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Using a Function-Based Approach to Decrease Problem Behaviors and Increase Academic Engagement for Latino English Language Learners

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Abstract

This study evaluates the effectiveness of a function-based intervention to improve behavior and reading outcomes for Latino English Language Learners (ELLs). The participants, four Latino ELLs in an elementary school general education setting, were directly observed over a 14-week period. Functional behavioral assessment via teacher interviews and archival reviews were conducted to establish a hypothesis statement regarding the maintaining function of each student's problem behavior. A functional analysis was conducted to verify the function of each student's problem behavior, and a single subject multiple baseline across participants design was used to document the relationship between reduction in problem behavior and implementation of a Language Matched Intervention Priming program that provided bi-lingual introduction and vocabulary supports for daily reading material. Results documented a functional relationship between **intervention and reduction of** problem behavior.

Key words: function based approach, English Language Learners, literacy, behavior support intervention

Effective behavior support for students with problem behavior and academic deficits often requires blending behavioral and academic supports (Algozzine, Putnam, & Horner, under review; McIntosh, Horner, Chard, Boland, & Good, 2006; McKenna, 2006). The need to combine behavioral and academic supports is especially important for the rapidly expanding population of English Language Learners (ELLs) **who** make up 19% of our nation's school population. The challenges faced by ELLs are of particular concern for students from Latino families. **Sixty one percent of Latino** students are ELLs who come to school with **limited reading, vocabulary, and language skills** (Klinger, Artiles, & Barletta, 2006; National Center for Educational Statistics, 2006).

Current research on ELLs demonstrates that decoding and vocabulary skills are critical barriers for successful reading comprehension (August, Carlo, Dressler, & Snow, 2005; Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003). Low-income and Spanish speaking ELLs, generally struggle in reading (August & Hakuta, 1998; Goldenberg, 1996; Haager & Windmueller, 2001; Klingner & Artiles, 2006; Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003). Goldenberg (1996) reports that 85% of Latino students in fourth through eighth grade read below grade level. August & Hakuta (1997) found that Latino students read on average four years below their white counterparts in middle and high schools.

Moreover, when students struggle academically, they are more likely to develop problem behaviors maintained by escape/avoidance of academic demands (McIntosh, Chard, Boland, & Horner, 2006; Patterson, 1982; Sanford, 2006). **Moore, Anderson, and Kumar (2005) found that curricular expectations trigger undesirable behavior when the curricular expectations are not appropriately matched with current skill**

levels of students. Weeks and Gaylord-Ross (1981) reported a functional relationship between task difficulty and problem behavior by documenting how task difficulties (e.g., antecedent variable) occasions escape maintain problem behavior in students.

Moreover, Latino ELLs tend to demonstrate lower academic achievement (e.g., reading and mathematics) than mainstream students, and higher rates of grade retention, school dropout, and special education placement (Abedi, 2002; Artiles, Trent, & Palmer, 2004; August & Hakuta, 1997). Thus, Latino ELLs are at risk for developing problem behaviors related to escape from difficult academic tasks. This vulnerability (e.g., low reading skills) makes Latino ELLs more probable for problem behaviors since aversive academic tasks (i.e., antecedent event) are more likely to occasion escape maintain problem behavior in students (Moore, Anderson, & Kumar 2005).

Presently, there is limited empirical literature regarding ELLs with low reading skills and problem behaviors. One reason can be attributed to the fact that most research conducted with ELLs has focused on language development and not on reading (Anderson & Roit, 1998; Vaughn, Mathes, Linan-Thompson, & Francis, 2005; Weber, 1991) or problem behaviors, which contrasts sharply with the extensive research that has been conducted with mainstream students.

Purpose of Study

The present study integrates an understanding of effective literacy, instructional intervention, and positive behavior support to build a comprehensive intervention plan. Building from functional behavioral and academic assessment, a

Language Matched Intervention Priming (LMIP) program was developed that matched supplemental instruction delivered in the child's first language, and provide literacy priming on the content, vocabulary and instructions the child would encounter the following day. A single subject multiple baseline across subjects design (Horner et al., 2005; Richards, Taylor, Ramasamy, & Richards, 1999) was used to **address the research question:** Is there a functional relation between **LMIP** and reduction of escape maintained problem behavior during reading instruction for elementary grade Latino students who are English Language Learners?

Method

Setting and Participants

The study was conducted in **four** general education classrooms (i.e., second, third, and fourth grades) in a public elementary school located in the Pacific Northwest (K-5). Classroom teachers were (a) not familiar with the **functional behavioral assessment** FBA process, (b) not familiar with the native language of the target students (i.e., with one exception: fourth grade teacher), and (c) not familiar with ELLs teaching methodology.

The **four classrooms involved in the study** had one classroom teacher per 20 to 25 students. Three of the classroom teachers were monolingual English speakers. The fourth grade teacher was bilingual in English and Spanish. Core curriculum instructional practices (e.g., reading, writing, mathematics, social studies, and science) were provided to the whole class in English. Classroom teachers provided whole class instruction using state mandated grade level curricula, even though, mathematics and reading levels varied among students. Classroom teachers did not modify or individualize instruction for

students who were having academic difficulties. Each classroom had a minimum of one Latino student who displayed escape maintained problem behaviors.

