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The effectiveness of milieu language strategies on the English language growth of Head Start children learning English as a second language

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The effectiveness of milieu language strategies on the English language growth of Head Start children learning English as a second language

by

Emily Marie Worthington

A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of

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DEDICATION

This dissertation is dedicated to all those who have encouraged and supported me in this great adventure and undertaking.

Thank you.
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ABSTRACT

The current study explored the effectiveness of milieu language strategies on the English language growth over the course of a school year of children learning English as a second language. The four basic milieu language strategies; model, mand-model, time delay, and incidental teaching, can be embedded into daily routines and interaction to teach language skills to children within a supportive context. Three Head Start teachers and nine children, three native English speakers and six native Spanish speakers, participated in the school year-long study. The teachers received training and coaching to effectively implement the milieu strategies. The aim of this study was to examine how instructional strategies created and implemented from a special education perspective based on recommended teaching practices can be used with children learning English as a second language as a means of providing teachers with developmentally appropriate strategies and providing children learning English as a second language with consistent comprehensible input. This study recognizes that children with special needs and children learning English as a second language do not necessarily have similar cognitive abilities and learning needs. The current study sought to answer three questions: can preschool teachers implement milieu language strategies with fidelity, what is the impact of milieu language strategies on young children’s English acquisition, and what are teachers’ perceptions regarding milieu language strategies. A multiple baseline single subject and qualitative case study methodology was used. Results showed that teachers can implement the strategies with fidelity with on-going feedback and coaching. Milieu language strategies had a positive impact children’s language growth. Teachers’ perceptions of the milieu language strategies were mixed. Additional research is needed to determine the specific types of coaching needed to maintain intervention fidelity.
by teachers. Also, additional research is needed to determine the impact of the milieu language strategies on children’s language growth who are learning English as a second language during shorter time periods.
CHAPTER 1. INTRODUCTION

There are critical challenges and concerns for children and teachers given the rapid increase of children learning English as a second language in schools across the nation. How to best teach children from non-English speaking homes challenges many teachers due to the language barrier between the children and the English-speaking teachers. When teachers do not know how to best teach children from homes that do not speak English, the children tend to have lower levels of achievement than their English speaking peers and higher school drop-out rates (Bruna, Vann, & Escudero, 2007; Ruiz-de-Velasco & Fix, 2000; Waggoner, 1999). As a result, it is imperative that effective and appropriate teaching strategies be identified that teachers of all grades, but especially preschool, can implement to foster the English language growth and development of children learning English as a second language.

Effective teaching strategies for preschool teachers are especially important because many children learning English as a second language first encounter an English-dominant environment in preschool (Jones, 1993). As a result, the aim of this study was to examine how instructional strategies, milieu strategies, created and implemented from a special education perspective based on developmentally appropriate and recommended teaching practices can be used with children learning English as a second language as a means of providing teachers with effective strategies to provide children learning English as a second language with consistent comprehensible input. This study recognizes that children with special needs and children learning English as a second language do not necessarily have similar cognitive abilities and learning needs.

Milieu language strategies have been shown to be effective in helping children acquire language skills (Hancock & Kaiser, 2002; Kaiser & Hester, 1994; Yoder, Kaiser,
Goldstein, Mousetis, Kaczmarek, & Fisher, 1995). There are four basic milieu language strategies: model, mand-model, time delay, and incidental teaching, which can be embed into ongoing classroom activities. These strategies are used to create opportunities for a child to be exposed to new vocabulary when the teacher expands on the child’s utterance and provides a language model to support the child in learning the correct grammar and turn taking rules of language. Given the importance of finding effective teaching strategies for teachers of young children, this study sought to answer three research questions: (1) Can teachers implement milieu language strategies with fidelity in the classroom, when given ongoing feedback and coaching? (2) Do milieu language strategies positively impact language growth for children learning English as a second language? and (3) What are teachers’ perceptions regarding the effectiveness of milieu language strategies for children’s language growth?

A mixed methods design was used to address the above research questions. A mixed method was chosen because such a methodology would provide a fuller picture and lead to a better understanding of impact of the milieu language strategies on the target children’s language growth over the course of a school year. Specifically, a multiple baseline single case methodology and qualitative focus groups and interviews were used.

A multiple baseline single case design was selected for this study as the most effective method to examine the relationship between changes in an independent variable, teachers’ use of milieu strategies compared to typical instruction, and a dependent variable, children’s expressive communication. Multiple baseline single case design permits an accessible assessment regarding the effectiveness of an intervention, milieu strategies on the children’s language growth and development over the entire school year. A multiple baseline
refers to staggering the implementation of the intervention across several participants (i.e., children) to determine the effectiveness of the intervention when the intervention treatment (i.e., language use) cannot be “removed” (Kazdin, 1982; Riley-Tillman & Burns, 2009). The intervention treatment (i.e., language) cannot be “removed” because, when examining language acquisition, it is not desirable for language to be “lost” (Riley-Tillman & Burns, 2009). For the current study, within the multiple baseline single case design a single expressive language assessment data, the Picture Naming Individual Growth and Development Indicator (University of Minnesota, 2006), was collected and used to assess language growth and development. The children’s scores on the Picture Naming Individual Growth and Development Indicator (University of Minnesota, 2006) were plotted following each assessment on a weekly basis.

A qualitative case study methodology (Merriam, et al., 2002) was also used in the study to evaluate the teachers’ perceptions about the implementation of the milieu strategies, and the effectiveness and impact of the strategies on the target children’s language growth. A case study approach focuses on a bounded case, which leads to an understanding of the meaning and perceptions of a specific experience or phenomenon (Creswell, 2007; Merriam, et al., 2002). For this study, the focus was the phenomenon of three Head Start teachers learning and implementing the milieu language strategies. There was an initial focus group with the teachers at the beginning of the study, which was followed by two sets of individual interviews with each teacher later during the school year.

The results of the three research questions are presented regarding the fidelity of milieu language strategy implementation by the teachers and the effectiveness of the strategies on the children’s language growth. Implications of the findings are discussed and
future directions for research and practical applications with children learning English as a second language within the context of preschools and using milieu language strategies.
CHAPTER 2. LITERATURE REVIEW

Searching for methods and strategies to assist children learning English as a second language is not a new phenomenon, given the long history of bilingual individuals in the United States and the research conducted on the outcomes and developmental progression of second language acquisition of bilingual individuals and children. The issue of bilingual education can be a sensitive topic, especially as children learning English as a second language have been too often mistaken as requiring special education, and that their first language regarded as damaging to their English acquisition and use (Valdes & Figueroa, 1994). It was aim of this study to examine how two distinct perspectives, bilingual education and special education, can be used to inform each other. This study examined how instructional strategies created and implemented from a special education perspective based on multiple developmental and recommended teaching practices can be used with children learning English as a second language as a means of providing teachers with developmentally appropriate strategies and providing children learning English as a second language with consistent comprehensible input to acquire English as a second language. This study recognizes that children with special needs and children learning English as a second language do not necessarily have similar abilities and learning needs. Instead, children learning English as a second language are able to draw on their knowledge and understanding regarding the function of language from their first language to transfer to the second language to make meaning of the second language input they are receiving. These two groups of children are similar in that they need to be able to communicate with those around them, teachers, adults, and peers; and may benefit from systematic instruction in learning language.
Changing Classroom Composition

Given current projections, it is likely that the number of children learning English as a second language in school systems is going to increase significantly in the near future (Garcia & Jensen, 2009). In 2010, there were almost 11 million children ages 5 to 17 who spoke a language other than English or 21% of students nationwide who were learning English as a second language (NCES, 2010). However, it is projected that by 2015, 50% of the children in the public school system will be learning English as a second language (Gray & Fleischman, 2004-05). Currently, 25% of children in Head Start programs nationwide are from homes where Spanish is predominantly spoken, but this figure does not include the number of homes in which neither English nor Spanish is spoken (Brown, 2008). Thus, it is likely more than 25% of children served by Head Start are from homes where English is not the primary language used.

Yet, most educational programming in Head Start and elementary schools is conducted in English and it is often in a preschool environment that children who do not speak English first encounter an English-dominant environment (Jones, 1993). Since most educational programming is conducted in English, children learning English as a second language will develop mixed levels of proficiency and language skills in both English and their first language (Jones & Fuller, 2003). One consequence of mixed levels of language proficiencies, children of limited to no English speaking Hispanic backgrounds are more likely to be placed in special education or remedial classes because of their perceived lack of language skills and abilities when in fact these children bring significant language knowledge and skills with them from their first language (Baker, 2006; Valdes & Figueroa, 1994).
However, teachers are often at a loss to know how to appropriately communicate and teach children whose first language is not English (NCES, 2002; Valdes & Figueroa, 1994).

Consequently, it is essential to find teaching strategies that teachers of all grades, but especially of those teaching preschool, can implement to appropriately communicate and teach children learning English. In the process of teaching and communicating with children learning English, teachers need to be able to foster the language growth and development of children learning English as a second language. It is imperative that effective language strategies be found that can be used at the preschool level to reap the greatest benefits for children learning English as a second language and help work toward reversing the cycle of academic underachievement among children and youth from non-English speaking homes.

