

A MEANING-BASED INSTRUCTION TO ENHANCE LITERACY LEARNING  
IN A DUAL-LANGUAGE KINDERGARTEN CLASSROOM

by

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## ABSTRACT

### A MEANING-BASED INSTRUCTION TO ENHANCE LITERACY LEARNING IN A DUAL-LANGUAGE KINDERGARTEN CLASSROOM

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Master of Science

Concerns among educators continue to grow with the increased enrollment of Second Language Learners (SLL) in classrooms throughout the United States. This influx has stressed the boundaries of current methods of literacy instruction, which are not designed to meet the needs of these at-risk students. Literacy instructional methods need to be remediated through early intervention, followed by effective literacy instruction that is designed to meet the specific needs of SLL. Effective literacy instruction overcomes differences in culture and background by using meaning-based instruction coupled with engaging and varied contexts. This study evaluated the effectiveness of incorporating meaning-based instructional activities into a two-way bilingual kindergarten classroom. The instruction, Systematic and Engaging Early

Literary Instruction (SEEL), is designed to explicitly instruct at-risk children in the acquisition of early reading skills. Specifically, the study assessed the effectiveness of SEEL instruction by comparing a classroom of children who received SEEL instruction with a classroom of children receiving other supplemental literacy supports.

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## Review of Literature

Cultural and linguistic diversity in classrooms across the United States continues to increase, driven in large part by the active growth of the Hispanic population. Based on a recent census projection, the Hispanic K-12 student population is expected to increase 54 % by 2020 (González, 2000). It is also estimated that that 56% of children from Hispanic backgrounds will read below basic reading levels by 4<sup>th</sup> grade without supplemental literacy instruction (National Center for Education Statistics, 2003). While educators and administrators do recognize the need for supplemental instruction for these children, they struggle with integrating culturally and linguistically diverse (CLD) students into the current education system and effectively instructing them in a new language. One possible solution is to modify traditional instructional models to incorporate methods that are more systematic, engaging, meaningful, and appropriate to meet the unique needs of CLD students.

### *General Instruction for Second-Language Learners*

Educators begin forming effective literacy programs by first selecting an overall classroom model for dual-language instruction. The selection of an appropriate instructional model can greatly influence academic performance in children at risk for literacy difficulties. A model is composed of the instructional strategies, methods, and techniques that are implemented to form a cohesive plan of instruction (Calderón & Minaya-Rowe, 2003). Models of instruction for teaching a second language also provide instructional guidelines for introducing students to their second language (L2) and determining the use of their first language (L1) in instruction.

A variety of instructional models, developed by both educators and linguists, exist for providing instruction to second language learners (SLL). One model, the English-only model, does not provide any instruction in the students' L1. English-only models are essentially English-immersion programs, and have been shown to result in L1 regression and poor academic performance (Calderón & Minaya-Rowe, 2003). The dual-language model, in contrast, attempts to instruct in the new language while somewhat preserving learning and language development in the native language.

There are several different versions of the dual-language model. To date, research on which dual-language model provides the greatest academic gains is inconclusive. One model within dual-language instruction, second-language immersion, may begin as early as kindergarten or as late as high school. These second-language immersion programs attempt to instruct the children in at least 50% of the curriculum in the L2 (Cloud, Genesse, & Hamayan, 2000). Another instructional model, developmental bilingual, also presents 50% of the curriculum in the students' L1, but only during the elementary grades (Cloud et al., 2000). A third model is transitional bilingualism, in which instruction incorporates the L1 in the primary grades but does not target proficiency in both languages (Cloud et al., 2000).

Preliminary data are encouraging, however, for one model more than others. This model is two-way bilingual (TWB) immersion (Calderón & Minaya-Rowe, 2003). While the other dual-language models favor development in one language, TWB immersion programs target bilingualism in all students (Cloud et al., 2000). The TWB model actively uses instructional strategies to promote learning across cultures, as well as across languages. Ideally, classrooms that adhere to the TWB model are composed equally of

both English-speaking and non-English-speaking students. While all TWB programs target equal bilingual abilities and instruction across the curriculum to provide students with greater exposure to vocabulary and syntax, various forms of TWB programs do exist. Some divide use of the two languages equally, others divide instruction between languages in varying percentages (Cloud et al., 2000; Montague, 1997). Overall, however, students in TWB programs show greater gains in bilingualism and academics than students of other dual-language programs, regardless of native language (Calderón & Minaya-Rowe, 2003).

#### *Literacy Instruction for Second-Language Learners*

In addition to selecting an overall instructional model, educators should attend to instructional approaches or strategies that specifically facilitate literacy learning in children who are dealing with two languages. Instructional strategies are the ways in which the teacher increases the child's ability to succeed within a model. The International Reading Association (IRA, 2001) and others (August & Hakuta, 1997; Cummins, 1981) hold the position that greater literacy gains are made in students who first learn literacy in their L1. Their position supports the goals of TWB models where children are taught literacy skills in both the L1 and L2, whereas other models only teach literacy in English. In the least, the selected literacy model should integrate literacy with basic principles of second-language learning and parallel the overall classroom instructional model (Calderón & Minaya-Rowe, 2003).

Educators should evaluate their current literacy model, and recognize which traditional instructional techniques that disadvantage SLL in literacy learning.

Traditional models for literacy instruction use instructional techniques such as recall and

recitation, a pattern of “initiate, respond, and evaluate” (Allington, 1990). Teachers typically initiate only into low-level questions. Low-level questions emphasize individual reading, phonics, drills, and recall (Allington, 1990; Elmore, Peterson, & McCarthy, 1996; Pressley, Rankin, & Yokoi, 2000; Turner & Paris, 1995). Calderón and Minaya-Rowe (2003) indicate that traditional instruction “doesn’t generate [the] rich discussion, language acquisition, student thinking and equal turns” necessary for students at risk (p. 109). Discussion, frequent turn-taking, and small group contexts have been found to prevent delays in literacy by providing a solid foundation for higher-level comprehension (August, Carlo, & Calderón, 2002; Calderón & Minaya-Rowe, 2003; Slavin & Calderón, 2001).

#### *Strategies for Literacy Instruction in Two-Way Bilingual Programs*

Successful TWB literacy models for at-risk students incorporate several key strategies. Many researchers indicate that early identification and intervention of students with literacy needs provides students with the opportunity to progress farther than those who are identified later in their academic careers (Berninger et al., 2000; Catts, 1997; Fey, Catts, & Larrivee, 1995; Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; Snow, Burns, & Griffin, 1998; Torgeson, Wagner, Rose, Lindamood, Conway, & Garvan, 1999; Vellutino et al., 1996). The National Research Council (NRC) and Center for Research on Education, Diversity Excellence (CREDE) also indicate that strategies for early literacy instruction include utilizing activities in small group settings that stimulate verbal interaction and play-based instruction (Bickart, 1998; CREDE, 2002; Slavin & Calderón, 2001). In addition, the NRC and CREDE specify that instruction should include shared and guided reading, interactive writing, and contextualized literacy

through meaning-based instruction (CREDE, 2002; Foorman et al., 1998; Slavin & Madden, 2001a, 2001b).

*Early identification of literacy needs.* An invaluable key to increasing literacy skills in SLL is the identification of at-risk students as early as possible in their academic experiences. Early identification coupled with early stimulation of literacy skills allow for more positive academic outcomes (Berninger et al., 2000; Catts, 1997; Fey et al., 1995; Foorman et al., 1998; Snow, Burns, & Griffin, 1998; Torgeson et al., 1999; Vellutino et al., 1996). Research shows significant gains in children at risk for academic difficulties through focused, early training of literacy skills early in their academic experience (Adams, Foorman, Lundberg, & Beeler, 1998; Blachman, Ball, Black, & Tangel, 2000; Byrne & Fielding-Barnsley, 1995; Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002; Wagner, Torgesen, & Rashotte, 1994). Early literacy stimulation also results in less likelihood for at-risk children to become disinterested in the process of learning to read (Stanovich, 1986). Appropriate intervention by teachers and other educational professionals in the early stages of reading can reduce problems associated with poor reading skills and low motivation for literacy activities (Catts, 1997).