Four Latino/a students (i.e., **three males and one female**) who were nominated by their teachers based on problem behavior during reading class periods, and who demonstrated escape maintained problem behaviors based on FBAs and **functional analysis** (FAs) were selected to participate in the study (i.e., **Juan and José** were second graders, **Julia** was a third grader, and **Javier** was a fourth grader). **Two additional participants were considered for the study, but they were eliminated because their problem behavior was not escape maintained based on FA results.** All four students spoke English and Spanish, however, **their** level of **spoken English competence** varied, **and all** four students were **at least one** grade level **below** expectations in oral language development in English and Spanish. Spanish was the first language spoken by each participant and the preferred language spoken at home among parents and siblings. One of the participants (i.e., **José**) was in special education under the category of specific learning disabilities. **None of the participants was taking medication during the study. Consent was obtained from parents and assent from students for participation in the study.**

Measurement

Assessment Measures

Assessment of Reading Skills: Reading fluency data for all four students was **assessed** by using two reading fluency measures (a) the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) (Good & Kaminski, 2002), and (b) the Indicadores Dinámicos del Éxito en la Lectura (IDEL) (Good, Bank, & Watson, 2003). The DIBELS

(English) and IDEL (Spanish) measures were one-minute timings of a reading passage. Each student was given three reading passages at their grade level to read for one minute for each reporting period (i.e., Fall 2005, Winter 2006, and Spring 2006). Fluency measures included three one-minute timings for each DIBELS and IDEL measures. Students read the passages out loud for one-minute. If a student came to a word that was unfamiliar, the examiner read the word for the student and then placed a slash (/) over that word. Words read incorrectly during the one-minute period received a slash and a bracket was placed after the last word read in one-minute. DIBELS and IDEL reading fluency data scores were summarized by calculating median scores for three one-minute timings for each time period (i.e., fall, winter, spring). **Scores were used to assess the extent to which participants were within the benchmark for their grade level.**

DIBELS and IDEL data were collected by graduate students (e.g., school psychology) who received formal training in administering these instruments during a 2-hour training session.

Assessment of Problem Behavior: Teacher and staff interviews were conducted using a Functional Assessment Checklist for Teachers and Staff (FACTS-Part A, B) (Crone & Horner, 2003; March & Horner, 2002; McIntosh et al., in press). The FACTS is a teacher interview designed to identify: (a) problem behaviors, (b) **routines where** problem behaviors are most and least likely to occur, (c) antecedent events that occasion the problem behavior, (d) consequences that maintain the problem behavior, and (d) setting events that **increase the likelihood of a problem behavior. The FACTS produces a “hypothesis statement” that was used to assess if a student’s problem behavior was perceived as escape-maintained.**

FACTS interviews were conducted in classrooms for approximately 35-45 min. A graduate student knowledgeable in the FBA process read questions on the FACTS forms and wrote responses provided by the teacher on the allocated sections.

Functional Analysis: The results from each FACTS interview were validated through a formal functional analysis (FA) (Iwata et al., 1982/1994). **Each FA examined student performance under escape, attention, and control conditions that were randomly sequenced.** Each condition lasted 5 minutes and all three conditions were completed each day. The same data collectors who were used for collecting direct observation data for problem behavior and academic engagement were used to collect FA. The FAs for problem behaviors were conducted in regular classroom settings for each participant.

The FA procedure for testing the escape condition involved: (a) participants were given a grade level reading independent practice task (hard task) from their grade level workbook, (b) participants were expected to read the directions and answer the workbook questions independently, (c) if a participant engaged in problem behavior the work was removed and no attention was provided for 30 sec. If the student behaved appropriately, he/she continued working on the task and was praised at the end of the session.

The procedure for testing the attention condition involved: (a) participants were given a first grade reading independent practice task (easy task), (b) participants were expected to read the directions and to answer the workbook questions independently, (c) if student engaged in problem behavior the instructor provided 10 seconds of attention (e.g. verbal redirection, physical guidance). If the student behaved appropriately, he/she continued working on the task and was praised at the end of the session.

The procedure for testing the control condition involved: (a) participants were given a first grade reading independent practice task (easy task), (b) participants were expected to read the directions and to answer the workbook questions independently, (c) if a participant engaged in problem behavior the work was removed for 30 sec. If the student behaved appropriately, he/she continued working on the task and was praised after the session. **All three conditions were administered to students by the first author individually in their classrooms during reading independent practice (e.g., workbooks).**

Assessment of Language Skills: To assess language skills each student participated in The Bilingual Verbal Ability Test (Muñoz-Sandoval et al., 1998; B-VAT). The test was administered by a bilingual graduate student (e.g., school psychology). Each student was tested individually over a span of two days. The Bilingual Verbal Ability Test **was used to measure the** English Language Proficiency (ELP) and Bilingual Verbal Ability (BVA) **of each participant.** The B-VAT consists of three tasks: a) Picture vocabulary, b) oral vocabulary, and c) verbal analogies. Reliability scores for the B-VAT are the following: a) Picture vocabulary (.89), oral vocabulary (.90), and verbal analogies (.90). The B-VATs ELP score shows correlations in the high .80s with measures of ELP, and correlations in the mid .80s with other verbal measures. One graduate student in the College of Education (i.e., school psychology) conducted all assessments.

Intervention Measures

To address the main research question, direct observation data were collected on a) problem behavior, b) academic engagement, and c) completion of academic tasks. For purposes of the study “problem behavior” was defined as any

physical or verbal aggression, teasing, taunting, or out of seat response. Academic engagement was defined as orienting toward and/or manipulating academic materials for 8 of 10 sec within a 10 sec interval observation. Completion of academic tasks was defined as (1) the percentage of items completed on a worksheet, and (2) the proportion of completed items correct.