**Achievement Rates**

Children learning English as a second language are more likely to have lower achievement and performance rates compared to their English speaking peers (Abedi & Gandara, 2006; Gandara, Rumberger, Maxwell-Jolly, & Callahan, 2003; Rumberger & Gandara, 2004). According to National Center of Education Statistics (NCES; as cited by Proctor, Dalton, & Grisham, 2007), children of Hispanic decent, compared to all other ethnic and minority groups in the U.S., have the lowest rates of achievement and attainment in school. In a review of student achievement, Xu and Drame (2008) noted children learning English as a second language often perform significantly below the grade averages in reading and math and more much more likely to be placed in special education. Achievement rates are influenced by teacher preparedness and it is likely that many teachers do not receive training or coursework on methods of teaching children learning English as a second language. When teachers do not know how to best teach children from homes that do not
speak English, these children tend to have lower levels of achievement than their English speaking peers and have higher school drop-out rates (Bruna, Vann, & Escudero, 2007; Ruis-de-Velasco & Fix, 2000).

**Teacher Preparedness**

The challenge of how to best teach children from non-English speaking homes faces many teachers due to the language barrier between the children and the English-speaking teachers and teachers’ lacking the knowledge of effective instructional strategies. In a national study, 54% of teachers educate children who are learning English as a second language; yet, only 17% of the teachers felt prepared to meet the educational needs of these children (NCES, 2002). Another study found that teachers reported not having adequate training in effective teaching practices they could use with children learning English as a second language (NCES, 2001). In a recent study of Head Start teachers, many teachers reported they had a limited number of effective strategies they could use for communicating with children learning English as a second language (Worthington, et al., 2011). The research of Hart and Risley (1995) can be extrapolated from the homes of young children to classrooms. Hart and Risley (1995) found that when children’s environments, regardless of socioeconomic conditions, were filled with conversations and verbal interactions, the children’s language and vocabulary knowledge and skills increased. The same could be stated for classrooms, when children are surrounded by quality conversations and verbal interactions, their language skills are impacted. However, given the overwhelming percentage of teachers who feel unprepared to teach children learning English as a second language, it is likely these teachers may not be providing optimal or sufficient opportunities for conversations and verbal interactions to these children, especially if the teacher does not
share the same language as the children. Thus, if the teacher is uncertain of how to communicate and interact with children who do not speak the same language as the teacher, the teacher may communicate and interact less with those children, which decreases the number of opportunities for the children to experience important communication and verbal interaction skills and opportunities. Therefore, it is of upmost importance to provide preschool teachers with effective strategies they can use with children learning English as a second language to foster language growth and use to communicate with the children to actively engage them in the classroom activities.

Research has linked teacher preparedness and training to children’s language and literacy skills (Burgess, Lundgren, Lloyd, & Pianta, 2001; Weigel, Martin, & Bennett, 2005). Teachers who have received training or have taken classes in child development or early education are better able to support children’s language and literacy development and social skills than teachers without such training (Burchinal, Cryer, & Clifford, 2002; Weigel, Martin, & Bennett, 2005). Research has also indicated that for training to have the greatest impact on teachers’ beliefs and classroom practices, training needs to occur over several sessions rather than in a single, brief workshop (NSDC, 2001; USDE, 2007). Along with in-depth trainings, on-going feedback or coaching plays an important role in modifying teachers’ teaching practices and implementing new knowledge and skills into daily routines and activities (Hsieh, Hemmeter, McCollum, & Ostrosky, 2009; Noell, et al., 2005).

Coaching, in this context, is a form of professional development, much like attending a training, but is based on the teacher’s implementation of new knowledge and skills within the classroom with the goal of helping teachers regularly use the targeted skills and knowledge (International Reading Association, 2004; Pierce, Abraham, Rosenkoetter, Knapp-Philo, &
Summer, 2008). Research has indicated that coaching and providing performance feedback to teachers can increase teachers’ fidelity of a targeted intervention (Barton & Wolery, 2007).

**Transfer of First Language Knowledge and Skills**

Research has shown a child’s first language influences skills and knowledge transferred or used to make meaning of a second language (Baker, 2006; Cummins, 1984; Ellis, 2009; Valdes & Figueroa, 1994). Children’s fluency in their first language is a predictor of successful second language acquisition (Baker, 2006; Cummins, 1984; Ellis, 2008; Valdes & Figueroa, 1994; Wang & Geva, 2003). Another review of the research indicated that children use the skills and knowledge they have from their first language to make meaning of the second language, or third or multiple languages (Baker, 2006; Ellis, 2008). Children will transfer skills from whatever language stage they are in or have skills previously acquired in their first language to the second language, such as vocabulary, phonological processing skills, alphabet or print similarities, decoding skills, and other skills.

For young children, verbal input is essential to learning the second language and figuring out how to make meaning of the second language from their first language background, skills, and knowledge (Jones & Fuller, 2003). Young children need comprehensible input in the second language to learn how to communicate in the second language (Jones & Fuller, 2003).

In one model of transfer of language skills from the child’s first to second language, Cummins (1984) points out that children acquiring two (or more) languages bring to the second language acquisition process the knowledge and understanding of the function and use of language. Cummins (1984) argues that there are underlying common linguistic and cognitive skills and knowledge across languages that once learned can be transferred to another or second language. While the underlying linguistic and cognitive skills transfer and
are similar across languages, the “surface features” of the two languages are different (Cummins, 1984, 142-143). “Surface features”, which include pronunciation, spelling, word order, fluency, require adequate exposure and input to be acquired by the learner or child, in this case (Cummins, 1984).

It is considered developmentally appropriate practice to encourage the use of the children’s first languages in educational settings rather than expecting all children to learn and use English only (Bredekamp & Copple, 1997). Bredekamp and Copple (1997) also recommend supporting the children’s use of their first languages in the classrooms. Research on immigrant families across the United States with young children in the school system has indicated when children learn two languages at the same time, one language often suffers and is usually the children’s first language (Fillmore, 1991; Valdes & Figueroa, 1994). Fillmore (1991) notes when unequal development and acquisition of both languages occurs, “gaps” in the children’s vocabulary skills in each language develop. “Gaps” reflect unique vocabulary skills and the differences in the knowledge of the “surface features” the child has in one language rather than in both languages (Cummins, 1984; Valdes & Figueroa, 1994). It is essential to recognize when talking about unique language abilities in two languages, a child who knows two or more languages is not the same or even similar to a monolingual child in terms of language abilities. A child learning a second language is not the sum of his or her first language knowledge plus his or her knowledge and use of the second language (Valdes & Figueroa, 1994). Knowledge and language skills of both the first and second (or more) languages lead to unique abilities in both languages (Valdes & Figueroa, 1994).

It is important to remember that when a child is expected to learn a second language for educational purposes, the child will develop specific language knowledge and skills in
each language, provided the child receives language input in both languages (Valdes & Figueroa, 1994). Children who are acquiring and have acquired language skills in two or more languages will use language skills in each language in specific ways for specific purposes in specific contexts (Baker, 2006; Valdes & Figueroa, 1994). Bilingual individuals so not use both of their languages equally across all situations (Baker, 2006; Valdes & Figueroa, 1994). For example, if a child hears his or her parent crooning to a younger sibling in the child’s first language, Spanish, the child is more comfortable with hearing and imitating that crooning in Spanish during dramatic or “dress-up” time at school rather than in the child’s second language, English.

The milieu language strategies enable the teacher to provide the children learning English as a second language comprehensible input and the opportunity to draw upon and transfer their underlying language knowledge from their first language to English. The milieu strategies provide the teachers a systematic approach to helping the children acquire and use the surface features of English that may not directly transfer from the children’s first language to English. The strategies provide a framework for the teachers to help the children acquire language skills and transfer language knowledge the children may only have in their first language.

**Effective Teaching Strategies for Children Learning English as a Second Language**

There is little research examining the effectiveness of various teaching strategies to help young children become competent in English to communicate with teachers and peers, as well as to develop early academic skills. Several effective strategies that have been identified include using contextual language, repetition, and modeling extension and expansion. Contextual language refers to communicating about the here and now, about what
is occurring during an activity, the order of daily activities, or what the teacher is expecting
the children to do next (i.e., “Sophie is going to look out the window and tell us what the
weather is like outside.”). Using contextual language is also important for helping children
understand and acquire language (Copple & Bredekamp, 2006; Gleason & Ratner, 2009). It
is suggested using contextual language with children learning English as a second language
allows them to focus on the immediate situation or event and attach words in the new
language to what is happening (Greenberg & Rodriguez, 2009; Tabors, 2008).

Modeling language use through extension and expansion is one teaching strategy
teachers can use to provide children new vocabulary and instruction on sentence structure
(Greenberg & Rodriguez, 2009; Gleason & Ratner, 2009; Tabors, 2008). Extending language
occurs when the teacher or adult correctly rephrases an utterance made by a child (Gleason &
Ratner, 2009). For example, a child says, “Me going home” and the teacher rephrases, “You
are going home”. Expanding occurs when the teacher or adult includes more information in
their rephrasing of what the child had initially said (Gleason & Ratner, 2009). For example, a
child says, “Me car” and the teacher replies, “You have the blue car with a squeaky wheel”.

Finally, teachers repeating new vocabulary words is commonly cited by education
experts and researchers as one of the most important aspects for helping students who are
learning English as a second language to learn English (Facella, Rampino, & Shea, 2005;
Restrepo, & Gray, 2007; Tabors, 2008). Repeating new vocabulary can occur in many ways,
such as repeating a word a number of times during an activity or conversation, singing the
same song every morning, counting, or saying the alphabet (Facella, et al., 2005; Restrepo, &
Gray, 2007; Carlo, et al., 2004). Repeating selected vocabulary words provides opportunities
for children learning English as a second language to practice their emerging language skills
(Facella, et al., 2005; Tabors, 2008). It is through experiencing and hearing words multiple times across multiple activities that children learning English as a second language develop an understanding and mastery of the words (Greenberg & Rodriguez, 2009; Fountas & Pinnell, 1996; Restrepo & Gray, 2007). Engaging in routine activities is another form of repetition. During routine activities children are presented with the same or very similar phrases and words, which are often repeated during the activity and across days (Ferrier, 1978; Pretti-Frontczak & Bricker, 2004).

