.510229686*	53	0.01521
Pair 3	Post RPTE06 - Pre RPTE05	66.683	96.72	4.414397227*	41	0.00000748

Note: The "N or Number" is unequal for each of the three pairs due to partial data for some of the pairings.

* Statistically significant at the 95% Confidence Interval

Terms: "preletW" = Pre letter/word subtest "W" score
 "postletW" = Post letter/word subtest "W" score
 "prepcW" = Pre passage comprehension subtest "W" score
 "postpcW" = Post passage comprehension subtest "W" score
 "W score" = an equal-interval scale (transforms the raw score).

Pre/Post Grade Equivalents

Grade Equivalent Pre/Post Comparisons

	N	Minimum	Maximum	Mean	Std. Deviation	Pre-Post Gain
preletge	59	1.4	9.7	4.517	1.6151	
postletge	55	2.0	18.0	5.115	2.6663	0.5980
prepcge	56	.9	6.5	2.895	1.2661	
postpcge	55	.8	8.3	3.242	1.6130	0.3469

Note: "preletge" = Pre letter/word subtest grade equivalent
"postletge" = Post letter/word subtest grade equivalent
"prepcge" = Pre passage comprehension subtest grade equivalent
"postpcge" = Post passage comprehension subtest grade equivalent

Challenges

- Individual testing of a large number of students requires extended time
- Technology implementation issues on particular campuses

Preliminary Student Responses

- Spring survey results were positive
- Students:
 - I liked it.
 - It is easy.
 - I learned a lot.
 - Other kids could use it.
 - Can understand more English.

Preliminary Teacher Responses

- It is easy to use.
- Many students benefited from it.
- I do recommend it to other teachers.

- It was used as a supplemental program and tutoring technique.

Limitations

- Program intervention took place simultaneously with multiple other avenues of instruction within the school day
- Example: one class received iPods from the Gates Foundation.

Reactions & Questions

- Study
- Program *ESL ReadingSmart On-line*

Additional Contributors

- *Dr. Gail Ryser, Director: Testing, Research-Support & Evaluation Center, Texas State University-San Marcos*
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- *Participating teachers and students from San Marcos Consolidated Independent School District*