All direct observations were conducted by **graduate students trained to 85% inter-observer agreement levels. Observers used** the following protocol: (a) data collectors sat in unobstructed seats from participant, (b) code numbers appearing on observation forms were placed in each column for A (antecedents), B (behavior(s), and C (consequences) every 10-s for behaviors exhibited by the participant, (c) data collectors used a recorder with head sets, which included a pre-programmed 10-s dial tone, (d) the dial tone prompted data collectors to record numbers (e.g., code numbers) listed on the 10-s partial interval forms based on student behaviors, (e) each recording was done within 10-s, and (f) each category (e.g., antecedents, behaviors, and consequences) required a number from the codes printed above the recording form.

Direct observation data were summarized into a percentage of intervals in which problem behavior **occurred, and percentage of intervals in which students were academically engaged. For problem behavior data, the score were computed by** adding intervals when problem behaviors were recorded, divided by the total numbers of intervals **from a session** and multiplying by 100%. Examples of problem behaviors included staring out the window, playing with objects, talking with peers, threatening peers, and being out of seat. **For academic engagement, the score was computed by**

adding intervals in which at least 80% of the intervals were spent academically engaged, divided by the total number of intervals multiplied by 100%.

Scores for completion of academic work were calculated by adding the number of problems completed, divided by the total number of problems, and multiplying by 100%. Scores for percentage of correct completed tasks were calculated by adding the total number of problems correct, divided by the number of problems completed, and multiplying by 100%.

Inter-observer Agreement

Inter-observer agreement was assessed both for reading performance and direct observation data. Observers were trained using simulated examples to an 85% level of agreement on direct observation codes. Inter-observer agreement was collected for a minimum 25% of the observations across experimental phases and included observations for both Baseline and LMIP phases. Total sessions observed were 25, 29, 22, and 34 respectively for Juan, Julia, José, and Javier. Inter-observer agreement for problem behavior averaged 90%, 97%, 94%, and 96% respectively for Juan, Julia, José, and Javier. Inter-observer agreement for academic engagement averaged 92%, 98%, 95%, and 95% respectively for Juan, Julia, Jose, and Javier.

Percent of completed tasks was monitored for each Baseline and LMIP intervention phase. Total sessions observed were 25, 29, 22, and 34 respectively for Juan, Julia, José, and Javier. Inter-observer agreement for percent completed averaged 96%, 97%, 96%, and 95% respectively for Juan, Julia, José, and Javier.

Percent of completed work problems that were correct were monitored for each Baseline and LMIP intervention phase. Total sessions observed were 25, 29, 22,

and 34 respectively for Juan, Julia, José, and Javier. Inter-observer agreement for percent correct scores averaged 96%, 97%, 95%, and 96% respectively for Juan, Julia, José, and Javier.

Fidelity of Implementation

The first author observed the first two weeks of the LMIP implementation to ensure that LMIP instructors performed the intervention correctly. To assess fidelity of implementation, instructors used a 6 item checklist with the following criteria. First, provide decoding skills by using the following program *Reading Mastery* (Engelmann & Bruner, 1988) to teach decoding skills. Second, prime student (review/preview) by reviewing current district adopted English basal reader story and discussing with student the following (a) what the story is about? and (b) what will happen next in the story? Third, use the English basal reader to review selected vocabulary words that convey meaning, are useful, and are relevant to instructional content. Fourth, review directions of the next days reading independent practice task. Fifth, teach a behavioral component intervention to provide the student with a socially acceptable replacement behavior, which serves the same function as the problem behavior. Sixth, teach participants to raise their hand and verbally ask for a break from reading task. Participants were also taught to raise their hand and verbally request for peer or teacher assistance to complete task.

Social Validity

Social validity for interventions was assessed through a Likert scale questionnaire given to interventionists. The following questions were addressed in the Likert scale with the following ratings (1 low and 6 high); (a) did you feel comfortable implementing the

intervention? (b) was the intervention time consuming? (c) was the intervention effective? (d) was the intervention appropriate for the student?, (e) was there a contextual fit between the intervention and student?, (f) was there a contextual fit between the intervention and the classroom setting?, and (g) did the plan treat the student with respect and dignity?

Design and Procedures

Assessment

Each participant completed a FBA and FA prior to entering the experimental design of the study following procedures described above.

Experimental Design

A single subject multiple baseline across subjects design was used to **examine** a functional relationship between **implementation of LMIP on: (a) decreases in escape maintained problem behaviors during reading independent practice tasks, (b) increases in academic engagement, and (c) increases in total number of academic problems completed and correct completed problems.**

Baseline

During baseline all students continued to participate in their daily reading academic periods with the formal data collection being the only addition. No changes were made in curriculum design, consequences, or instructional methods.

Language Matched Instructional Priming (LMIP)

The LMIP intervention involved 1-hour instructional sessions with a bi-lingual instructor conducted four days per week that focused on: (a) teaching decoding skills, (b) review/preview of the content and vocabulary in the story that would be read in

class the next day, (c) review instructions for completing the next day's independent task, and (d) teaching more socially acceptable social skills. The LMIP strategies were taught in the school cafeteria, **by six graduate students at the University of Oregon. Each graduate student (i.e., only four graduate students taught at one time) worked individually with each participant. The time allocated for the intervention consisted of the following: (a) 20 minutes of skill-level Reading Mastery, (b) 20 minutes of vocabulary instruction and review/preview of next day's reading lesson, (c) 10 minutes to define the instructions for the next day's independent practice task, and (d) 10 minutes to teach and review appropriate social skills (e.g., how to request assistance from teacher and/or peer, and to ask for a break from task).**

Results

The purpose of this study was to evaluate the effects of a function-based approach to decrease problem behaviors and increase reading academic engagement during independent reading practice. The function-based approach consisted of implementing FBAs to determine a hypothesis statement regarding the function of participant's problem behaviors, and conducting FAs to verify the function of problem behaviors. A multiple baseline design was used to demonstrate the effects of LMIP as a function-based intervention (BIP).