**An Important Language Skill for Children Learning English as a Second Language**

Conversation skills are important language skills, which are targeted by the strategies previously discussed and by milieu language strategies. Conversation skills are important for children learning English as a second language to develop for without having a strong foundation in conversation skills, it is difficult to interact and communicate with others, especially as preschool-aged children transition to elementary school.

Conversation skills, also referred to as discourse skills, are important for all children to develop (DeBruin-Parecki, 2008). Conversation skills center around the ability to use decontextualized language, talking about something or someone that is not immediately present or occurring. DeBruin-Parecki (2008) notes developing these language skills may be particularly challenging for children learning English as a second language since decontextualized language does not involve communicating about things or objects that are present in the immediate environment. Thus, decontextualized language demands the speakers have a large vocabulary with which to one can refer to objects and people that may not be immediately present.
Engaging in conversations helps children, especially children learning English as a second language, gain fluency in English (Restrepo & Gray, 2007). When children learning English as a second language engage in conversations with teachers or English speaking peers, they have an opportunity to experiment with their developing English language skills. It is through trying new communication skills that are both correct, and get the child’s point across, or incorrect and leads to the child receiving corrective feedback, that children learn the ways to appropriately use the new language. Talking and interacting with every child on a daily basis is considered a developmentally appropriate practice (Kostelnik, Soderman, & Whiren, 2004). While this recommendation may seem like common sense, the authors note it is easy to unintentionally overlook the children who demand less of the teacher’s attention, such as children who are quieter, more self-sufficient, or who are learning English as a second language.

Based on the importance of conversation skills, researchers have begun looking for possible language development strategies that will be effective with children learning English as a second language. One promising language-based teaching strategy is milieu language strategies. Milieu language strategies have been found to foster the language growth and use in children who have language delays (Hancock & Kaiser, 2002; Kaiser & Hester, 1994; Yoder, Kaiser, Goldstein, Mousetis, Kaczmarek, & Fisher, 1995). Children with language delays and children learning English as a second language have similar language needs, such as the need to be able to communicate with those around them, express needs and wants, and learn social communication skills, such as turn taking. These strategies have not only been shown to be effective, but to be learned easily by parents and teachers serving children in several different types of programs (Hancock & Kaiser, 2002; Kaiser, Hancock, & Nietfeld,
The strategies can be implemented within the context of ongoing classroom activities and with various classroom curricula. Milieu language strategies may benefit children learning English as a second language when implemented by their teachers to promote language growth and acquisition of communication skills that are crucial for school success and communicating with others.

**Definition of Milieu Language Strategies**

There are four milieu language strategies: model, mand-model, time delay, and incidental teaching. The milieu strategies are based on environmental arrangements which provide a foundation for teacher-child interactions. These strategies were developed originally by Hart and Rogers-Warren (1978) and have been further defined and conceptualized by others, including Kaiser, Hendrickson, and Alpert (1991), Warren, Yoder, and Leew (2002), and Hancock and Kaiser (2006).

Environmental arrangement of the classroom serves as the foundation upon which the other strategies are based. The environmental arrangements are based on two premises: (1) there are interesting materials in the classroom environment that the child prefers and is interested in, and (2) some of the materials are in sight but out of reach of the child, which necessitates the child to receive help from the teacher. These two premises are used with all four milieu strategies and can serve as the starting point for all of the milieu strategies, but are the main focus of the first two strategies.

The first milieu strategy, model, occurs when a teacher focuses on the object of the child’s interest, such as a toy, and establishes joint attention with the child around the object of interest. The teacher provides a verbal model, which is a statement, regarding the object of the child’s interest. When the child provides a correct response to the teacher’s model,
child is praised, his or her utterance is expanded upon, and if the object is out of the child’s reach, the object is given to the child. However, if the child does not provide a correct response to the teacher’s model, the teacher provides the correct response. If the child provides the correct response, the child is praised, or his or her utterance is expanded, and the object is given to the child. If, for a third time, the child does not provide a correct response, the teacher provides the correct response and gives the object to the child. This cycle of providing a model and corrective feedback until a correct response is given by the child or three attempts are made is referred to as the model procedure. Teacher praise serves to tell the child that his or her response was correct and encourage the child to attempt similar communication in the future.

The second strategy is referred to as the mand-model procedure. This strategy is used when the child is highly interested in the object and obtaining it and the teacher feels the child is likely to be able to respond correctly to the teacher. Again, the teacher focuses on the object of the child’s interest and establishes joint attention with the child regarding the object, such as a toy. The teacher provides a mand, either a complex question or statement, to the child regarding the object. If the child responds correctly, the child is praised, or his or her utterance is expanded, and if the object is out of the child’s reach, he or she receives the object. However, if the child responds incorrectly, the teacher presents the mand again, but only if the child’s interest remains high and is likely to answer correctly. If the child is losing interest or the teacher realizes the child is not able to provide the correct response to the mand, the teacher provides a model. If the child responds correctly to the second mand sequence, the child is praised, or his or her utterance is expanded, and receives the object if out of reach. If the child responds incorrectly, the teacher uses the model procedure.
The third milieu strategy is a time delay. Time delay refers to the teacher deliberately not responding immediately to the child’s request or a typical communication in order to encourage the child to communicate with the teacher. There are eight ways in which a teacher can create a time delay situation. The first two are used in the model and mand-model procedures (use of interesting materials and objects, and the materials or objects are in the child’s sight but out of the child’s reach). The third time delay strategy is sabotage, which occurs when a child is directed to complete a task requiring materials that the child does not have, thus encouraging the child to communicate to get the necessary materials. The fourth time delay strategy is violation of expectations, which occurs when the teacher deviates from the typical routine to do something silly to persuade the child to comment about it. The fifth strategy is when the teacher does something the child does not prefer to encourage the child to protest about it. The sixth strategy is referred to as difficult materials and occurs when the child is presented with materials that require assistance from the teacher and the child has to request assistance. The seventh strategy is referred to as multiple parts and occurs when the child is presented with a multi-step task but does not receive all the parts at the same time to complete the ask, thus, the child has to request the parts at each step. The eighth and final time delay strategy is choice making which occurs when the child is non-verbally presented with two or more choices and the child has to indicate a choice.

Time delay situations are all designed to encourage the child to ask the teacher for assistance. To use the time delay milieu strategy, the teacher first establishes joint attention with the child and then introduces or enters into one of the above time delay situations with the child. For example, during a small group art activity that requires scissors, but no scissors are at the table or are at the opposite end of the table from the child, the teacher has created a
sabotage time delay situation in which the child has to ask the teacher for the scissors in order to complete the art activity. The child requests assistance or needed materials from the teacher, if the child correctly requests assistance or materials, the teacher provides praise or expands the child’s utterance, and provides the assistance or materials requested. If the child does not correctly request assistance or materials, the teacher can use one of two linguistically less demanding strategies, the mand-model or the model procedure. The teacher would use the mand-model procedure if the child is highly interested in the material or object and is likely to request correctly the material or object. Or the teacher can use the model procedure if the child is losing interest or is not likely to correctly request assistance or the materials. Table 1 highlights situations that teachers can create to use time delay with the various milieu strategies.

The fourth and final milieu language strategy is referred to as the incidental teaching procedure. This strategy is the most linguistically demanding of the four milieu strategies and is used when the teacher wants to teach the child a complex communication or language skill. The teacher uses one of the other three milieu language strategy procedures to provide a framework teaching a complex skill. The teacher first establishes joint attention with the child and chooses one of the three milieu procedures. The teacher could use the model procedure to teach a new or more difficult language skill or to improve the child’s speech intelligibility. The teacher could use the mand-model procedure to teach a complex conversation skill. Alternately, the teacher could use the time delay procedure to teach the child to initiate, verbally or non-verbally, social communication behavior regarding objects or materials in the environment. Based on the milieu procedure chosen, the teacher is able to control the linguistic demands while teaching a new language skill.
The four basic milieu language strategies (model, mand-model, time delay, and incidental teaching) can be used to teach language skills in ongoing classroom activities. These strategies create opportunities for a child to be exposed to new vocabulary when the

Table 1

*Teacher Created Time-Delay Situations and Milieu Strategies*

<table>
<thead>
<tr>
<th>Situation</th>
<th>Model</th>
<th>Mand-Model</th>
<th>Time Delay</th>
<th>Incidental Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interesting materials</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Materials in sight, but out of reach</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sabotage</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Inconsistent with routine</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Against child’s preference</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Difficult materials</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Multiple parts</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Choice making</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Source: Kaiser, Hendrickson & Alpert, 1991

teacher expands on the child’s utterance and provides a language model to support the child in learning the correct grammar and turn taking rules of language. While these strategies have been shown to be effective in helping children with language delays improve their communication, these strategies also appear to have elements that may be helpful to children learning English as a second language. Children with language delays and children who are learning English as a second language differ in ease with which they can acquire
communication skills. However, both groups of children are similar in that they are required to acquire, comprehend, and produce language in a language immersion, an English only or dominant setting. The milieu strategies are systematic and helpful in providing the level and type of scaffolding that are important for children learning a language.