*Meaning-based approach to literacy learning.* Effective literacy programs for children at risk focus on a meaning-based, functional approach to literacy (CREDE, 2002; Roth, 2002). In meaning-based instruction, children feel motivated to learn early literacy skills because they see how literacy is personally relevant to them. Educators with a focus on integrating meaning with literacy skills combine literacy learning with concrete and engaging contexts that at-risk students can relate to personally (Brock,

McVee, & Shojgreen-Downer, 1998; DeTemple & Snow, 2001; Gee, 2001; Gutierrez-Clellen, 1999; Verhoeven, 2001; Pappas, Hart, Escobar, Jones, & O'Malley, 2001; Pellegrini, 2001; Ruben, Liao, & Collier, 2001). Through meaning-based activities, teachers can evoke personal relationships with literacy topics and more readily address the needs of children from different backgrounds (Gee, 2001; Phillips, 1972; Watson, 2001). Effective instructors attempt to increase learning, as well as motivation, by providing tasks that have a relationship with real-world experience, that are interesting, and that are personally relevant for the students (Skehan, 1998).

Meaning-based instruction enriches the current curricula through theme-based instruction that emphasizes personal relevance and hands-on learning (Elley, 2001; Walker, Rattanaovich, & Oller, 1992). Common and compelling themes make literacy learning meaningful to the children and relate instruction to the children's prior knowledge. Meaning is activated when children connect ideas and experiences with literacy to what they already know or to what interests them. Introducing literacy through common themes such as nature, bodies, family life, transportation, food, and animals is a fairly easy way to ensure the relevance of the content to at-risk students.

*Interactive, varied, and personalized approach to literacy learning.* In addition to building literacy around relevant themes in meaning-based instruction, researchers also recommend arranging the instructional setting to allow for a highly interactive approach to literacy (Roth, 2002). Children should be instructed in small groups to provide opportunities for discussion and peer support. Instructors of young learners should also increase interaction by using dramatic play to stimulate literate behavior. Researchers have indicated that interactive, dramatic play significantly increases literacy gains in

early readers more than any other play situation (Pellegrini, 1990; Vedeler, 1997). In addition, frequent opportunities for practice both within and without group time should be supplemented with functional, meaningful, and relevant language use (Calderón & Minaya-Rowe, 2003). The heightened interaction created by dramatic play within small groups creates a social motivator for literacy learning.

Varying instruction also provides greater literacy gains in children at risk (Gutierrez-Clellen, 1999; Leseman & deJong, 2001; Pellegrini, 2001; Phillips, 1972). Variability in activities serves many purposes in instruction. In particular, variety lengthens attention spans for reading, which is useful as literacy skills become more advanced and demanding (Bickart, 1998; Slavin & Calderón, 2001). Variety of instructional strategies is very important for multicultural populations, as the students have a variety of background experiences to relate to literacy (Crowley & Valenti, 2002; Romaine, 1995). These varied experiences help provide at-risk children with additional personal relevance of literacy skills as well as greater prognosis of success in reading.

Another variation to traditional instructional methods is to create personalized, phonetically-controlled activities and texts which can fit the abilities and interests of SLL. Tailor-made materials can be designed to match reading levels and backgrounds of at-risk children (Walker et al., 1992). Personalized books and other teacher-made activities also capitalize on meaning since they represent events the children have experienced and shared. Thus, literacy can be connected to prior knowledge and experience, which is particularly important when teaching reading to children from different cultural backgrounds (Gallego & Hollingsworth, 2000; Gutierrez-Clellen,

1999). By using personalized texts, along with other explicit strategies of instruction, SLL relate personal experiences to literacy instruction.

### *Components of Early Literacy Programs*

After careful consideration of effective instructional strategies, educators should pay attention to the content of instruction. The instruction given in the early grades requires critical choices about which early literacy skills to teach. The NRC and National Reading Panel indicate several core skills to incorporate into program design and execution. These core skills include identifying initial sounds in words, rhyming, developing print awareness, recognizing and producing the letters of the alphabet in isolation, associating sounds with letters, sharing guided reading opportunities, and incorporating blending skills into early word recognition and phonics (NICHD, 2000). Proficiency in letter knowledge and phonological awareness are particularly useful for educators, as these skills have been shown to serve as predictors of reading success in the later years (Chiappe, Siegel, & Gottardo, 2002; NICHD, 2000; Quiroga et al., 2002).

### *Transfer of Literacy Skills*

Another important factor for educators to consider when designing and implementing an instructional model for literacy is the transfer of core skills from one language to another. Even early readers use knowledge of their native language as they read in a second language. In TWB programs, many of the literacy skills taught in the language of origin transfer to the second language. Students with little or no familiarity with a second language can transfer such skills from their native language such as isolating initial sounds, phonological awareness, spelling, word recognition, oral

discourse, and writing (August et al., 2002; Denton, Hasbrouck, Weaver, & Riccio, 2000).

Educators who understand the nature of transfer of phonological awareness between L1 and L2 can maximize learning in young CLD readers (Chiappe & Siegel, 1999; Cisero & Royer, 1995; Durgonoglu, Nagy, & Hancin-Bhatt, 1993; Gorman & Gillam, 2003; Gottardo, 2002; Pae, Seveik, & Morris, 2003; Thomas & Collier, 1998; Verhoeven, 1994). Research shows that in addition to serving as an important predictor of literacy skills, greater phonological awareness in the L1 has a strong positive correlation with better reading performance in the L2 (Durgonoglu et al., 1993; Gottardo, 2002; Pae et al., 2003). Further, research indicates that like their English-speaking classmates, Spanish-speaking children with strong phonological awareness generally perform successfully as readers (Denton et al., 2000; Gottardo, 2002). Thus, phonological awareness skills may be taught in both languages to provide higher gains in the literacy skills of children at risk (Pettito, 2003; Slavin, 2003).

*Systematic and Engaging Early Literacy: Project SEEL*

Systematic and Engaging Early Literacy (SEEL) is an approach that provides motivating literacy instruction to children in the early stages of reading by personalizing instruction, utilizing common early childhood themes, and highlighting literacy activities in varied and engaging activities (Culatta, 2005). This approach is designed to meet language and literacy needs of children from culturally and linguistically diverse backgrounds in both whole classroom and supplemental small group settings. The purpose of this study is to evaluate the SEEL approach against another literacy supplements.

## Method

### *Participants and Setting*

Two comparable classrooms of kindergarten children enrolled in a two-way bilingual (TWB) program participated in the project. The children attended a half-day kindergarten classroom in the Provo School District in Provo, Utah, with the same teacher and teacher's assistant teaching both the morning and afternoon sessions. Both the teacher and the assistant were bilingual in English and Spanish. The classroom teacher was certified in early childhood education and endorsed in English as a Second Language (ESL). Parents self-selected the enrollment of their children into the kindergarten TWB program prior to the start of the study. The children in the morning classroom received the SEEL instruction. This classroom was selected to receive the SEEL instruction based on the availability of the SEEL instructors. The children in the afternoon classroom received opportunities to use computerized early literacy software. The research study lasted eight months and was conducted during the regular school day.

A summary of information for both classes is presented in Table 1. The classroom receiving the SEEL instruction, the morning classroom, had 18 students (9 male, 9 female). Of these students, 9 were English-dominant, 5 were Spanish-dominant, and 4 were bilingual. The comparison classroom, the afternoon classroom, was composed of 12 students (3 male, 9 female) who participated in the study. Of these students, 7 were English-dominant, 1 was Spanish-dominant, and 4 were bilingual. All participants were between the ages of 5;0 and 6;0, with a mean age of 5;5, at the time of the study. None of the children had identified learning or speech and language deficits,

Table 1  
*Summary of Classroom Demographics for Study Participants*

|                                       | SEEL Classroom | Comparison Classroom |
|---------------------------------------|----------------|----------------------|
| Total number of students ( <i>n</i> ) | 18             | 12                   |
| Male students                         | 9              | 3                    |
| Female students                       | 9              | 9                    |
| Mean age (years, months)              | 5;5            | 5;5                  |
| Language dominance                    |                |                      |
| English                               | 9              | 7                    |
| Spanish                               | 5              | 1                    |
| Bilingual                             | 4              | 4                    |
| Identified learning deficits          | 0              | 0                    |
| Identified speech/language deficits   | 0              | 0                    |
| Identified LEP students               | 2              | 0                    |

*Note.* Students designated as LEP by the school administrators were not able to demonstrate the most basic vocabulary and conversation ability in English. The LEP students qualified for ESL intervention, while the other Spanish-dominant students received educational modifications.

although two students in the SEEL classroom were Limited English Proficient (LEP).