Functional Behavioral Assessments

A FBA **using the FACTS interview was conducted** with the classroom teacher for each participant. The FBA derived for Juan stated that Juan's problem behavior during reading independent practice consisted of the following: (a) out of seat, (b) playing with objects at his desk, and (c) refusal to do the work (e.g., staring off). Juan's teacher also stated that most of Juan's problem behaviors were when tasks are too long and/or difficult or in the afternoons, **and that his problem behaviors were maintained by escaping long and/or difficult tasks.** Juan's teacher stated that Juan does not get into problems during recess or lunch recess.

The FBA derived for Julia stated that Julia's problem behavior during reading independent practice consisted of the following: (a) staring off, (b) looking at others or other books in class, and (c) avoidance of task. Julia's teacher also stated that Julia's problem behaviors were more likely when tasks are too long and difficult, **and that her problem behaviors were maintained by escaping these tasks.** Julia's teacher stated that Julia has excellent social skills and that she did not have any problem behaviors during recess or lunch recess.

The FBA derived for José stated that José's problem behavior during reading independent practice consisted of: (a) asking to go to the bathroom, (b) talking to peers, and (c) asking irrelevant questions not pertaining to the task. José's teacher stated that Jose's problem behaviors were when tasks included reading, **and that his problem behavior was maintained by escaping reading tasks.** José's teacher stated that José was friendly, he liked school and that he did not have any problem behaviors during outside of class.

The FBA derived for Javier stated that Javier's problem behavior during reading independent practice consisted of: (a) not engaged (e.g., not working on the task), (b) talking with peer who sits next to him, and (c) playing with objects (e.g., pencils and markers). Javier's teacher also **indicated** that Javier's problem behaviors **were** related to his low reading skills, **and his problem behaviors were maintained by escaping reading tasks**. Javier's teacher stated that Javier was quiet and he kept to himself, however, **he did have one close friend**.

FA Results

Functional analysis results for each student are provided in Figure 1. In each case problem behavior was differentially more likely during the escape condition than during the attention or control conditions. These results validate the hypotheses developed through the indirect FACTS interviews.

[Insert Figure 1 about here.]

Effects of LMIP on Problem Behavior

A major focus of this research was assessment of the functional relationship between the LMIP intervention and both (a) reduction in problem behavior and (b) increased academic success. Baseline patterns for Juan, Julia, and José averaged 68%, 72%, and 49% of intervals with problem behavior respectively. Javier produced a more complex baseline with an overall average of 20% of the intervals with problem behavior, but with (a) two extreme days when paragraph writing was required, and (b) a dramatic drop in problem behavior levels after session 15 when the teacher altered her class presentation format.

Javier's' classroom teacher altered her class presentation format following an ELL in-service training provided by the school district. She incorporated three skills (a) review 2-4 vocabulary words from the story read in class, (b) review directions of the independent reading task, and provide examples to complete the independent task, and c) encourage students to work with a peer to increase on task behavior and correct task completion for the whole class during reading independent tasks. **All three skills (review vocabulary words for the next day story, review directions for independent reading task, and work with a peer) were consistent with LMIP procedures.**

Implementation of LMIP **procedures** occurred within a multiple baseline-staggered format. Mean levels of intervals with problem behavior for Juan, Julia, José, and Javier were 21%, 22%, 11%, and 6% respectively. These represented reductions of 69%, 69%, 78%, and 70% from baseline for the four subjects. For Juan, Julia, and José the impact of LMIP is emphasized by the immediacy of effect when LMIP was introduced, and the low percentage of LMIP data points that overlap with the last four sessions of baseline. For Javier the low level of problem behavior between sessions 15 and 29 of baseline provide a floor effect that prevents documentation of improvement during LMIP.

Levels of problem behavior also are compared to peer composite scores in Figure 2. For Juan, Julia, and José baseline levels of problem behavior exceed those of peers, and LMIP levels of problem behavior are a much closer match to peer behavior patterns. **For Javier his baseline level of problem behavior prior to session 15 exceeded peer levels, but his baseline and LMIP levels after sessions 15 were within the range of peer levels.**

[Insert Figure 2 about here.]

Effects of LMIP with Academic Engagement

Figure 3 presents problem behavior results aggregated by “academically engaged behavior.” **Mean baseline intervals with academic engagement for Juan, Julia, José, and Javier were 32%, 28%, 51%, and 80%. Following implementation of LMIP levels of academic engagement were 64%, 94%, 89%, and 93% respectively for the four students. These LMIP represent increases of 32%, 66%, 38%, and 13% in academic engagement over baseline for the four subjects. For Julia, and José the impact of LMIP is emphasized by the immediacy of effect when LMIP was introduced, and the high percentage of LMIP data points that do not overlap with the last four sessions of baseline. For Juan, some overlap exists and it is related to the two data points in which he was ill. For Javier, high level of academic engagement continued during LMIP.**

[Insert Figure 3 about here.]

Effects of LMIP on Completed and Correct Completed Tasks

Figure 4 provides baseline and LMIP results for completed and correct tasks. Baseline patterns for Juan, Julia, José, and Javier averaged 43%, 4%, 43%, and 69% of tasks **completed**. Baseline patterns for correct completed tasks averaged 64%, 14%, 52%, and 52% respectively.

Implementation of LMIP **was associated with mean percentage of tasks completed** for Juan, Julia, José, and Javier of 78%, 76%, 100%, and 87% respectively. These presented increases of 35%, 72%, 57%, and 18% from baseline for the four subjects. **Mean percentage of tasks completed correctly** for Juan, Julia, José, and Javier

averaged 76%, 83%, 85%, and 77% respectively. These presented increases of 12%, 69%, 33%, and 25% from baseline for the four subjects.