**Milieu Language Strategy Research**

Several studies have examined the use of milieu language strategies with children who have language delays. The studies examining the outcomes of milieu language strategy use have consistently found that the use of these strategies is effective for facilitating language use and growth in children with language delays (Hancock & Kaiser, 2002; Kaiser & Hester, 1994; Warren, Fey, Finestack, Brady, Bredin-Oja, & Fleming, 2008; Yoder, Kaiser, Goldstein, Mousetis, Kaczmarek, & Fischer, 1995). More recently, research conducted with children who have Autism has found milieu strategies to be effective in increasing their social communication skills. Considerable research has focused on the use of these strategies with much younger children, usually ranging in age from 9 to 15 months (Fey, Warren, Brady, Finestack, Bredin-Oja, Fairchild, et al., 2006; Warren, Bredin-Oja, Fairchild, Finestack, Fey, & Brady, 2006; Warren, et al., 2008; Warren, Yoder, & Leew, 2002; Yoder & Warren, 2002). None of the research conducted with young toddlers or preschoolers has followed the use of milieu strategies over the course of a school year or with children learning English as a second language.

Kaiser and Hester (1994) examined how teacher implementation of milieu strategies affected social communication between the teachers and peers of the six target children. The authors found that following teacher implementation of the milieu strategies, target children demonstrated longer mean length of utterances (MLU; used as an assessment of children’s
language development and productivity) and in the number of different words used regardless of their conversation partner (teacher, peer, or parent). When the teachers no longer implemented the milieu strategies, there was a decrease in the target children’s MLU. However, the children’s MLU were higher than prior the milieu strategy implementation. This stability and retention of higher MLU rates demonstrates there are lasting positive effects and benefits to children’s communication skills when milieu strategies are used with children who have language delays. In another study of children with moderate to severe disabilities, similar lasting results were demonstrated for children’s spontaneous communication with teachers and peers (Kaiser, Ostrosky, & Alpert, 1993).

In a larger, multi-state study of 36 children with language delays, Yoder, Kaiser, Goldstein, Mousetis, Kaczmarek, and Fischer (1995) compared the use of two language interventions, responsive interaction and milieu teaching during teacher instruction. The teachers received an average of six hours of training prior to implementing one of the two intervention strategies. The teachers received feedback on their use of the strategies and met weekly with a coach to discuss implementation and progress with the children. Yoder and colleagues (1995) found small differences in the children’s language use and growth based on the strategy teachers used with them. The changes in the children’s MLU, rate of utterances per minute, and the number of different words were similar across the two intervention strategies. However, these changes were slightly higher when the children received the milieu strategies, which demonstrate positive effects on children’s communication and language skills.

In a study of children with Autism, Hancock and Kaiser (2002) included four preschool aged children with Autism and language delays receiving early intervention
services. Early interventionists serving the families implemented the milieu strategies directly with the children. The children demonstrated increases in several communication skills, spontaneous social communication, turn taking behaviors, number of different words used, and MLU. Another study examined the effect of milieu strategies on the social communication of six children with Autism found milieu strategy use positively affected the children’s communication (Kaiser, Hancock, & Nietfeld, 2000). Kaiser and colleagues (2000) found there were gains in the children’s MLU, spontaneous speech, and the number of different words used when milieu strategies were implemented. The children demonstrated these gains across two settings, at home and in child care. This use of communication skills across the two settings demonstrates that the children were able to apply their acquired communication skills to different settings and communication partners.

These studies illustrate the benefits arising from the use of milieu language strategies. The children in the above studies demonstrated increases in their overall communication by increases in the length and number of utterances, the number of different words used, the number of spontaneous utterances, and turn taking behaviors. All the studies involved training teachers to implement milieu strategies, monitoring teacher implementation of the strategies, as well as assessing children’s language use before, during, and after completion of the interventions. As a result, all the studies had small sample sizes. While this study configuration is typical of intervention studies, it does limit generalization of the results to children with other language skill and learning needs. None of the studies examined if the use of milieu language strategies may be used as effectively with children learning English as a second language. To the best of my knowledge, this is the first study to examine the effectiveness of using milieu language strategies with children learning English as a second
language. It is expected that based on the positive results of these studies, the use of milieu language strategy with the children learning English as a second language. It is important to point out that children learning English as a second language as having a language delay or deficit, rather unique and varying levels of proficiency in two languages, which provides a wonderful opportunity to examine how the milieu strategies can be used to positively influence their second language acquisition.

**Theoretical Framework**

Two different theorists proposed two very similar theories to explain how language is learned in a first and second language context. Vygotsky emphasized the need for adults to scaffold during interactions with children when the children encounter a new idea or activity, which includes language. Krashen focused on the importance of starting with what the learner knows, “i” and building up from there, +1. Since both theories recognize the need to start with what the child or learner already knows and the role the adult or teacher plays in scaffolding the material, language, through interactions with the child or learner.

**Vygotsky**

Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory and subsequent additions to his theory are relevant to understanding the value of language-based teaching strategies. Aspects of Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory and later additions, such as, shared oral language, the zone of proximal development, and scaffolding, provide a context for understanding how language-based teaching strategies benefit and promote language acquisition and development in young children. Each of the three aspects of his theory support the use of language-based teaching strategies during interactions between adults or teachers and young children.
The first aspect of Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory was the importance of signs, which are socially generated and meaningful to users. Language is one sign, especially oral language and the ability to communicate through that language. Vygotsky (Goldhaber, 2000; Winsler & Berk, 1995) proposed that the purpose of oral language, and thus the need for it, was to interact socially and to share ideas and knowledge with others (Berk & Winsler, 1995). Thus, for one to be able to interact socially and share ideas and knowledge, one must first have sufficient command of the oral language to be able to accomplish this goal. Teachers can provide meaningful support through the use of language-based teaching strategies to children as they acquire the oral language necessary to interact socially with others and become adequate sharers of their own knowledge and question new knowledge and ideas. Since the current study focused on children learning English as a second language, it is important for teachers to use English in their interactions with children because English is a socially generated sign and is the expression of classroom and group learning opportunities in schools in the United States. It is through the socially generated and meaningful sign of oral English that teachers are able to transmit, or share, their knowledge to the children in their care and to help the children continue to acquire other socially generated signs prevalent in the United States’ culture necessary for academic success and assimilation within the larger cultural context. One way teachers can use oral language to transmit their knowledge to children is through language-based teaching strategies that focus on building up children’s knowledge and understanding of oral language skills.

A second aspect of Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory was the zone of proximal development. The zone of proximal development is the set of skills and
knowledge that a young child is just beginning to acquire and understand (McDevitt & Ormrod, 2010). However, within the zone of proximal development an adult, teacher, or more knowledgeable peer can provide the child assistance to complete a task that the child could not successfully complete on his or her own (McDevitt & Ormrod, 2010). The zone of proximal development represents what a child or learner is capable of doing but does not necessarily represent what the child or learner can already do or know. According to Berk and Winsler (1995), they suggest that based on Vygotsky’s theory, the zone of proximal development is dynamic because it portrays what children are capable of learning rather than static knowledge. Learning a second language is a dynamic process during which children learn the language through the help of their teachers and peers to be able to communicate with others. When a young child is presented with a task that cannot be completed without assistance or guidance, when given the necessary help and guidance, the child learns how to complete the task (McDevitt & Ormrod, 2010). Thus, through the assistance and guidance given to the child, the child is acquiring new skills and knowledge rather than being able to use skills and knowledge he or she already knew (Berk & Winsler, 1995). Consequently, teachers work a child’s zone of proximal development with the goal to stretch the child’s knowledge and skills to a new and higher level of ability and competence. Through language-based strategies, teachers guide young children’s acquisition of English so the children can communicate meaningfully with others. For children who cannot communicate their needs or wants, it is through the use of language strategies that the teacher is able to provide them with the help they need to acquire language because the children learning English as a second language may not have the necessary English skills and vocabulary to meet their own needs or wants.
The third aspect of Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory that is important in understanding the value and benefits of using language-based teaching strategies is scaffolding. Scaffolding occurs when the teacher or adult helps the child or learner figure out how to complete a task (McDevitt & Ormrod, 2010). The scaffolding could include the teacher breaking down the task into smaller more manageable steps, or giving a suggestion of how the child could complete the task, or the teacher repeating new words or concepts several times to a child who is struggling to understand or correctly use the word or concept. Scaffolding occurs during interactions in which the teacher uses a language-based teaching strategy because the teacher is aware of what the child currently knows or understands and adds onto that knowledge base. Through the use of appropriate language-based teaching strategies, children will be engaged with the task. When a learner is engaged in the task, he or she is more willing to accept the challenge of completing the task, especially when the interaction and support of the teacher is responsive to the child’s needs and abilities (Berk & Winsler, 1995).

Milieu language strategies target the three aspects of Vygotsky’s (Goldhaber, 2000; Winsler & Berk, 1995) theory, using the socially generated sign of oral language, working within the child’s zone of proximal development, and through the use of scaffolding or building upon what the child already knows and is capable or understanding or doing. Milieu language strategies are grounded in the use of oral language and the goal of the strategies is to promote the use of oral language by the child during supportive and responsive interactions with a teacher. Milieu language strategies focus on the current level of the child’s communicative ability and then stretch the child’s ability to understand and use slightly more complicated language. Finally, milieu language strategies scaffold the child’s
language use from the level they currently are communicating at to more complex language use and understanding.