Parental or guardian consent was obtained for the students, authorizing their participation in the study (see Appendices A and B).

### *Literacy Curriculum*

The kindergarten literacy curriculum implemented by the classroom teacher was the same for both classrooms. The teacher conducted a balanced literacy program that addressed print awareness, letter knowledge, letter-sound associations (or early phonics), phonological awareness, and story comprehension through shared and guided reading and drill of letter names and letter-sound associations. The students also listened to books on tape, following along in their own copies of the story. Books were available on a continual basis for the children to look at and share with each other.

Supplemental instruction occurred four days per week, two times per week for 20-minute sessions in the SEEL classroom, and two times per week in ten minute-sessions

for the comparison class. The opportunities for the comparison classroom to receive instruction on the computers were limited due to time restrictions imposed by the classroom teacher. The children in the comparison classroom were given time to experience literacy software individually at a computer station. The students in both classrooms received two supplemental sessions per week, with each student participating in extra literacy interactions either on Mondays and Tuesdays or on Wednesdays and Thursdays. The groupings for these rotations were determined by the classroom teacher and consisted of five to seven children, with both English- and Spanish-speaking students.

### *Assessment*

*Measures.* Children participating in both SEEL and comparison conditions were administered a pre- and posttest battery of literacy assessments to monitor the students' progress and evaluate the effectiveness of the SEEL program. Assessment tasks were administered at the beginning and end of the instructional program. Tasks were selected to measure a range of early literacy skills including letter naming, letter-sound association, rhyme recognition, rhyme generation, alliteration recognition, sound blending, and word recognition. All tasks were administered in both Spanish and English to all students.

Both standardized and researcher-developed tools were utilized in the assessment battery. All test items were scored on a correct, incorrect scale (correct = 1 point, incorrect = 0 points, with .5 points being given for partially correct answers). Partial credit was given for questions that required two answers, and only one was given correctly, or for single phonemic errors in word reading (i.e., bog for dog). A

comprehensive, standardized examination for pre-literacy skills, the Phonological Awareness Language Sample-Kindergarten (PALS-K, 2001) was utilized to assess rhyme recognition, alliteration, and word recognition in English. In the PALS-K, rhyme recognition and alliteration tasks require the children to select the one answer (of three choices) that rhymes or begins with the same sound as a given word. The third task from the PALS-K, assessment of word recognition, tested phonics skills for both high-frequency sight words and phonetically simple words. The child was presented with lists of words subdivided into pre-primer, primer, and kindergarten levels and asked to read as many as possible from each list as it was presented.

In addition to standardized measures, researcher-developed tools were utilized for letter naming, letter-sound association, rhyme generation and blending. Students were presented with five letters at a time and were instructed to name each letter, until all the items were named. Letter naming and letter-sound association test items probed only letters with sounds that are equivalent in both English and Spanish. The students were shown four letters at a time and then asked to make the sound for each letter. Researcher-developed assessment of rhyme generation involved both real and novel words. To evaluate the children's ability to generate rhymes for real words, children were asked, "What rhymes with make?" If the child was unable to produce a correct response within two to three seconds, the child was prompted with an example, "What about bake? Make-bake rhyme? Tell me another word that sounds like make and bake." The child was then given the opportunity to provide two words that rhyme with the target word(s). Novel rhyme generation consisted of making up names for animals. The students were shown four pictures of different animals. The examiner told the child the name of the

first animal, then modeled giving the second animal a name that rhymed with the first. The examiner then instructed the child to give the other two pictured animals names that rhymed or sounded like the name of the first two. The examiner said, “This animal is named Bob. I’m going to name this one Nob. What name can you give this one that rhymes with Bob and Nob?”

To assess sound blending, children were asked to blend initial onset (consonant or consonant cluster) and rime (vowel + consonant) into monosyllabic words, and to blend syllables into bisyllabic words. Examiners cued the children by providing the carrier phrase, “What word am I saying?” The examiner then presented the target sounds, pausing two seconds between onset and rime or syllables. If the child did not respond, the examiner again prompted the child by repeating the sounds, but with a one second pause between onset and rime or syllables.

In addition to the English assessments, researcher-designed tasks in Spanish were used for all assessment areas. At the time of this study, no comprehensive early literacy assessments in Spanish had been developed. All word stimuli in rhyme and alliteration in the Spanish assessment tasks were bisyllabic, as research shows that the syllable is the significant unit of processing for Spanish literacy learners (Gorman & Gillam, 2003; Jiménez & Garcia, 1995; Ferreiro & Teberosky, 1982). All tasks in Spanish paralleled in form, style, and instruction to the corresponding sections in English. Table 2 summarizes the assessment battery. The assessment tasks in Spanish are included in Appendix C.

Table 2  
*Summary of Assessment Battery Used in Pre- and Posttesting*

| Subtest                  | English |                      | Spanish        |                      |
|--------------------------|---------|----------------------|----------------|----------------------|
|                          | PALS-K  | Researcher-developed | PALS-K (match) | Researcher-developed |
| Letter Naming            |         | X                    |                | X                    |
| Letter Sound Association |         | X                    |                | X                    |
| Blending                 |         | X                    |                | X                    |
| Alliteration             | X       |                      | X              |                      |
| Rhyme Recognition        | X       |                      | X              |                      |
| Rhyme Generation         |         | X                    |                | X                    |
| Novel Rhyme Generation   |         | X                    |                | X                    |
| Word Level Reading       | X       |                      | X              |                      |

*Note.* The subtest for Letter Sound Association was a phonetically-based subtest (non-language specific). Subtests in Spanish that were matched to the PALS-K were not direct translations, but similar tasks with identical format to the PALS-K

*Administration.* The assessments were conducted by several graduate and undergraduate students who were trained in the administration of the assessments. Training was provided in 2 one-hour sessions and focused on appropriate methods of giving instructions, administration of test items, selecting criteria for correct and incorrect responses, and scoring procedures. Test booklets contained precise instructions for presenting each task. In addition, test administrators were observed during assessment to ensure uniform testing procedure throughout assessment periods.

Instructors provided testing instructions in the child's dominant language. To determine which language was dominant for each child, observations, interview, school testing, and teacher's perceptions were used. Prior to testing, the children were observed briefly during free time. The test administrators made brief notes about the language, or languages, used by the children. Each participant was then removed from the classroom to an isolated area for testing. At the beginning of the testing session, the test

administrator asked the child (in the language noted during playtime), “Do you like English or Spanish better?” To verify comprehension in that language, the child was then asked, “What is your name/Cómo te llamas?” in the language indicated by the child as the preferred language. If the child indicated no preference, the examiner asked, “What do you speak at home with your family?” The child’s selection or home language was compared with the perceptions of the classroom teacher and school test results, and was the language the examiner then used to give instructions for each task. Testing was performed in 2 thirty-minute sessions.

### *Instructor Training*

The interventions for both classrooms were coordinated during weekly training meetings with a project manager. SEEL instructors received general instruction in the SEEL program, including explanations of how to utilize a variety of contexts and activities for instruction, create objectives, and implement the appropriate sequence of instruction. Instructors were given specific directions for teaching each component, with strategies for maintaining engagement and providing frequent exposures to target patterns. Instructors were also guided through lesson planning, with particular focus on emphasizing target skills. Feedback and instruction through video-recordings and discussions of each lesson were provided to ensure appropriate instructional methods.

The comparison class instructors required less training than the SEEL instructors. The training for the comparison instructors included information on how to use the computers and how to access the literacy software on the computer. The comparison instructors were also assisted in developing tasks that presented appropriate skills to the children, but that allowed the children to explore literacy individually with the computer.