[Insert Figure 4 about here.]

Reading Fluency

DIBELS and IDEL scores were used to demonstrate reading fluency in English and Spanish for all participants at three points in time. DIBELS and IDEL results are presented in Tables 1-2.

DIBELS Results

Each participant demonstrated an increase from fall to spring. Julia and Juan had the biggest increases as Julia doubled her words read per minute score from fall, while José increased his words read per minute score fourfold from fall. Juan increased his words read per minute by seven words from fall and Javier increased his words read per minute by 14 from fall. Even though Juan demonstrated little growth in words read per minute, he was able to reduce the amount of reading errors by more than 50% (Table 1).

IDEL Results

Each participant demonstrated an increase from fall to spring. Julia had the biggest increase, as Julia increased her words read per minute score by 20 words from fall. José increased his words read per minute score by 10 words from fall. Juan increased his words read per minute by seven words from fall and Javier increased his words read per minute by nine from fall. Since Julia went to school in a Spanish speaking country, her reading skills are more advanced than her peers in the study, whom have not receive formal reading instruction in Spanish (Table 2).

Bilingual Verbal Ability Test

All four students scored at least one standard deviation below the mean on both the bilingual verbal ability, and English language proficiency measures of the B-VAT. Moreover, results demonstrated that all students were low in oral language skills in both Spanish and English. The bilingual verbal ability combines both English and Spanish oral language skills and the range was 1.33 to -2.33. Results document performance levels of one (i.e., Juan, José, and Javier) to two (Julia) standard deviations below the mean. The English language proficiency scores ranged from -1.87 to -4.67, therefore, results demonstrate one (i.e., Juan), two (i.e., José and Javier), and four (i.e., Julia) standard deviations below the mean scores for participants. Overall, the participants oral language development in English was (1 to 4 standard deviations below the mean), and Spanish and English combined was (1 to 2 standard deviations below the mean) (Table 3).

Fidelity of Implementation

A procedural fidelity checklist was used for each **LMIP instructor** to ensure that the implementation of the LMIP was conducted according to the prescribed format. Procedural fidelity was calculated by dividing the number of steps completed correctly by the total number of steps and multiplying by 100%. Procedural fidelity averaged (93%) (range 83-100%) across the LMIP phase.

Social Validity

The six LMIP instructors and four classroom teachers each completed the seven social validity questions at the conclusion of the study. All LMIP instructors rated each question regarding the intervention a score of 6. Classroom teachers answered 6 out of 7 questions (except for question one). Classroom teachers also

gave a rating of 6 for each question. The highest rating achievable for each question was a 6.

Discussion

The LMIP intervention provides an example of combining behavior and academic supports to meet the needs of ELL students. The FACTS, FA, DIBELS, and IDEL results together document that when reading demands were at least one grade level higher than the student's current skill level, the students were likely to engage in escape-maintained problem behavior. The LMIP intervention was designed to provide students with the instructional priming needed to reduce aversive features of the reading tasks. During the LMIP phase, students encountered (a) a familiar story, (b) vocabulary that they recognized, and (c) instructions that had been rehearsed the day before. The logic driving this intervention was that by increasing student success with academic tasks, the reading class would become less aversive, less likely to evoke escape-maintained problem behavior, and more likely to result in academic engagement, and task completion. Results were consistent with this logic.

Note that no changes were imposed in the classroom consequences for problem behavior or the instructional expectations of the classroom teacher.

Implications for Future Research

This study supported two key questions regarding Latino ELLs, and provided evidence that the FBA, FA, and behavior support technologies are useful and appropriate for a) documenting a hypothesis statement regarding the function of problem behaviors (FBAs), b) validating the function of problem behaviors for underrepresented groups (e.g., Latino ELLs) in the classroom setting (FAs), and c) creating function-based

support plans (LMIP). The results also support the assumption that demanding academic tasks may create aversive contexts that establish and support escape-maintained problem behavior. Interventions addressing these problem behaviors need to address the aversive stimuli in the classroom, not just the consequences for problem behavior.

Instructional Implications

Results from this analysis confirm the finding that instructional and behavior support variables interact (Algozzine, 2002; Evertson, Emmer & Worsham, 2005). Behavioral assessment was used to identify the aversive features of instructional tasks. A curricular change was used to decrease the aversive instructional features, and with these changes in academic variables reduction in problem behavior occurred. Implications for instruction include (a) match instructional demands to the academic skill level of students, and (b) use academic and behavioral assessments to develop integrated interventions. complete independently.

Limitations of the Study

Results from this analysis should be viewed with caution given that only four students were involved in the analysis, and care was taken to select students with documented escape-maintained problem behavior. It is possible that students with similar problem behaviors, but with attention-maintained problem behavior, would not respond to the LMIP intervention.

A second limitation of the study is the use of graduate students as LMIP instructors. Future research is needed to determine if this approach could be

implemented with effect when regular district employees provide the LMIP intervention.

A third limitation is the fact that fidelity data were collected only once during the study. Confirmation of the instructional fidelity would be stronger if fidelity data had been collected throughout the intervention.

A final limitation is found in Javier's data. The reduction in Javier's baseline levels of problem behavior following his teacher's in-service experience may have been related to the teacher's application of LMIP like procedures, or some other variable that was not controlled. The demonstration of three intervention effects at three different points in time provided by Juan, Julia, and José's data supports the assertion that the study demonstrates experimental control (Horner et al., 2005), but the absence of an effect for Javier should encourage caution in this interpretation.