**Krashen**

One of Krashen’s language acquisition hypotheses, input hypothesis, is very similar to Vygotsky’s scaffolding and zone of proximal development. Krashen’s i+1 hypothesis provides another lens for understanding the value of language-based teaching strategies. Most of Krashen’s hypotheses focused on second language acquisitions and how the environment influenced whether the language was naturally acquired through exposure or if the language was intentionally taught and consciously learned by the language learner (Ellis, 2008; Lightbown & Spada, 2006). The i+1 refers to what the learner already knows and what is just beyond that capability level (Lightbown & Spada, 2006). Thus, the “i” is similar Vygotsky’s zone of proximal development, what the child or learner is capable of doing or understanding and the +1 refers to the assistance and guidance that the teacher or adult provides the child or learner to build on what the child knows to reach a higher level of knowledge and ability.

Krashen (1982) states that the +1 input given by the teacher or adult should be contextualized language. Contextualized language is talking about the here and now, what is happening right now in the child’s or learner’s environment that he or she is aware of rather than talking about an event that occurred yesterday at Grandma’s house with the child’s or learner’s grandfather (Krashen, 1982). Krashen (1982) describes the importance of the teacher or adult using contextual language when talking with a child or learner because contextual language is of “mutual interest” to both the teacher and child (p. 217). Consequently, language-based teaching strategies should focus on contextual language that is
at and slightly above the language level of the child or learner. All of the milieu language strategies focus on activities and situations that are currently happening between the teacher and the child, thus creating that language of mutual interest and engagement needed to promote language learning by the child.

Another point of Krashen’s (1982) input hypothesis is that the language input given by the teacher to the child does not have to always perfectly match what is slightly beyond the child’s current language knowledge and ability. Krashen (1982) argues that even when the language input is beyond what the child may currently understand or learn through listening, the child is building his or her receptive language skills and that the oral language skills will come later. In addition, when the teacher talks beyond the child’s current level of language ability, the language structures that are slightly beyond the child’s ability level are present in the teacher’s language. Therefore, even though the child or learner may not be able to respond to a teacher’s use of a language strategy or question, the child is still learning language and building upon what he or she already knows and is capable of understanding (Krashen, 1982). However, it is important to note that not all the children in a teacher’s care are going to need the same i+1 language input. As a result, the teacher should try to adjust his or her language use to match the individual child’s language level when directly interacting with that child, but to also use language that is beyond some of the children’s language ability levels in order that the other children in the classroom can also receive meaningful language input that will build their language knowledge and use (Krashen, 1982). The milieu language strategies focus on the individual, direct interaction between the teacher and a specific child rather than focusing on the whole class. However, the milieu strategies can be
used with children of any language level because the language used by the teacher during the interactions can be matched to child’s specific language abilities.

**Summary**

Both Vygotsky and Krashen had similar theories on the type of language input and guidance that children or young learners need when learning a language, either a first or second language. Both theorists stressed the importance of knowing each child’s current language abilities and what is just beyond that language ability level so the teacher can target his or her language use to be at and just beyond the child’s language level. Both theorists pointed out that the teacher or more experienced and knowledgeable adult plays a vital role in helping each child learn, for it is the adult who adjusts his or her language use to meet the child’s language abilities and capabilities. Through the use of milieu language strategies, teachers are able to meet each child’s language learning needs while both the child and teacher are engaged in interesting activities and interactions.

**Research Questions**

Three research questions were addressed in the current study:

Research Question 1: Can teachers implement milieu language strategies with fidelity in the classroom when given ongoing feedback and coaching?

Research Question 2: Do milieu language strategies impact positively language growth for children learning English as a second language?

Research Question 3: What are teachers’ perceptions regarding the effectiveness of milieu language strategies for children’s language growth?
CHAPTER 3. MATERIALS AND METHODS

Overview

A slightly reversed order describing materials and methods is used. The order of measures, procedures and methodology, and research location and participants is meant to build upon each to enhance understanding of the results. Therefore, the measures used to collect data are described first. Then the procedure for collecting the data is discussed, which includes an in-depth discussion of the methodology used. Finally, the research location and participants, both the teachers and the children, are presented. Detailed information about the participants is given because knowing how the teachers and children interacted in the classroom is important in understanding the results, especially of the children’s language use.

Measures

One measure was designed to assess the fidelity of the teachers’ milieu language strategy implementation, the Milieu Language Strategy Intervention Implementation Checklist. This checklist was used to determine the teachers’ level of fidelity in implementing the strategies on a weekly basis. A copy of the checklist can be found in Appendix A.

Several measures were used to assess the children’s language growth over the course of the year. One set of measures, the Bracken Basic Concepts Scales (BBCS III; Bracken, 2006), was used to determine the children’s expressive and receptive English language skills at the beginning and ending of the school year respectively. The Picture Naming Individual Growth and Development Indicator (University of Minnesota, 2006), was used weekly to assess changes in the children’s expressive (productive) skills. Mean length of utterances was also collected, but due to constraints in the number of times the child and teacher interacted
on a weekly basis, there was insufficient data to examine trends in the children’s spontaneous expressive language through mean length of utterances.

**Milieu Language Strategy Intervention Implementation Checklist**

During the observations, a milieu language strategy intervention implementation checklist was completed weekly to determine the level of fidelity with which the teachers implemented the milieu strategies. The checklist included items such as, does the teacher provide an appropriate number of prompts, does the teacher provide the child with the object after implementing the strategy, and does the teacher provide adequate time for the child to respond to the milieu strategy prompt (See Appendix A). The items on the checklist were designed to be interrelated with each other, rather than build upon each other. The items on the checklist reflect basic similarities and prerequisites for effective interactions between the teacher and the child. For coaching purposes, the teachers had to achieve a minimum of 80% of the checklist. If teachers scored below 80%, they received coaching during the next strategy implementation session. The coaching consisted of reminding the teacher of the various strategies they could use, how the strategies can be embedded, and helping them figure out when and how they could use one of the strategies with a target child. Results from the checklist were shared with the teachers on a weekly basis or as necessary to give them performance feedback on the quality of intervention implementation. Feedback and coaching was based on the scores and observation of the implementation of the strategies by the teacher on a weekly basis or as needed to maintain fidelity of strategy implementation.

**Bracken Basic Concepts Scales**

The Bracken Basic Concepts Scales, Third Edition (BBCS III; Bracken, 2006) includes assessment of basic concepts that are related to school readiness along with an
assessment of expressive language for children ages 3-0 to 7-0. The Bracken Basic Concept Scales were chosen because they focus on the language needed in kindergarten and provide an English-speaking normative sample with which to compare study children’s language scores. The Bracken Basic Concept Scales were administered in the fall and again in the spring to determine language growth during the school year by the study children. The Bracken Basic Concept Scales were administered by the researcher. The scale contains several subscales, measuring 282 school related concepts (i.e., numbers, time, distance, colors, and the alphabet), and is available in English and Spanish. Only the English version was used because the researcher was not fluent in Spanish to conduct the Spanish version of the assessment. The entire scale (including school related concepts and expressive language) takes 30-35 minutes to complete (10-15 minutes for school related concepts and 20-25 minutes for expressive language). Internal consistency for the BBCS III, measured using the Split-Half procedure, had a total composite $r = .98$ for school related concepts, and total composite $r = .97$ for expressive language. Test-retest showed total composite $r = .94$.

Similar reliability scores were indicated for children with language disorders and those who were typically developing (Bracken, n.d.). The scale also correlated at moderate to high levels with other assessment scales used with young children; $r = .67$ to $88$ with the PPVT, and $r = .61$ to $.77$ with the PLS-4, and $r = .91$ with the Binet IV, and $r = .85$ with the WPPSI-R (Braken, n.d.).

**Picture Naming Individual Growth and Development Indicator**

The Picture Naming Individual Growth and Development Indicator (IGDI; University of Minnesota, 2006) is an assessment used with children ages 3-5 to measure expressive communication. It was administered to each child individually weekly by the researcher by
showing the child a series of pictures of objects found in their natural environments, such as ball, train, fish, belt, banana, and orange (Missall, McConnell, & Cadigan, 2006). The assessment was first demonstrated to the child using four pictures, an apple, a baby, a bear, and a cat. After the four pictures had been shown to the child, the child was told to name the presented pictures as quickly as possible during one minute. The number of correctly named pictures in English within the one minute was the child’s score (Missall, et al., 2006). One study has examined the technical adequacy of the Picture Naming Individual Growth and Development Indicator. In a study of 23 children learning English as a second language and of children whose first language is English, Nitsiou (2006) found the Picture Naming Individual Growth and Development Indicator to be a valid and reliable measure of the children’s expressive language skills.

Benchmarks for the Picture Naming Individual Growth and Development Indicator have been developed and are available for registered users on the University of Minnesota Individual Growth and Development Indicator website – Get It, Got It, Go (ggg.umn.edu). Teachers can input their data and compare the intercept and slopes with typically developing children. They can then determine if a child has met the benchmark, a normative reference point that is expected of typically developing children. More importantly, the growth trajectories can demonstrate if meaningful progress is being made toward desired outcomes, even if a child has not met the established age benchmarks. Knowledge gained from examining children’s growth can be used to evaluate and improve outcomes for children. Teachers can generate reports for an individual child or groups of children to determine how classrooms of children are progressing to evaluate instruction or intervention efforts through the use of the Get it, Got it, Go website.
**Procedures**

Teachers were trained in the milieu strategies on a weekly basis for five weeks. During and following the training sessions, the teachers received coaching and feedback on their implementation of the strategies. Coaching and feedback were based on weekly classroom observations that occurred during center time. In addition to the weekly observations, both quantitative methods and qualitative methods were employed to collect and examine the data. A mix of both methodologies was used to provide a deeper understanding of the data and how the teachers used the milieu language strategies and impact of the strategies on the children’s language growth. Without using both methodologies, this fuller and more complete understanding and picture of the usefulness and influence of the strategies would not have been possible.