These tasks were developed to present a variety of literacy skills to the children through the use of a computer. The development of these lesson tasks were based on the capabilities of the computer software.

### *SEEL Classroom Description*

The students in the SEEL classroom participated in both large and small group activities. Students participated in one large group activity per week during which a story was introduced that fit within the classroom's theme for the month. The theme of the unit was also embedded into the small group instruction. The small groups were instructed by pairs of undergraduate research assistants from Brigham Young University, one pair on Mondays and Wednesdays, and the other on Tuesdays and Thursdays. Each pair taught a different activity focusing on the same literacy component and targets. The small group instruction occurred in a separated area of the room, with ample space for moving around and hands-on play.

The instruction for the SEEL classroom alternated between English and Spanish on a weekly basis. For example, one week the target skill was alliteration in Spanish, and the following week was alliteration in English. The curricular sequence began with letter names and sounds (to correspond with classroom instruction), followed by rhyming and alliteration, which alternated for several weeks. Then blending and phonics were incorporated into rhyme and alliteration activities, followed by focused phonics instruction. All instruction was performed in the target language for the week, to coincide with the goals of the classroom's TWB program. Progression from one target skill to another was evaluated based on weekly performance ratings. Instructors kept daily records of the students' performance that were reviewed in weekly meetings for

indications of skill acquisition. Instructional progression was also determined by researchers' goals for text use in addition to auditory stimuli by no later than the midpoint of the instructional time period (four months).

### *Instructional Procedures for SEEL*

The SEEL instruction was designed to expose children to different examples of target skills within an array of activities. The organization of the activities varied in terms of participants' roles, access to materials, expectations, and opportunities to enter the activity. Activities were designed to fit appropriate contexts for small group rotations. The types of activities included exploring hands-on materials, engaging in art or cooking projects, playing games, telling and enacting stories, and participating in play scripts and routines. Specific instruction of each of the target literacy skills is outlined in following paragraphs.

*Letter Knowledge and Letter-Sound Associations.* To teach letter knowledge, instructors exposed children to examples of letter targets in several ways. Instructors used letters symbolically, played letter games, made letters out of sensory materials, and exchanged letters in interactive ways. Children also identified or produced letter names through sorting, labeling, and categorizing objects, and students were given reasons to use or identify letters within the classroom context. For example, the children were given stickers with the letter 'b' written on them, and helped as they stick their 'b' on each other's backs. The instructors supported the children by saying, "B on back (while sticking the sticker onto a child's back). B on back. B on b-b-back." The children also were asked if they would prefer a *manzana* (apple) or *galleta* (cracker) at snack time. The children gave the instructors an 'm' for a manzana, or a 'g' for a galleta. These types

of experiences provided functional instruction for the children as they learned letter names and letter-sound associations.

*Rhyme.* Instructors exposed children to salient examples of rhyme pairs. The instructors played with rhyme in repeated and exaggerated ways. An English activity, for example, included playing with a duck and truck stuck in muck. The instructor highlighted the rhyme pattern by saying, “Duck! Duck! Duck stuck, stuck in muck. Duck stuck! Duck stuck rhyme. Duck stuck in muck. Stuck muck rhyme? Yes, stuck muck rhyme.” Similarly, in Spanish, an activity with the words “*llama*” (llama), “*cama*” (bed), “*pijama*” (pajama), and “*dama*” (lady) would incorporate contextualized conversation such as, “Llama! Llama! Llama en pijama. Llama en pijama en cama. Llama en cama. Llama en cama. Llama cama riman! Dama en pijama. Dama en cama. Dama cama riman? Sí, dama cama riman.” The instructors emphasized the rhyme by explicitly labeling word pairs by saying things such as, “hug, mug rhyme” or by evoking and modeling responses to such requests as, “Do \_\_\_ and \_\_\_ rhyme?” Rhyme activities were taught playfully and with frequent exposure to target words and explicit labeling of the rhyme pattern.

*Alliteration.* Like rhyme, alliteration instruction consisted of auditory stimulation through bombardment of concrete and salient examples. For example, in order to highlight the syllable “pa” in a food theme, children *pasa* (pass) la *papa* (potato) or la *pasa* (raisin) in a *pala* (shovel) or in a *pata* (paw made to be a glove). The children were given a shovel or glove, and then passed the objects around the circle as the instructor highlighted the pattern. For example, the instructor said, “Pasa la papa. p-p-p-pasa, pasa, pasa con pala. Pasa la papa con la pala, pala, p-p-p-papa en p-p-p-pala, pasa la papa.”

Similar activities occurred in English as children play with “free, fun, fish food” or “bounce and bump on a big, brown bus.” Emphasis was placed on emphasizing the same initial sounds of the target words in each lesson.

*Blending.* Various activities specifically targeting blending in both English and Spanish were presented. Various instructional tools such as word wheels, puzzles, and flip charts were used to help children move into further reading. In English, activities will target onset + rime for word family words. Similarly, in Spanish, blending was instructed at the syllable level in simple bisyllabic CVCV words that begin with the same syllable. For example, an English activity involved a word wheel with the rime stationary, and the onset consonant or consonant blend alternating so that the child could see the words hop, pop, top, stop, and flop. A Spanish activity created the words *cama* (bed), *caja* (box), *capa* (cape), and *casa* (house) by holding the initial syllable stationary, and rotating the final syllable. Blending activities were designed to lead into higher-level decoding skills.

*Phonics.* A variety of books were used or adapted to instruct decoding and word recognition skills in English and Spanish. Modified texts were devised to exemplify letter-sound patterns and maintain children’s interest. Linguistic features were considered in developing the texts, including use of repeated phonics patterns, meaningful vocabulary, high-frequency words, and natural and predictable phrases and sentences. Personalized, phonetically-controlled texts were created by selecting a theme, identifying a core of relevant target words, and creating sentences using those target words that connect events to make a unified play and story experience. The reading and writing of texts was also incorporated into hands-on play activities to help incorporate

stories into the children's personal experience. One simple phonics activity in English, for example, utilized "reading" a simple story about a fat cat who sat on a mat by a rat. Similarly, in Spanish, the children read about a *pava* (turkey) who *cava* (digs) in the *grava* (gravel) to find different items. The children then made their own simplified stories by writing words from dictation to complete a story frame.

#### *Comparison Classroom Description*

Each week, the language of instruction for the comparison classroom was the same as the language used in the lesson for the SEEL classroom. Within the classroom group rotations, rather than having a station for small group literacy work as in the SEEL class, the comparison class had a station on the classroom's computers. The three computers were located in the main area of the classroom, so the children typically wore headphones while using the computers to not disturb the rest of the classroom with the programs' sound effects. Literacy programs that were already installed on the computers were utilized. The computer software the children used included KidPix (a drawing and children's word processing program), KidDesk (an intranet program with a classroom email function), PowerPoint, and a rhyming game. During the children's time on the computer, the instructor directed the students to the appropriate program, and gave instructions. These instructions kept the computer time devoted to literacy, as the programs had multiple functions in addition to pre-reading skill development.

#### Results

A multi-group comparison design was used to make comparisons between control and intervention classrooms before and after instruction. Data were analyzed for differences between classrooms when all subtests were combined and when individual

subtest scores were entered individually. The analyses were conducted on subtests administered to both English- and Spanish-speaking children.

#### *Pretreatment ANOVA Results*

One-way ANOVAs were used with mean pretest literacy scores for each variable to determine if there were any initial differences in performance between the SEEL and comparison groups. The analyses were performed for measures administered in both English and Spanish: letter naming, letter-sound association, blending, alliteration, rhyme recognition, rhyme generation, novel rhyme generation, and word level reading. The results of the analyses are presented in Table 3 for tasks presented in English and Table 4 for tasks presented in Spanish. Results of the ANOVAs indicated that the classrooms were significantly different on only one of fifteen measures, novel rhyme generation in Spanish,  $F(1, 29) = 4.04, p < .05$ , where the comparison class performed better than the SEEL class.