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Figure 1. FA % Intervals of Problem Behavior

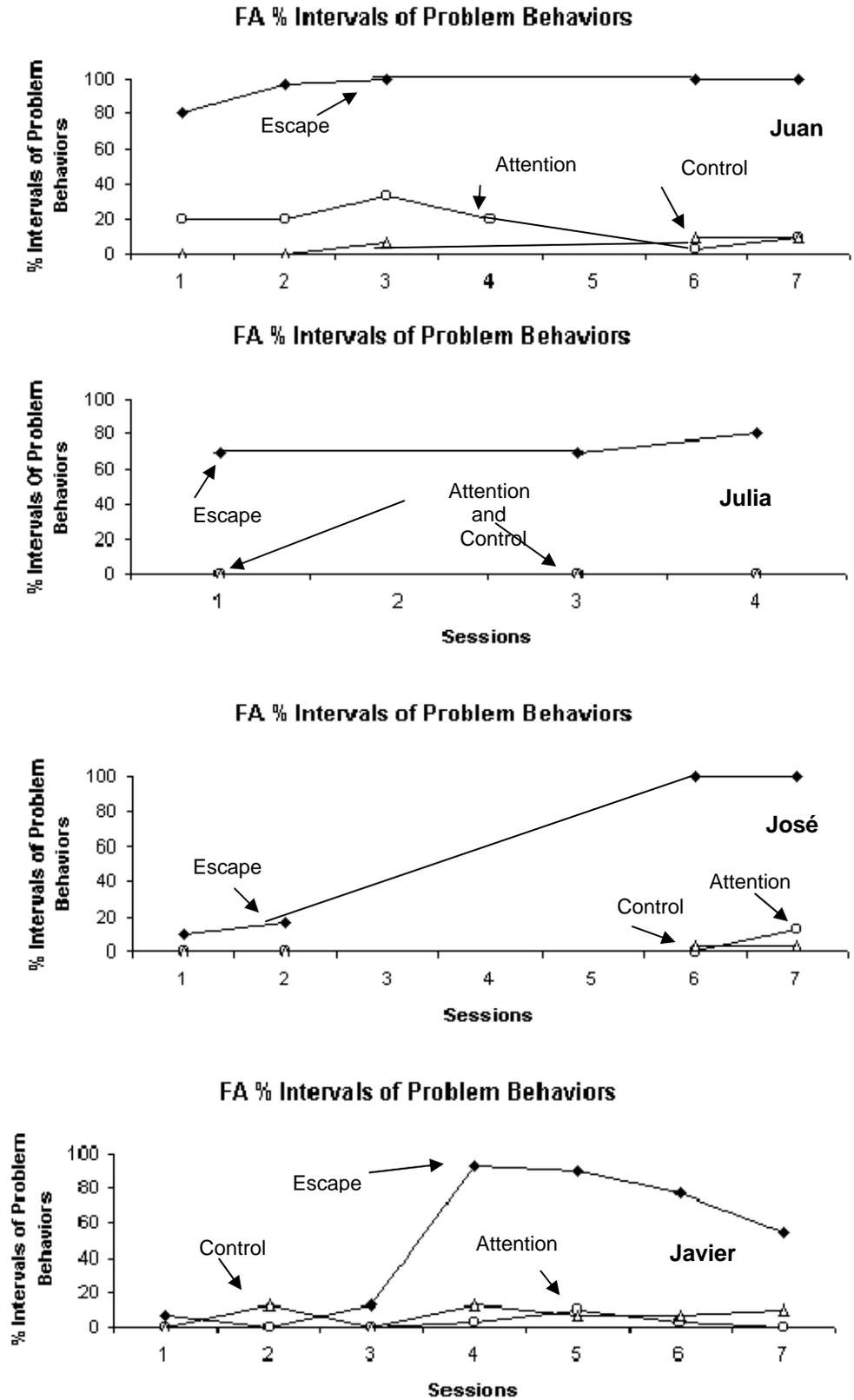


Figure 2. % Intervals with Problem Behavior and Peer Data.