**Teacher Training**

Teachers received weekly training for five weeks near the beginning of the study by the researcher. Trainings were held in an empty classroom at the Head Start program at the end of the school day for about 45 minutes. The training sessions started three weeks into the study due to the quantitative methodology design requirements.

Each training session focused on a different milieu strategy, starting with the foundational strategies and building up to the more complex strategies, such as the incidental teaching strategies. The training sessions included a short PowerPoint presentation with the strategies, several written examples of the strategies, and several short video clips of the strategies being used with a young child. See Appendix B for a sample of the training materials. At the end of each training session, the researcher helped the teachers brainstorm ideas about how and when they could implement the strategies with the target children during
the upcoming week. The training sessions were also opportunities for the teachers to ask questions and share how implementing the strategies had worked for them during the prior week within a supportive group environment and get more ideas from each other. Following the first training session, the teachers began receiving coaching and feedback regarding their strategy implementation with the target children to ensure the fidelity of strategy implementation. Teachers did not begin implementing the strategies with all three target children at the same time; strategy implementation was staggered across the three target children. The coaching model proposed by Hanft, Rush, and Shelden (2004) was used to provide the coaching and feedback to the teachers on a weekly basis during the training period and then weekly or as needed once the weekly training sessions had been completed.

**Teacher Strategy Implementation Coaching and Fidelity**

The coaching model that was used in this project was based on the work by Hanft, Rush, and Shelden (2004). The coaching model was used to provide feedback to the teachers on their strategy implementation, which provided fidelity to the strategy implementation. The coaching model of Hanft et al. (2004) was designed to address important issues in early intervention, and was based on the concept that the process is interactive and reflective, and the relationship between coach and learner is collaborative and nonjudgmental. Elements of the coaching process include Initiation (identify purpose and outcomes of coaching), Observation (coach observes learner in typical practice, learner engages in self-observation), Action (coach models skill, learner tries out new skill), Reflection (coach provides feedback and assists the learner to understand what he/she already knows or needs to find out, reviews accomplishments), and Evaluation (review the coaching process). Hanft et al. (2004) provide
worksheets and questions to use for each component for guidance in correctly implementing the coaching model.

This coaching model includes important elements to help experienced early childhood teachers apply new skills and provides for flexibility to address the individual needs of each learner. In addition, the coaching model of Hanft, Rush, and Sheldon (2004) coaching includes similar processes to coaching models that have been shown to be effective in educational settings (Hasbrouck & Christen, 1997; Paulson & Pugach, 1996; Miller, 1994; Wolfe & Snyder, 1997).

The schedule of the feedback and coaching was based on weekly observations. The teachers were observed typically for 30 minutes weekly to assess their implementation of the milieu strategies. Thirty-minute time intervals were usually the length of the “center time” portion of each classroom’s daily schedule. Also, during center time several different activities were occurring in the 30 minute time frame, which provided the teacher and the target three children several opportunities to interact and for the teacher to implement milieu strategies with the target children.

Quantitative Methods

Multiple baseline single case design. Single case study design is a quantitative design method used frequently to determine the effectiveness of an intervention. Single case design is used to demonstrate the behavioral changes, such as language growth, over time (Kazdin, 1982; Riley-Tillman & Burns, 2009; Steege, Brown-Chidsey, & Mace, 2002). To be able to demonstrate changes in a behavior, baseline data have to be collected and compared to data collected during and after the implementation of an intervention (Kazdin, 1982). Baseline data, typically a minimum of three data points, provides a sample of the behavior
that is currently occurring and at what frequency. With baseline data, future performance can be predicted to determine how the behavior would change over time if no intervention were implemented (Kazdin, 1982). This is important because the prediction line, which is based on the baseline data, serves as the basis for comparing the effectiveness of the intervention to what the likely behavior growth and frequency would have been without the intervention.

A multiple baseline single case design was selected for this study as the most effective method to examine closely the relationship between changes in an independent variable (teacher use of milieu strategies compared to typical instruction) and dependent variables (child expressive communication). See Figure 1 for an example. Multiple baseline single case design also allows for easy assessment of the effectiveness of the milieu strategies on the children's language growth and development over the entire school year. Within a multiple baseline single case design one form of data was collected and used to assess language growth and development, the Picture Naming Individual Growth and Development Indicator (University of Minnesota, 2006). Only one form of data is collected because the assessment data must be collected frequently, often daily to weekly, to be able to plot the data and determine the impact on the target behavior. Thus, the assessment must be one that can be repeated within short intervals of time. Consequently, the Picture Naming Individual Growth and Development Indicator was used since it can be used frequently to assess small changes in expressive language skills. A description of the administration instructions can be found in Appendix C and a description of the Picture Naming Individual Growth and Development Indicator was discussed in detail earlier.

In a multiple baseline single case design, the first step is to collect baseline data points. Three baseline points were collected of the children’s picture naming skills. The
collection of the baseline data required 3 weeks. Once baseline data were collected, the teachers began receiving training on the milieu strategies and implementing the strategies with one of the three target children in their classrooms. Two of these three children were learning English as a second language and the remaining child was a native English speaker. One child out of the three from each classroom was randomly selected to be the first child to receive the milieu strategy intervention after the baseline phase. The other two children in the classroom who have been selected based on the selection criteria continued to be assessed weekly but did not immediately receive the milieu language strategy. The three children began receiving the milieu language intervention serially at different points in time during

![Figure 1](image)

*Figure 1.* Example of multiple baseline single subject data with the horizontal dotted line indicating the percentage nonoverlapping data line, the vertical dotted line indicating the baseline, which separates the baseline phase (no intervention implementation) from the intervention phase. Disruptions in a colored line (i.e., green and purple) indicate missing data.
the school year. After the teacher had learned and begun implementing the milieu strategies with the first target child, the teacher began implementing the milieu language strategy intervention with the next child who was randomly chosen to receive the intervention second, followed by the third child.

**Analyses of multiple baseline single case data.** Two different analyses were conducted on the multiple baseline single case data, visual analysis and percentage of non-overlapping data points. These two analyses were conducted as visual analysis is the common method for determining the impact of an intervention on a target behavior. The percentage of non-overlapping data was used because it corresponds to effect sizes typical in quantitative methodology to determine the effectiveness of a treatment on an outcome. In visual analysis, the plotted data are examined for evidence of a pattern, an increase, a decrease, or a stable line (Riley-Tillman & Burns, 2009). In the current study, an increase over the plotted data was desirable as it was hypothesized that the children’s language would grow over time. However, it was expected that there would be a steeper growth trajectory with the intervention that would normally occur without the intervention. The second analysis conducted on the multiple baseline single case data was the percentage of non-overlapping data, which is used when an increase in the target behavior is expected. To calculate the percentage of non-overlapping data, the baseline data points are examined to determine the highest number obtained (Riley-Tillman & Burns, 2009). This highest number is used as the cut-off value for the data obtained during the intervention phase (Riley-Tillman & Burns, 2009; See Figure 1 and Appendix D). The total number of data points during the intervention phase is added and then divided by the number of data points that exceeded the cut-off value, which results in a percentage (Riley-Tillman & Burns, 2009). The percentage
value is compared to percentage levels to determine the effect of the intervention on the target behavior. Scruggs and Mastropieri (1998) have identified effect sizes based on the percentage of non-overlapping data with below 50% as an ineffective intervention, 50-70% a slight or questionable intervention effect, 70-90% as an effective intervention, and above 90% as a highly effective intervention.

**Reliability.** The Picture Naming Individual Growth and Development Indicator assessments were video-recorded to check administration reliability. Video recording the assessments was chosen because of the distance to the Head Start program, the likelihood that a colleague would not have the same time flexibility and availability in traveling to the program, and also because there will be no compensation for the colleague for time spent completing the reliability checks. Thirty percent of the Picture Naming Individual Growth and Development Indicator (University of Minnesota, 2006) assessments were selected for reliability checks. Two colleagues were trained on the administration protocol of the assessments before scoring the assessments for reliability checks to ensure the assessments had been correctly administered and to ensure the scoring of the assessments had been correctly. The colleagues also completed reliability checks on 30% of the Bracken Basic Concepts Scales (BBCS III; Bracken, 2006) administered. Reliability ranged from 72% to 100% with an average reliability of 98% on the Picture Naming Individual Growth and Development Indicator. Reliability on the Bracken Basic Concept Scales ranged from 82% to 100% with an average reliability of 96%.

**Qualitative Methods**

**Case study.** A qualitative case study methodology (Merriam, et al., 2002) was used to evaluate the teachers’ perceptions about the implementation of the milieu strategies, as
well as their perceptions of the effectiveness and impact of the strategies on the target children’s language growth. A case study approach focuses on a bounded case which leads to an understanding of the meaning and perceptions of a specific experience or phenomenon (Creswell, 2007; Merriam, et al., 2002). For this study, the focus was the phenomenon of three Head Start teachers learning and implementing the milieu language strategies.

According to Tellis (1997), one application of a case study design is to describe an actual setting in which an intervention has been introduced and implemented. A second application is to describe the intervention that was introduced (Tellis, 1997).