#### *MANOVA Results*

A repeated measures MANOVA [2 group (SEEL vs. comparison) x 2 time (pretest vs. posttest)] was performed using a General Linear Model to compare group differences as a function of time when all measures were combined to serve as the dependent variable and with the classroom (SEEL versus comparison) and time serving as the independent variables. Missing data on several of the subtests were not included in the analysis. Of interest in this analysis was the presence of a time x class interaction, which was not found when all variables were combined  $F(3, 25) = .03, p = .87$ . This indicates that the SEEL treatment group did not perform significantly different at the posttest than the comparison group when all variables were taken into account.

Table 3

*Means, Standard Deviations and One-Way ANOVA Results for Classroom Performance on English Subtests of Assessment Battery at Time of Pre-and Posttesting*

| Subtest                  | SEEL Classroom |           |          | Comparison Classroom |           |          | <i>F</i> | <i>p</i> * |
|--------------------------|----------------|-----------|----------|----------------------|-----------|----------|----------|------------|
|                          | <i>M</i>       | <i>SD</i> | <i>N</i> | <i>M</i>             | <i>SD</i> | <i>N</i> |          |            |
| Letter Naming            |                |           |          |                      |           |          |          |            |
| Pretest                  | 9.67           | 6.31      | 18       | 9.00                 | 5.44      | 12       | .09      | .77        |
| Posttest                 | 14.83          | 1.62      | 18       | 15.58                | .79       | 12       | 2.21     | .15        |
| Letter/Sound Association |                |           |          |                      |           |          |          |            |
| Pretest                  | 5.67           | 4.56      | 18       | 5.75                 | 3.39      | 12       | .68      | .42        |
| Posttest                 | 10.44          | 1.15      | 18       | 10.42                | .79       | 12       | .01      | .94        |
| Blending                 |                |           |          |                      |           |          |          |            |
| Pretest                  | 5.83           | 3.02      | 18       | 4.42                 | 3.18      | 12       | .19      | .67        |
| Posttest                 | 7.83           | 1.89      | 18       | 8.5                  | .52       | 12       | 1.41     | .25        |
| Alliteration             |                |           |          |                      |           |          |          |            |
| Pretest                  | 6.83           | 3.20      | 18       | 8.00                 | 1.81      | 12       | 1.30     | .26        |
| Posttest                 | 8.28           | 2.70      | 18       | 9.67                 | .89       | 12       | 2.94     | .10        |
| Rhyme Recognition        |                |           |          |                      |           |          |          |            |
| Pretest                  | 6.72           | 2.87      | 18       | 7.63                 | 1.78      | 12       | 1.03     | .32        |
| Posttest                 | 7.56           | 3.01      | 18       | 9.42                 | 1.00      | 12       | 4.22     | .05*       |
| Rhyme Generation         |                |           |          |                      |           |          |          |            |
| Pretest                  | 3.81           | 3.49      | 18       | 4.00                 | 3.03      | 12       | .03      | .88        |
| Posttest                 | 7.21           | 3.28      | 18       | 7.63                 | 2.40      | 12       | .14      | .71        |
| Novel Rhyme Generation   |                |           |          |                      |           |          |          |            |
| Pretest                  | 3.44           | 4.18      | 18       | 4.50                 | 3.78      | 12       | .50      | .49        |
| Posttest                 | 7.31           | 3.54      | 18       | 7.63                 | 2.40      | 12       | .02      | .90        |
| Word Level Reading       |                |           |          |                      |           |          |          |            |
| Pretest                  | 17.17          | 20.51     | 18       | 12.50                | 12.74     | 12       | .49      | .49        |
| Posttest                 | 41.15          | 18.61     | 13       | 23.42                | 13.80     | 12       | 7.22     | .01*       |

*Note.* Possible scores: letter naming = 16; letter/sound association = 11; blending = 9; alliteration, rhyme recognition, rhyme generation, novel rhyme generation = 10; word level reading = 60.

Table 4

*Descriptive Statistics for One-Way ANOVA of Children's Performance on Spanish Subtests of Assessment Battery at Time of Pre- and Posttesting*

| Subtest                       | SEEL Classroom |           |          | Comparison Classroom |           |          | <i>F</i> | <i>p</i> * |
|-------------------------------|----------------|-----------|----------|----------------------|-----------|----------|----------|------------|
|                               | <i>M</i>       | <i>SD</i> | <i>N</i> | <i>M</i>             | <i>SD</i> | <i>N</i> |          |            |
| <b>Letter Naming</b>          |                |           |          |                      |           |          |          |            |
| Pretest                       | 6.90           | 5.58      | 18       | 5.80                 | 3.39      | 12       | .39      | .53        |
| Posttest                      | 14.00          | 3.14      | 18       | 13.83                | 1.40      | 12       | .03      | .87        |
| <b>Blending</b>               |                |           |          |                      |           |          |          |            |
| Pretest                       | 5.61           | 3.11      | 18       | 4.17                 | 2.62      | 12       | 1.75     | .20        |
| Posttest                      | 8.11           | 1.45      | 18       | 8.33                 | .65       | 12       | .25      | .62        |
| <b>Alliteration</b>           |                |           |          |                      |           |          |          |            |
| Pretest                       | 6.39           | 3.24      | 18       | 8.17                 | 1.75      | 12       | 3.01     | .10        |
| Posttest                      | 8.22           | 2.24      | 18       | 9.33                 | .65       | 12       | 2.77     | .11        |
| <b>Rhyme Recognition</b>      |                |           |          |                      |           |          |          |            |
| Pretest                       | 6.17           | 2.44      | 18       | 7.58                 | 2.81      | 12       | 2.26     | .14        |
| Posttest                      | 7.12           | 3.10      | 18       | 8.33                 | 1.30      | 12       | 1.63     | .21        |
| <b>Rhyme Generation</b>       |                |           |          |                      |           |          |          |            |
| Pretest                       | 3.31           | 3.76      | 18       | 4.75                 | 2.86      | 12       | 1.27     | .27        |
| Posttest                      | 6.09           | 2.91      | 18       | 7.25                 | 1.89      | 12       | 1.47     | .24        |
| <b>Novel Rhyme Generation</b> |                |           |          |                      |           |          |          |            |
| Pretest                       | 3.11           | 3.39      | 18       | 5.58                 | 3.15      | 12       | 4.04     | .05*       |
| Posttest                      | 6.81           | 3.27      | 18       | 6.00                 | 3.91      | 12       | .36      | .56        |
| <b>Word Level Reading</b>     |                |           |          |                      |           |          |          |            |
| Pretest                       | 10.47          | 13.39     | 18       | 5.33                 | 4.56      | 12       | 1.63     | .21        |
| Posttest                      | 34.81          | 22.48     | 13       | 18.71                | 16.63     | 12       | 4.09     | .06        |

*Note.* Possible scores: letter naming = 16; letter/sound association = 11; blending = 9; alliteration, rhyme recognition, rhyme generation, novel rhyme generation = 10; word level reading = 60.  $p < .05$ .

### *Two-Way ANOVA Results*

Analyses were also obtained for group differences on the assessment subtests using two way univariate ANOVAs [2 group (SEEL, comparison) x 2 time (pre-test, posttest)] with each of the English and Spanish subtests serving as dependent variables. Results are presented in Table 5. There were two significant group by time interactions. There was a significant group x time interaction for letter naming in English,  $F(4, 28) = 4.16$ ,  $p < .05$ , with the comparison group starting out lower than the SEEL classroom but

ending up higher at posttesting. A significant time x class interaction was also obtained for novel rhyme generation in Spanish,  $F(4, 26) = 6.34, p < 0.05$ , with the SEEL classroom performing lower than the comparison classroom at pretest but better than the comparison classroom at posttest. It was also noted that standard deviations for both classes become smaller at the time of posttesting, and the test scores were more homogeneous at the time of posttesting.