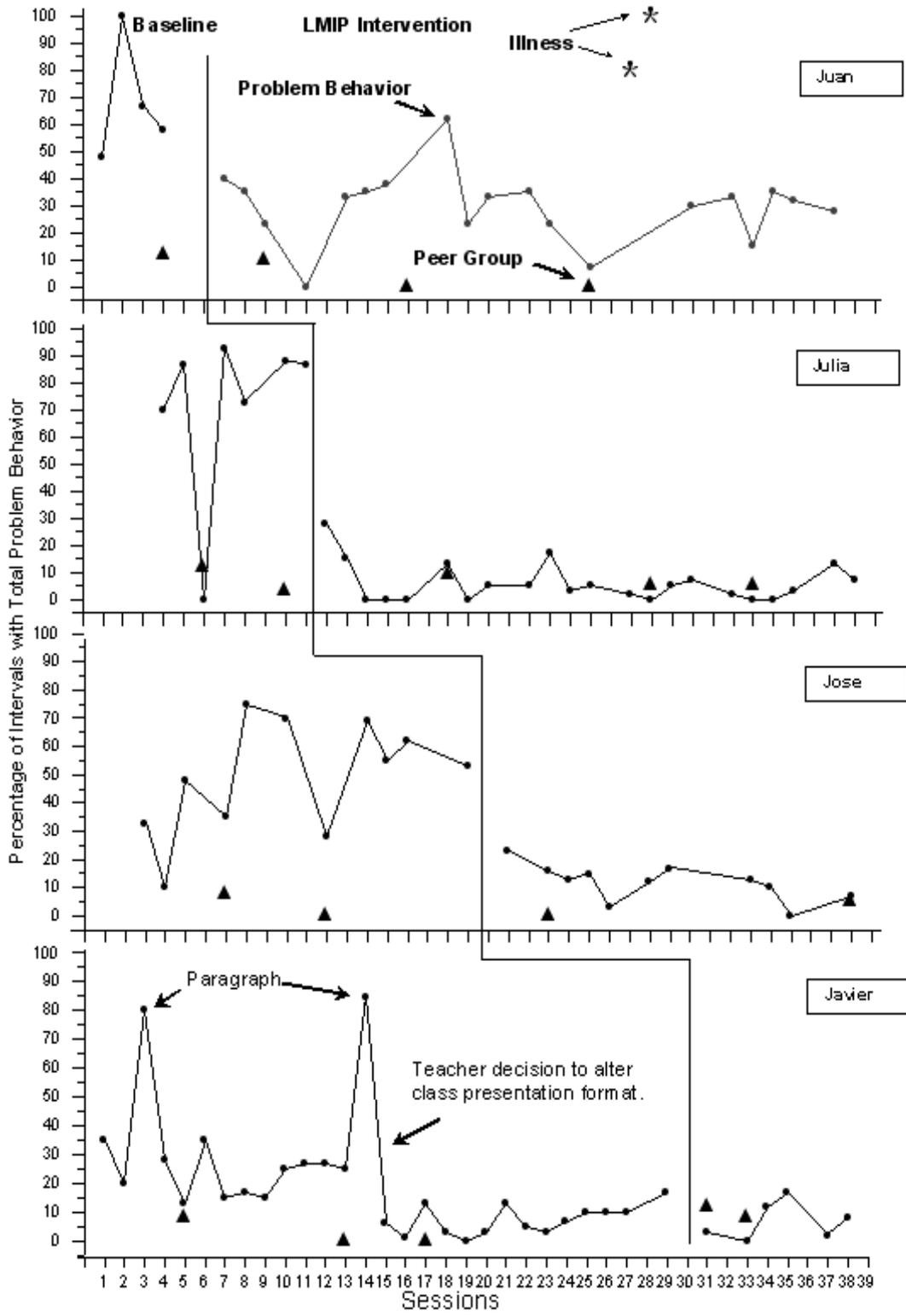


Figure 3. % Intervals for Engagement

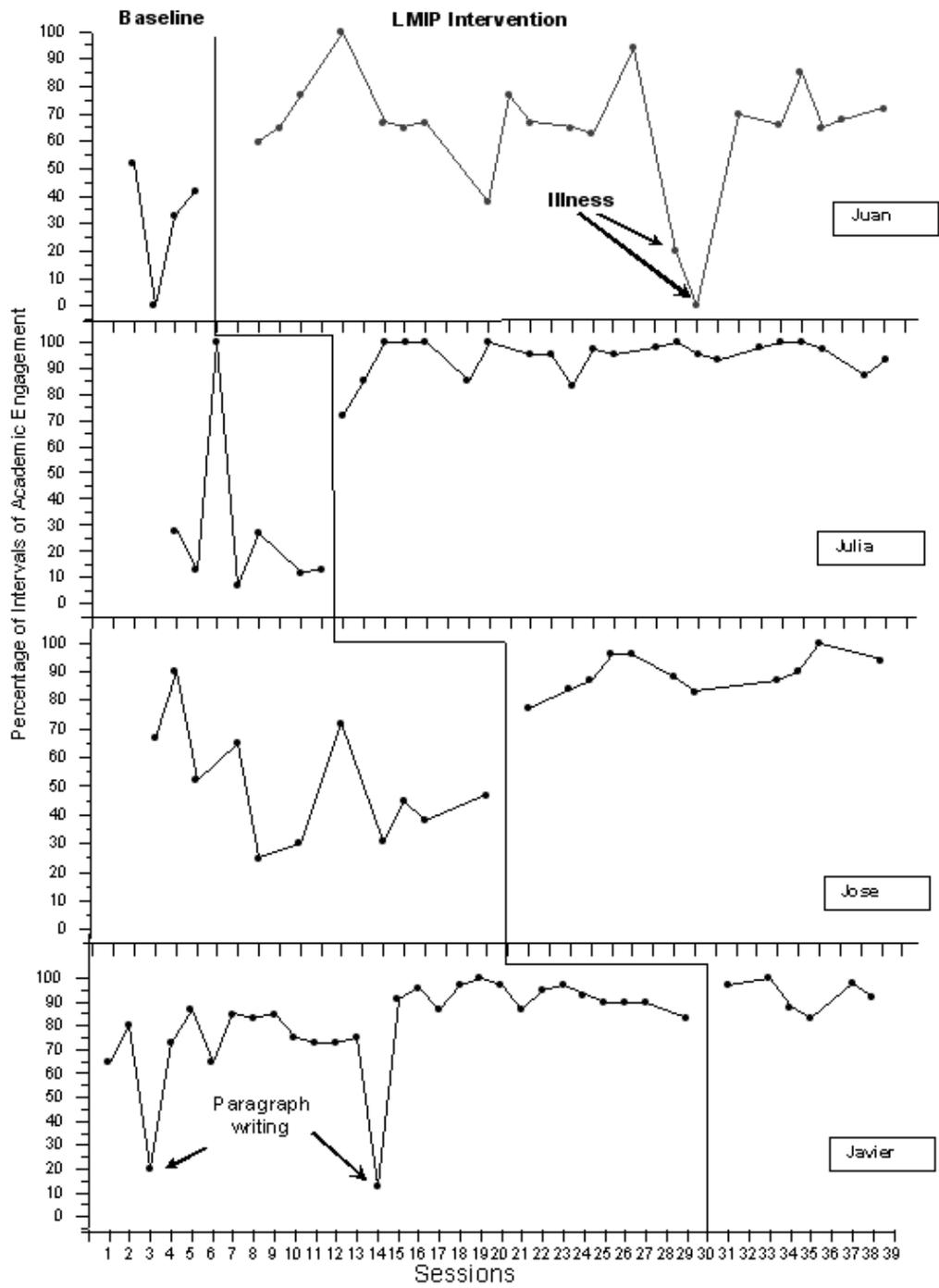


Figure 4. % of Completed and Correct Tasks

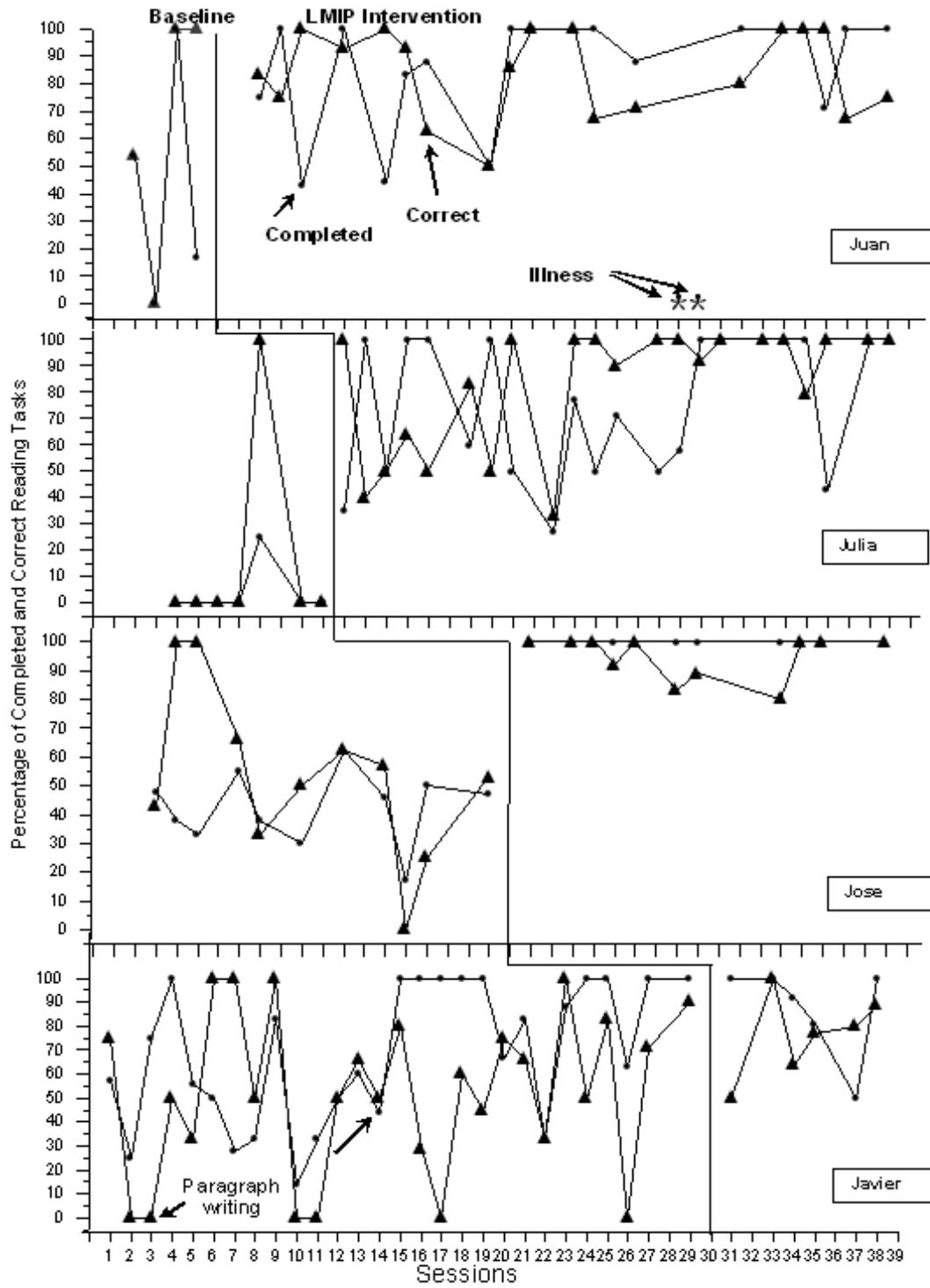


TABLE 1

Results for DIBELS Scores

Students	Fall	Winter	Spring	Percentile Score at Spring Benchmark
Juan	37	36	44	25%
Julia	21	26	49	25%
José	7	13	32	25%
Javier	22	30	36	25%

* All participants were assessed at three points in time during the 2005-2006 school academic year.

TABLE 2

Results for IDEL Scores

Students	Fall	Winter	Spring	Percentile Score at Spring Benchmark
Juan	1	1	8	25%
Julia	35	44	54	25%
José	0	3	10	25%
Javier	4	12	13	25%

* Javier was assessed 3rd Grade IDEL Measures

**IDEL does not have 4th Grade IDEL measures

TABLE 3

B-VAT Measures Using Standard Scores (SS) and Z-scores

Participants	Grade	Bilingual Verbal Ability SS	Z-Score	English Language Proficiency SS	Z-Score
Juan	2nd	80	-1.33	72	-1.87
Julia	3rd	65	-2.33	30	-4.67
José	2nd	77	-1.5	69	-2.06
Javier	4th	77	-1.5	69	-2.06

* All B-VAT measures took place in February of 2006