The three Head Start teachers participated in one focus group and two individual interviews. The focus group and individual interviews occurred over the course of the school year. The first focus group occurred in October and two weeks later the milieu language strategy intervention was introduced to the teachers. This first focus group explored what instructional strategies the teachers were currently using, the number of children in the classroom, and which children met the selection criteria. In late February, the teachers participated in an individual interview during which the teachers were asked to discuss the progress each of the three target children’s language growth to date. The teachers were presented graphs of the children’s Picture Naming Individual Growth and Development Indicator data and then asked to discuss how these data correspond to their personal perceptions of the target children’s language growth.

At the end of the school year in May, the teachers participated in a second individual interview. During this interview, the teachers revisited and continued the discussion from the previous interview regarding their perceptions of the milieu strategy intervention and their perceptions of the impact of the intervention on the children’s language growth during the
entire school year. Teachers were also asked to discuss their perceptions of the effectiveness of milieu language strategies as an instructional tool that can be used with children learning English as a second language and if they intended to use the strategies again in the future with other children.

Within the case study design, data from the focus groups and individual interviews were analyzed and coded for themes using within-case and cross-case analyses. Within-case analysis is when the data from each case, such as the individual interviews, is analyzed as a whole and not compared to the data from the other teachers or the focus groups (Creswell, 2007). Themes were extracted from each case, each teacher in this study, that related to the research questions. A theme is an important concept that emerges from focus group or individual interview data (Lichtman, 2006) and is common to all the cases examined in a case study (Creswell, 2007). Cross-case analysis occurs when the data from the three teachers’ individual interviews and focus groups are compared across the cases for similar themes (Creswell, 2007). The themes from within-case and cross-case analyses were then compared for similarities and differences which was the basis for answering the research questions (Creswell, 2007). Themes pertaining to the teachers’ perceptions of the milieu strategy intervention and the impact of the strategies on the children’s language growth were the focus. As data analysis progressed, other themes and sub-themes that emerged from the data that related to the teachers’ perceptions were examined and incorporated, as applicable, into the overall themes relating to the research questions. See Appendix E for examples of the opening coding process used to identify themes and Appendices F and G for examples extracted from the transcripts for themes and sub-themes.
The focus group and individual interviews were audio recorded and transcribed for analysis. The focus group transcript was 16 pages long single spaced and the individual interviews ranged from one to three pages each single spaced. The transcripts of focus groups were compared with each other for common themes relating to the teachers’ perceptions of effectiveness and the impact of the milieu strategies on the target children’s language growth and the teachers’ implementation of the strategies using the constant comparison method.

**Trustworthiness and rigor.** Within a case study approach, the trustworthiness and rigor of the data were checked using several strategies. The first strategy was triangulation. Triangulation within a case study involves the use of multiple data sources and data collection methods (Creswell, 2007). For this study, the multiple sources and data collection methods included: multiple baseline single case data, a focus group, and individual interviews. A second method of rigor that was employed was member checks. A member check is when the researcher returns to the participants several times during the study to review the accuracy of the initial data analysis and themes (Creswell, 2007). For this study, informal member checks were used, which consisted of discussing with the teachers, on a weekly basis, about their perceptions of the strategies and hearing stories from the teachers of how the strategies had been implemented the previous week.

A third means of trustworthiness was prolonged involvement in the data collection and analysis processes. Prolonged involvement is when the researcher spends a sufficient amount of time interacting, observing, and talking with the participants followed by spending adequate time reviewing, reflecting on, and analyzing the data (Merriam, et al., 2002). Within a case study approach, prolonged involvement with the participants and their environment is essential for understanding their perceptions and experiences (Stake, 1994).
and leads to a better understanding and awareness of the experience of the participants
(Bloomberg & Volpe, 2008). For the current study, one academic school year was spent with
the teachers and the classrooms. Following the time spent with the teachers, many months
were spent reviewing and reflecting on the data. Reflecting on the data during and following
the data collection process is important for the researcher to remain critical of the data while
being open to new themes or concepts in the data (Lichtman, 2006).

**Researcher background.** Within a case study methodology, it is important to
identify what the background of the researcher is and what strengths and limitations the
researcher brings to the study and qualitative analyses. Identifying these characteristics of the
researcher creates a framework for others to understand how the researcher reached the
conclusions and findings of a study.

I am a graduate student who is interested in how the use and knowledge of language
colors our interactions, learning opportunities, and experiences. I believe that everyone has
the potential to learn how to communicate with others in the environment and that potential
is influenced by the experiences and the opportunities presented by others in the
environment. I believe that no one should experience limits to their world based on their
language skills or abilities. I have observed, and personally experienced, how perceived and
actual language skills of an individual positioned him or her in society with interaction
partners, and how these skills are often used as a representation of the capabilities,
intellectual and other, of that person.

As a graduate student, I have spent time working with children and adults who were
learning a second language and have witnessed how others treat that second language learner
as a result of their language abilities in the second language. I have spent time observing in
Head Start classrooms and working with Head Start teachers for other research projects. I have also spent time observing and working in preschool classrooms in which there was considerable diversity in language and abilities.

My research will be both strengthened and limited by my experiences and perceptions of second language learning. My research is strengthened because I understand and appreciate the value language has for those who are able to use it, especially those who are immersed into a second language environment. My research was also strengthened because I have experienced and witnessed the acquisition of a second language. My research was limited because I am a Euro-American woman who has not had to learn to live within a second language environment. A second limitation was that I have not had to instruct children learning English as a second language on a daily or yearly basis.

**Participants**

One Head Start program in Iowa was contacted by the researcher to participate in the study. The Head Start program policy council gave their written approval and agreement allowing the research study to occur in this particular Head Start program during the 2009-2010 school year. At the beginning of the study, teachers signed a consent form and consents were obtained from all of the children’s parents in each classroom, as the classrooms were video recorded weekly during the study. Prior to beginning each assessment, each child was verbally asked if they wanted to participate in the assessment. Pseudonyms are used throughout to protect the confidentiality of the participating teachers and children.

The Head Start program has 7 classrooms that served 107 children during the previous school year, 2008-2009. Of those children from the previous school year, 79% were
from families who were below the poverty line. None of the teachers spoke a language other than English, all of them were Euro-American females, and each had at least an A.A. degree.

**Teachers.** Three teachers participated in the project. All three teachers were female, of Euro-American decent, and did not speak a language other than English fluently. Each teacher and her classroom will be described to give context to understand the children, implementation of the milieu strategies, and teachers’ views of using the strategies.

**Sarah.** Sarah had been teaching for Head Start for 12 years prior to the beginning of the study. She also had taught second grade prior to teaching at Head Start. During the 2009-2010 school year, Sarah’s classroom had 18 children who were around the age of 4. All of the children in her class were eligible to enter kindergarten the following school year. Of the 18 children in her classroom, 1 child spoke English as his first language and the remaining 17 spoke a language other than English as their first language. Most of these children spoke Spanish as their first language; however, other languages included, Lao, Vietnamese, and Micronesian. Of these children, at least 2 had had no prior exposure to or experience with English. Sarah did not feel comfortable using her limited Spanish with the children in the classroom. She used Spanish primarily at the beginning of the year when she felt the children were not understanding what she was asking or directing them to do, but she would occasionally use Spanish during the year when she felt it was needed. Sarah had a classroom assistant who played an active role interacting with the children and leading activities, including small group time. The classroom assistant was not fluent in a second language and tended to use very little of the Spanish phrases or words the teachers had been given to assist in communicating with the children.
**Kim.** Kim had been teaching for Head Start for 16 years before the beginning of the study. During the 2009-2010 school year, Kim had 18 children who were around the age of 4, two of whom spoke English as their first language. The first language of most of the remaining non-English speaking children was Spanish; however, other languages included Lao, Hmong, and German. Of these children, at least 3 had had no prior exposure to or experience with English. All of the children in Kim’s class were eligible to enter kindergarten the following school year. Kim and her classroom assistant did not speak a second language and they did not feel comfortable using Spanish phrases they have been given to communicate with the Spanish-speaking children in the classroom. At the beginning of the year Kim would occasionally use some of the Spanish phrases to communicate with the children.

**Julie.** Julie had been teaching at Head Start for 11 years prior to the beginning of the study. During the 2009-2010 school year, Julie had 18 children who were around the age of 4. Most of the children she had in her class were eligible to enter kindergarten the following school year. Of the 18 children in her classroom, 1 child spoke English as her first language and the remaining 17 spoke Spanish as their first language. Of these children, at least 2 children had had no prior exposure to or experience with English. Unlike the other two teachers, Julie felt very comfortable using her limited Spanish with the children in the classroom throughout the school year. Julie also had a classroom assistant who played an active role interacting with the children and leading activities, including small group time, but did not use any Spanish with the Spanish speaking children.

**Children.** Nine children participated in the study; three children were in each of the participating teachers’ classrooms (See Table 2). In each classroom, two of the three children
were learning English as a second language and the third child was a native English speaker. An English-speaking child was included to compare the language intervention results to the results of the children learning English as a second language. No preference was given to the first language of the children learning English as a second language; however, all of the children learning English as a second language who participated spoke Spanish as their first language. All three targeted children in the classrooms received the milieu language strategy intervention. A single case research design is an effective method for measuring change over time in language growth in a small sample.