#### *Posttest ANOVAs*

Comparisons of posttests were performed using one-way univariate ANOVAs with class entered as the independent variable, and with both mean raw score at posttest for the various literacy subtests as the dependent variables (see Tables 3 and 4 for the mean raw score results). For English subtests, these one-way ANOVAs revealed significant differences between classes for word level reading,  $F(1, 24) = 7.22, p < .01$ , with the SEEL classroom performing better than the comparison classroom. There was also a significant difference between the classes for rhyme recognition in English,  $F(1, 29) = 4.22, p < .05$ , with the comparison classroom performing better than the SEEL classroom. For Spanish subtests, a significant difference between classes was approached for word level reading,  $F(1, 24) = 4.09, p = .06$ , with the SEEL classroom demonstrating higher performance than the comparison classroom. As a follow-up, an ANOVA using difference scores (posttest score minus pretest score) for performance on rhyme recognition and word level reading in English, as well as word level reading in Spanish, was conducted. These analyses did not reveal any significant differences between classes.

Table 5  
*Analysis of Variance for Raw Scores on Individual Subtests (Time by Class)*

| Subtest                  | English  |          |          | Spanish  |          |          |
|--------------------------|----------|----------|----------|----------|----------|----------|
|                          | <i>F</i> | <i>p</i> | <i>N</i> | <i>F</i> | <i>p</i> | <i>N</i> |
| Letter Naming            | 4.16     | .05*     | 30       | 1.03     | .32      | 30       |
| Letter/Sound Association | 2.37     | .14      | 30       |          |          |          |
| Blending                 | 2.66     | .12      | 30       | 3.89     | .06      | 30       |
| Alliteration             | .11      | .74      | 30       | 1.08     | .31      | 30       |
| Rhyme Recognition        | .94      | .34      | 30       | .08      | .78      | 29       |
| Rhyme Generation         | .15      | .70      | 29       | .09      | .76      | 29       |
| Novel Rhyme Generation   | .17      | .69      | 28       | 4.98     | .04*     | 28       |
| Word Level Reading       | .79      | .38      | 25       | .76      | .39      | 25       |

*p* < .05.

### Discussion

The results of this study do not indicate that the SEEL program was more effective than the computerized instruction. There were no overall group differences when all variables were combined, there were few differences in favor of the SEEL on individual literacy measures, and there was one measure (letter naming in English) in which the control class actually performed significantly better than the SEEL classroom. Despite the fact that the results are not generally supportive of the SEEL approach, the few significant differences in favor of SEEL are believed to have had a positive impact on children's performance. The analyses revealed that the SEEL classroom performed significantly better after instruction on word level reading in English and Spanish (as indicated by the time x class interaction from the one-way ANOVA) while the comparison classroom performed significantly better than the SEEL classroom on rhyme recognition in English. There was not, however, a significant time x class effect on the MANOVA, indicating that the SEEL method did not provide greater gains in overall

literacy skills as compared with supplemental computerized literacy encounters. The results for the significantly better performance of the SEEL class on word reading tasks in English and Spanish were felt to adequately reflect real performance differences between classrooms.

These differences on word level reading were supported by observations of the SEEL children's reading performance in the classrooms. Researchers and the classroom teacher noted great differences between the classes' attitudes toward reading. The children in the SEEL classroom commented frequently on how much they enjoyed reading, and liked to talk about their favorite books. The classroom teacher verified that the SEEL class did express more enthusiasm about reading than the comparison class. The SEEL students loved talking about the activities conducted in the SEEL instruction. The children cheered when they were told it was their turn with the SEEL instructors. Overall, the children felt success, enthusiasm and motivation for reading, which in turn has been shown to result in greater success in reading ability (Skehan, 1998).

#### *Limitations of the Current Study*

Various aspects in the study's design and implementation are analyzed for limitations in this section for reasons why their performance was not reflected statistically. These limitations are analyzed in depth in the following sections. They are presented with the purpose of helping build a functional literacy program to assist children at risk for literacy difficulty.

*Sample Size.* An important improvement in the design of this experiment which should be altered in future research is the use of a larger and more evenly distributed sample size. In this study sample size was limited, as few schools in Utah have fairly

developed dual-language programs. In addition, variability existed between classes in the abilities of the Spanish-speaking or bilingual students. The comparison class did not have any students who were identified as being at-risk due to language barriers, while the SEEL classroom had two. Also, fewer consent forms were returned for the comparison class ( $n = 12$ ) when compared to the SEEL class ( $n = 18$ ). The classroom teacher indicated that it was her opinion that the parents of the children who did not return the form could not read English or Spanish themselves. Another aspect that negatively affected the sample size of this study was the loss of some data. Some students moved, some changed classes, and five students in the SEEL classroom did not complete several subtests of the final assessment due to an oversight by one researcher. The two LEP students were among the five whose data was not completed. These oversights and misfortunes contributed to a weak sample that may have contributed to the outcome of the study.

*Assessment Tools.* Since a comprehensive pre-literacy assessment battery for dual-language students did not exist at the time of this study, researchers developed a battery of probes. Assessment tasks were developed based on sound principles of research, paralleling models of literacy assessment in English and typical phonological development in Spanish. Using the PALS-K format as a model, the researchers developed similar tasks in Spanish that focused on probing the literacy skill, not vocabulary knowledge.

Generally, the tasks tested students at appropriate levels for appropriate skills. However, in examining raw scores a ceiling effect was noted to occur on several of the tasks. These tasks include letter naming for English and Spanish, letter-sound

association, blending in English and Spanish, alliteration for English and Spanish, and rhyme recognition in English. A ceiling effect for testing is supported by the classroom teacher's ratings of the students' performance at the end of the year. Her ratings indicated that 90% of the participants in the SEEL class and 95% of the comparison class were performing at or above grade level for reading tasks. Appropriately adjusting assessment material to account for ceiling effects may reflect performance differently than in this study.

In addition, some of the subtests should be reevaluated and modified before use in future research. These include the sections on blending for both English and Spanish. The students in both classrooms performed unusually well on both pre- and posttesting for the blending tasks. More difficult phonemic combinations should be included in the assessment than the tasks used in this battery. Researchers may also wish to assess deeper acquisition of alliteration skills, comparable to the deep assessment of rhyming that was conducted. Acquisition of these deep rhyming skills in English has been shown to be a significant predictor of reading ability (Bryant, MacLean, Bradley, & Crossland, 1990). Since very few rhyme families exist in Spanish, alliteration is a key phonological awareness element in Spanish for predicting reading ability (Carillo, 1994; Durgunoglu et al., 1993). A deeper analysis of the children's performance in this area may provide greater answers about literacy development in relation to phonological awareness.

Another limitation of the study is that the children's reading ability may not have been truly reflected in the results. Analysis of the assessment provides insight into rationale for the discrepancy. The word reading assessment was subdivided into three levels, progressing in difficulty. The students had to qualify to advance to the next level

by reading at least 15 words out of 20 correctly. Only two students in the comparison classroom ( $n = 12$ ) were able to advance to the highest level in both English and Spanish. In contrast, eight SEEL students ( $n = 18$ ) advanced to the highest level in both English and Spanish. Though test scores and analyses did not reflect statistical difference, a greater breadth of ability was observed by researchers across both native and non-native languages for the SEEL students.

Further, additional research may also want to consider the inclusion of assessment tasks that probe other literacy skills. One skill that has been shown to predict reading success is reading fluency. The National Reading Panel (2000) has shown that the speed at which a student is able to read simple words and nonsense words is an overall indicator of reading success. Another skill that may assist in a comprehensive analysis of literacy ability is an assessment of behavior. While social and emotional assessment were beyond the scope of this study, both the SEEL instructors and the classroom teacher noted significant differences in behavior between the two classrooms. The SEEL classroom overall behaved more poorly than the comparison classroom. The classroom teacher stated that the comparison classroom was unusually well-behaved, making instruction easier than in the SEEL classroom. Quantifying such observations may assist researchers in providing a more comprehensive analysis of classroom dynamics in relation to academic success.

#### *Recommendations for Improving SEEL Implementation*

Improving several aspects of the SEEL approach implementation in addition to changes in assessment could also be advantageous for future research. One improvement in research implementation could be ensuring more intense teaching using the SEEL

method. In this study, the variability of instructional styles consistently needed to be re-addressed by the program managers, despite lengthy training in the SEEL method. The instructors needed distinct and unquestionable guidelines of where the SEEL method ended and where their own creativity could be used. One way that this could be achieved is through providing the instructors with a manual of guidelines that details SEEL implementation with examples. This would provide a written resource for each instructor to constantly clarify technique as well as program goals. Another possibility is to provide more instructional scripts, which would support the instructors in utilizing standard phrases and tools to elicit correct and frequent responses from the students.

Another improvement in program implementation would be to involve the classroom teacher as much as possible. This is important for several reasons. First, better coordination could help to identify students who are at risk for literacy failure. This identification could serve to stimulate them earlier in the instructional process. Second, coordinating with the teacher would have ensured that literacy skills were supported throughout the curriculum around the classroom themes. Theme-based curricula provide the ideal environment for literacy learning (Elley, 2001; Walker, Rattanaich, & Oller, 1992). A third benefit of involving the classroom teacher is to create an environment where the goals of the classroom's TWB program could be coordinated with literacy. Both classrooms lacked an effective and consistent TWB program. Inconsistency in TWB instruction has not proven to be effective for second language learning (Calderón & Minaya-Rowe, 2003). The classroom teacher was asked what model she followed for her class. She responded, "In theory, a two-way bilingual. In reality, whatever ends up working." The teacher's attitude was reflected in the

behavior of the students. The children adopted the attitude of using the language that worked the best for them, not the language that was designated for the activity. The English-speaking children in the SEEL classroom frequently complained, “I don’t speak Spanish. I speak English. I don’t want to do Spanish.” They also directly requested clarification in English, for example, “I don’t know what you are saying. Tell me in English.” Similarly, the Spanish-speaking students would say, “What in Spanish?” Many of the students had learned in interactions with their teacher and classroom aide that if they were being addressed in the L2 and either did not respond or began to misbehave, they would soon receive the same information in the L1. Thus, future research would strive to follow the explicit model of the TWB classrooms to encourage good behavior as well as second language acquisition.

### Conclusion

This study was conducted as part of a supplemental early literacy instruction designed for Spanish/English dual-language classrooms. The results do not show a significant differences between classes in overall literacy performance, but did show time by class differences on novel generation of rhyming in Spanish and posttest class differences on word level reading in English favoring the SEEL method, and rhyme recognition favoring the comparison classroom. Alterations in the research design and program implementation are needed to enhance delivery of literacy instruction to at-risk literacy students. Researchers should continue to investigate relevant methods for providing systematic early literacy instruction to students in dual-language classrooms.

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## APPENDIX A

*Informed Consent for SEEL Classroom*

Brigham Young University  
Audiology and Speech Language Pathology  
Taylor Building  
Provo, UT 84602

Your child is being asked to participate in a study to improve the quality of language and literacy instruction offered in classrooms. Two early literacy instructional approaches will be compared. One approach stimulates learning as children encounter computer programs to teach language and literacy skills and the other teaches language and literacy skills in motivating and interactive instructional activities. The children in your child's classroom will be provided with the approach that teaches specific skills in fun, motivating activities.

Your child will be given tasks to assess language and literacy skills at the beginning and end of the school year. Measures of story comprehension, vocabulary, and early literacy skills will be presented. The assessment will take about an hour and a half to complete and will be given in a small area in your child's classroom. The assessment information will be available to be shared with you and your child's teacher and will be used to plan instruction. In addition, evaluation information from educational files will be reviewed in order to adjust the instruction to meet your child's individual needs. All assessment information will be kept confidential and will be stored in a locked office. No names will be used to report results.

As part of the instruction, photographs and videotapes will be taken of the children participating in the instructional activities. The tapes will be used to analyze the instructional activities. In addition, small segments of the tapes will be isolated to illustrate instructional strategies for educational training. Approximately one and one half hours of instruction will be recorded and transcribed in writing per week. To protect confidentiality, tapes and transcripts will be kept in a locked office at BYU. Identifying information on the written transcripts (names, locations) will be changed and the transcriptions will be used for research purposes only. The tapes will be viewed and edited by the investigator to identify good examples of effective instruction and those segments will be kept for teacher training purposes only.

There are minimal risks associated with the program. The assessment sessions will be presented in game-like ways but will be discontinued if your child exhibits signs of discomfort or fatigue. In addition, the children will be told that they do not have to participate in the activities. The instructional activities will be of benefit to your child's literacy development and preparation for success in school.

If you have any questions, the project director, Dr. Barbara Culatta, will be happy to explain the project to you. Feel free to contact her at the Audiology and Speech

Language Pathology Department, (801) 422-6456, or write to her at Brigham Young University, 136 TLRB, Provo, UT, 84602. If you have additional questions or concerns, you may call the Institutional Review Board Chair, Shane Schulthies, at (801) 422-5490 or write to the Office of Research and Creative Activities, Brigham Young University, A-261 ASB, PO Box 21231, Provo, UT 84602.

The decision to have your child take part in this study is up to you. You may also choose to withdraw your child from this study at any time. Your decision will in no way interfere with your relationship with Brigham Young University or your child's school. If you wish to withdraw from this study at any time, simply inform Dr. Barbara Culatta of your decision at (801) 422-6456.

If you willingly agree to permit your child to participate, please sign this consent form and return it to your child's teacher.

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Child's Name

---

Signature of Parent or Guardian

Date

## APPENDIX B

*Informed Consent for Comparison Classroom*

Brigham Young University  
Audiology and Speech Language Pathology  
Taylor Building  
Provo, UT 84602

Your child is being asked to participate in a study to improve the quality of language and literacy instruction offered in classrooms. Two early literacy instructional approaches will be compared. One approach stimulates learning as children encounter computer programs to teach language and literacy skills and the other teaches language and literacy skills in motivating and interactive instructional activities. The children in your child's classroom will be presented with opportunities to use good computer programs designed to teach early reading skills.

Your child will be given tasks to assess language and literacy skills at the beginning and end of the school year. Measures of story comprehension, vocabulary, and early literacy skills will be presented. The assessment will take about an hour and a half to complete and will be given in a small area in your child's classroom. The assessment information will be available to be shared with you and your child's teacher and will be used to plan instruction. In addition, evaluation information from educational files will be reviewed in order to adjust the instruction to meet your child's individual needs. All assessment information will be kept confidential and will be stored in a locked office. No names will be used to report results.

As part of the instruction, photographs and videotapes will be taken of the children participating in the instructional activities. The tapes will be used to analyze the instructional activities. In addition, small segments of the tapes will be isolated to illustrate instructional strategies for educational training. Approximately one and one half hours of instruction will be recorded and transcribed in writing per week. To protect confidentiality, tapes and transcripts will be kept in a locked office at BYU. Identifying information on the written transcripts (names, locations) will be changed and the transcriptions will be used for research purposes only. The tapes will be viewed and edited by the investigator to identify good examples of effective instruction and those segments will be kept for teacher training purposes only.

There are minimal risks associated with the program. The assessment sessions will be presented in game-like ways but will be discontinued if your child exhibits signs of discomfort or fatigue. In addition, the children will be told that they do not have to participate in the activities. The instructional activities will be of benefit to your child's literacy development and preparation for success in school.

If you have any questions, the project director, Dr. Barbara Culatta, will be happy to explain the project to you. Feel free to contact her at the Audiology and Speech

Language Pathology Department, (801) 422-6456, or write to her at Brigham Young University, 136 TLRB, Provo, UT, 84602. If you have additional questions or concerns, you may call the Institutional Review Board Chair, Shane Schulthies, at (801) 422-5490 or write to the Office of Research and Creative Activities, Brigham Young University, A-261 ASB, PO Box 21231, Provo, UT 84602.

The decision to have your child take part in this study is up to you. You may also choose to withdraw your child from this study at any time. Your decision will in no way interfere with your relationship with Brigham Young University or your child's school. If you wish to withdraw from this study at any time, simply inform Dr. Barbara Culatta of your decision at (801) 422-6456.

If you willingly agree to permit your child to participate, please sign this consent form and return it to your child's teacher.

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Child's Name

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Signature of Parent or Guardian

Date

## APPENDIX C

*Measurement tool for tasks in Spanish***2004-2005 SEEL ASSESSMENT-POSTTEST**

Child's name: \_\_\_\_\_ Preferred language: Span. Eng. Either

Dates of assessment: \_\_\_\_\_

Assessors' initials: \_\_\_\_\_

*General Directions: Assess all children on all tasks. Give instructions in their preferred language.*

1. Letter name recognition-Spanish association

| letter | response (+/-) | comments |
|--------|----------------|----------|
| m      |                |          |
| b      |                |          |
| c      |                |          |
| u      |                |          |
| s      |                |          |
| d      |                |          |
| i      |                |          |
| n      |                |          |
| t      |                |          |
| a      |                |          |
| f      |                |          |
| k      |                |          |
| o      |                |          |
| p      |                |          |
| y      |                |          |
| e      |                |          |

Score: \_\_\_\_\_ /16

2. Letter-sound

| sound | response (+/-) | comments   |
|-------|----------------|------------|
| m     |                |            |
| b     |                |            |
| c     |                | /s/ or /k/ |
| s     |                |            |
| d     |                |            |
| n     |                |            |
| t     |                |            |
| f     |                |            |
| k     |                |            |
| p     |                |            |
| y     |                |            |

Score: \_\_\_\_\_ /11

3. Blending-Spanish--(record child's response or + for correct response)

|          |           |             |
|----------|-----------|-------------|
| 1. (sol) | 4. (más)  | 7. (dedo)   |
| 2. (dos) | 5. (pata) | 8. (fútbol) |
| 3. (ojo) | 6. (mesa) | 9. (cerdo)  |

Score: \_\_\_\_\_ /9

## 4. Same initial syllable-Spanish (circle child's response)

|    |             |             |             |             |
|----|-------------|-------------|-------------|-------------|
| 1. | <b>cama</b> | sapo        | <b>caja</b> | mono        |
| 2. | <b>rata</b> | luna        | pavo        | <b>rama</b> |
| 3. | <b>lago</b> | vara        | <b>lata</b> | boca        |
| 4. | <b>pato</b> | <b>papa</b> | mata        | fila        |
| 5. | <b>vaso</b> | <b>vaca</b> | capa        | silla       |

|     |             |             |             |             |
|-----|-------------|-------------|-------------|-------------|
| 6.  | <b>soga</b> | leche       | dedo        | <b>sopa</b> |
| 7.  | <b>mapa</b> | cuna        | <b>mano</b> | jugo        |
| 8.  | <b>tapa</b> | <b>taza</b> | cara        | rosa        |
| 9.  | <b>cola</b> | llave       | pato        | <b>coco</b> |
| 10. | <b>foca</b> | toro        | <b>foto</b> | papa        |

Score: \_\_\_\_\_/10

## 5. Rhyme Recognition-Spanish (circle child's response)

|    |             |             |             |             |
|----|-------------|-------------|-------------|-------------|
| 1. | <b>papa</b> | <b>tapa</b> | coco        | dedo        |
| 2. | <b>cuna</b> | vara        | jugo        | <b>luna</b> |
| 3. | <b>lago</b> | cara        | <b>mago</b> | vaca        |
| 4. | <b>casa</b> | sapo        | foto        | <b>masa</b> |
| 5. | <b>toro</b> | <b>coro</b> | cama        | fila        |

|     |              |             |             |             |
|-----|--------------|-------------|-------------|-------------|
| 6.  | <b>pato</b>  | llave       | <b>gato</b> | silla       |
| 7.  | <b>mata</b>  | <b>rata</b> | mono        | cuna        |
| 8.  | <b>llama</b> | moto        | rosa        | <b>cama</b> |
| 9.  | <b>rana</b>  | <b>gana</b> | foto        | cola        |
| 10. | <b>boca</b>  | rama        | <b>foca</b> | taza        |

Score: \_\_\_\_\_/10

## 6. Rhyme Generation-Spanish (write child's response)

|     | Prompt 1 | Prompt 2 (only if needed) | Response 1 | Response 2 |
|-----|----------|---------------------------|------------|------------|
| 1.  | coco     | poco                      |            |            |
| 2.  | peca     | meca                      |            |            |
| 3.  | fresa    | besa                      |            |            |
| 4.  | pena     | vena                      |            |            |
| 5.  | toca     | poca                      |            |            |
| 6.  | cola     | sola                      |            |            |
| 7.  | gato     | plato                     |            |            |
| 8.  | capa     | mapa                      |            |            |
| 9.  | pasa     | masa                      |            |            |
| 10. | pata     | lata                      |            |            |

Score: \_\_\_\_\_/10

## 7. Novel Rhyme Generation Spanish: (write child's response)

|    | Prompt | Response 1 | Response 2 |
|----|--------|------------|------------|
| 1. | Paco   |            |            |
| 2. | Juán   |            |            |
| 3. | Pedro  |            |            |
| 4. | Sara   |            |            |
| 5. | Tana   |            |            |

Score: \_\_\_\_\_/10

## 8. Word Reading-Spanish

| Preprimer | Kinder | Primero |
|-----------|--------|---------|
| a         | este   | torta   |
| no        | casa   | ahora   |
| y         | mira   | mucho   |
| él        | rana   | aquí    |
| con       | pero   | nunca   |
| tú        | gusta  | salir   |
| una       | que    | más     |
| dice      | nada   | dónde   |
| por       | como   | also    |
| es        | estoy  | libro   |
| mí        | rojo   | comida  |
| de        | vaca   | silla   |
| la        | gato   | había   |
| mamá      | hace   | blanco  |
| que       | lava   | ojos    |
| sí        | dulce  | fue     |
| hace      | mano   | nombre  |
| papá      | carro  | cuándo  |
| en        | pica   | gordo   |
| sol       | quiero | tiempo  |

Score:

Score:

Score:

## APPENDIX D

*SEEL Classroom Daily Schedule*

The classroom used in this study is located in an elementary school in Provo, UT. The classroom is in a newer portion of the school, with a large space for instruction. This area is filled with long, rectangular tables, each surrounded by six miniature chairs and one “teacher” chair. There is a white board, surrounded by numbers, letters, significant words, and pictures used to describe the weather and emotions. A large rug with pictures of letters and numbers in blocks serves as a group space, where each child has an assigned letter or number to sit on. The teacher and her assistant each have a desk in this area, next to a small table with three computers on it.

At the rear of the classroom is a small kitchen, complete with a sink and refrigerator. A table, surrounded by an eclectic variety of miniature chairs, fills most of the space. A hand-made kitchen playset and a small couch complete the arrangement. The kitchen area is separated from the rest of the classroom by a half-wall, making it a fairly intimate setting for instruction.

At the start of the day, the children gather with their teacher to review counting, weather, the date, birthdays, and sometimes show and tell. They do all their “warm-up” activities in Spanish. After half-an-hour, they divide into their “grupos.” These are groups assigned by the classroom teacher and are not divided up by ability. They are expected to help each other and learn from each other, and to ignore varying learning abilities. Group time lasts for twenty minutes per group, and includes activities such as writing, letter identification, art projects, sensory activities, literacy, and computers. The children are supported in these groups by their classroom teacher, an aide, and volunteers

from the community. Following their time in groups, they leave the classroom to participate in art, music, library, physical education, or computer lab. Upon returning, they have a small snack, and then read as a class, or another class activity prior to dismissal for the day.

| Time        | Activity                               | Language                            | Description   |
|-------------|--|-------------------------------------|---|
| 8:30-9:00   | Welcome                                | Spanish<br><br>English              | Children sat on the floor in a group and reviewed letters, letter sounds, counting, the weather, and the schedule for the day<br>Show and tell-each child rotated bringing something to describe to the class |
| 9:00-10:10  | “Grupos”                               | English,<br>occasionally<br>Spanish | Children rotated through 3-4 stations in 20 minute intervals. Activities included writing, playing with blocks, reading, math, small art projects, computers, sensory activities.                             |
| 10:10-10:30 | Special classes or recess              | English                             | Children attended the library, computer lab, music class, PE or went to recess  |
| 10:30-10:50 | Special classes, recess, or snack time | English                             |   |
| 10:50-11:10 | Review and prepare to leave            |                                     |   |