Table 2

*Configuration of Teachers and Children by Classroom*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spanish-speaking (L1)</td>
</tr>
<tr>
<td>Sarah</td>
<td>Megan, Erin</td>
</tr>
<tr>
<td>Kim</td>
<td>Paul, Susan, Scott</td>
</tr>
<tr>
<td>Julie</td>
<td>Katelyn, Anna, Joann</td>
</tr>
</tbody>
</table>

The two children learning English as a second language had to meet the selection criteria to participate in the study. The selection criteria were: (a) the child has no or limited English spoken in the home prior to entering Head Start, (b) the family at home continues to use their primary language on a daily basis, and (c) the child has not been identified as
having a disability or currently on an IEP. The teachers identified the children who met this selection criteria and were chosen. In two of the classrooms, the entire pool of possible children who met the selection criteria consisted of two children, thus they were all included. In the third classroom, there were three possible children who met the selection criteria, two of whom spoke Spanish and a third child who spoke Sudanese. The two children who spoke Spanish were chosen to be included in the study so there would be consistency across the classrooms based on the children’s first language.

**Target children in Sarah’s classroom.** The three target children in Sarah’s classroom were: Megan, a native Spanish speaker, Erin, a native Spanish speaker, and David, a native English speaker.

*Megan.* Megan was a native Spanish speaker in Sarah’s classroom. At the beginning of the school year, Megan was a quiet but spunky child. She would interact with both of the teachers and her peers, regardless of their language background and skills. She heavily relied on gestures and head nods to convey what she wanted. She also had a hard time deciding what area to play in during center time and often spent center time wandering from center to center. During the year she became curious in print and writing. By the end of the school year she enjoyed copying the sentence of the day onto a small whiteboard. She would take great pains to write every letter and word neatly and correctly. Also by the end of the school year, she would not only initiate play interactions with her peers but she would also direct the play and usually always in English even if she was playing with a group of girls who all had Spanish in common. Her peers would frequently seek her out and ask her to join into their play or work activities during center time.
Erin. Erin was a Spanish speaker in Sarah’s classroom. Throughout the school year, Erin was an extremely quiet and socially withdrawn child. She would rarely interact with either teachers or her peers, regardless of their language background and skills. She did not rely on gestures and head nods to convey what she wanted during the school year. She also had a difficult time deciding what area to play in during center time and would usually wander from play area to play area, even if one of the teachers tried to interest her in a play area or activity. However, once she discovered the reading corner in mid-fall, this area became her favorite place to stay for the entire center time period. She would usually look at books by herself or with a peer or teacher. About mid-way through the fall, she became friends with another little girl from an Asian background who was similar to her in being reluctant to take the initiative during social interactions. However, Erin’s playmate was more outgoing with the teachers and peers compared to Erin. Over the course of the year, if Erin’s friend wanted to do something, Erin would usually tag along and become involved in the activity but usually would not interact verbally with the other children engaged in the play or activity. If Erin’s friend was absent, Erin would wander incessantly from play area to play area for the duration of center time. By the end of the school year Erin would occasionally reply to a question asked her, but she would speak in a whisper.

Brian. Brian was a native English speaker in Sarah’s classroom. Brian was a rambunctious, talkative boy regardless of whether someone was willing to listen to him talk. Since, he was the only native English speaking child in the classroom, he had no option but to interact with his classmates and peers who did not speak his primary language. When he interacted with the other children in the classroom, he would often initiate and direct play-based interactions. He would often play in the block area, or puzzles, or tractors with the
other children. When he talked with one of the teachers or adults in the classroom, his speech included many details and descriptive words. Throughout the year he would play along with several peers in the block area making up dramatic play plots or with puzzles. He also enjoyed playing the various computer games allowed during the center time or watching and helping a peer playing a computer game.

**Target children in Kim’s classroom.** There were three target children in Kim’s classroom, Paul, who was a native Spanish speaker, Scott, a native English speaker, and Susan, a native Spanish speaker.

*Paul.* Paul was a native Spanish speaker in Kim’s classroom. Paul was quiet and shy, but always found a way to make his interactions with adults into an amusing game. He enjoyed playing by himself, especially at the art center. He was continually drawing pictures, which usually consisted of shapes and lines or something that was being taught at school that day, such as pumpkins. His teacher realized several weeks into the school year why she needed to restock the paper supply at the art center at least once daily; he would end up taking most of the paper supply home with him every day filled with his pictures. He was an easy-going boy who would not quickly disagree with his peers about whose materials were whose, especially as most of the children had been expected to bring their own colored markers with them at the beginning of the school year. He usually did not initiate play interactions with his peers, preferring to observe his peers’ play or draw at any opportunity provided to him. By the end of the year, Paul was more out-going, but he showed a preference for peers who also spoke Spanish as their first language. He would interact with peers who spoke English as a first language; however, these interactions were usually short
and more of an invitation to join him in what he was playing with or doing or to come and see what he was making or doing.

Scott. Scott was an English speaker in Kim’s classroom. Scott was a shy but talkative boy if someone was willing to listen to him. He preferred interacting with English-speaking peers and adults over peers who spoke English as a second language. His preference severely limited the number and duration of his peer interactions because he was one of two children in Kim’s classroom who spoke English as their first language. Scott would often interact with the English speaking peer, a little girl, to the exclusion of the other children of the classroom. During the year, Scott slowly began interacting more with the other children in the classroom; this change may have been because he had learned more peer social interaction skills or because the other children had gained sufficient English skills for him to perceive them as desirable play partners. By the end of the school year, Scott interacted frequently and for extended periods of time playing with a peer who was learning English as a second language. During the school year, Scott began learning how to read and was interested in figuring out letters and words, which might have also contributed to his desire to play alone or with other children who spoke English or at least spoke English well.

Susan. Susan was a Spanish speaker in Kim’s classroom. Susan was an out-going, friendly, well-liked by classroom peers, especially peers who also spoke Spanish. Susan often initiated play interactions with other peers who spoke Spanish. At the beginning of the year, Susan preferred interacting and playing with Spanish speaking peers over peers from other language backgrounds. Throughout the year, most of her play interactions, either by herself or with a peer, were often fantasy based involving a considerable amount of imagined plots. Many of her plots included animals and heroes. While her interest in fantasy play
continued, by the end of the year she was interacting more frequently with peers who spoke English as a first language rather than maintaining her preference for peers who spoke Spanish.

**Target children in Julie’s classroom.** The three target children in Julie’s classroom were: Katelyn, a native Spanish speaker, Anna, a native English speaker, and Joann, a native Spanish speaker.

*Katelyn.* Katelyn was a native Spanish speaker in Julie’s classroom. At the beginning of the school year, Katelyn was a quiet child. She would interact with both of the teachers and her peers, regardless of their language background and skills, but preferred her Spanish speaking female peers. She heavily relied on gestures and head nods to convey what she wanted, especially at the beginning of the school year. She would often initiate a play-based interaction with one other Spanish speaking girl. She thoroughly enjoyed dramatic play, which has a high demand for language and social interaction. She enjoyed playing various roles with her preferred Spanish speaking peer. By the end of the school year, she would initiate and lead group play interactions by giving directions about whose turn it was, who was next in interaction. These group interactions were usually always in English even if she was playing with a group of peers who all had Spanish in common. Her peers would frequently seek her out and ask her to join their play or work activities during center time.

*Anna.* Anna was a native English speaker in Julie’s classroom. Anna was a quiet and helpful girl but socially outgoing if someone was willing to listen to her talk; otherwise, she played and worked mostly by herself. Since she was the only native English speaker in the classroom, she had to interact with non-English-speaking peers and the teachers. At the beginning of the school year, she did not initiate many interactions with her peers, probably
due to the English language abilities of her peers. Over the course of the year, she began to interact more frequently with her peers. However, by the end of the school year, she began becoming interested in print and writing, especially numbers and doing counting and writing tasks. Her growing interest in print may have contributed to her desire to play and work alone with infrequent interactions with her peers.

*Joann.* Joann was a Spanish speaker in Julie’s classroom. At the beginning of the school year, Joann was a persistent child who was developing interpersonal social skills with both adults and peers. She would interact with both of the teachers and her peers, regardless of their language background and skills but preferred peers who spoke Spanish as their first language. She relied on the few words she had in English and gestures to communicate what she wanted at the beginning of the school year. She preferred playing in the dramatic play area during center time but would often have a hard time settling at a center while she was waiting for a turn at the dramatic play area. During the year she became curious about several of the “science” items placed in the science area by the teacher. She was fascinated by the live animals the teacher would occasionally bring and would call out to the rest of the class to come and see the animal when it moved or did something that intrigued her. By the end of the school year, she would initiate play interactions with her peers but she enjoyed playing in the dramatic play area, probably because by the end of the year she became an older sibling and the babies in the dramatic play area were extremely interesting to her. Her peers would frequently seek her out and ask her to join their play, especially in the dramatic play area.
CHAPTER 4. RESULTS

Fidelity of Teachers’ Strategy Implementation

In response to the first research question, can teachers implement milieu language strategies with fidelity in the classroom, when given ongoing feedback and coaching, the weekly coaching fidelity sheets were examined as well as field notes taken about each observation of center time and the teachers’ comments each week. First the order of the children who received the language intervention is presented, which mirrors the previous section discussing the participants. Then the two different patterns of implementation that occurred among the three teachers will be discussed. Two teachers consistently implemented the strategies with the children and one teacher did not implement the strategies based on the fidelity sheets and classroom observations. Therefore these two patterns will be described differently because each pattern resulted in two different coaching and feedback responses.

Order of Strategy Implementation

Each teachers’ order of strategy implementation will be presented within a classroom context rather than examining all three children who experienced the strategies first, followed by the three children who experienced the strategies second, and followed by the last children to experience the strategies.

**Sarah’s classroom.** Megan was the first child in the classroom with whom Sarah implemented the milieu strategies. At the beginning of the year, Sarah would often have difficulty encouraging Megan to talk with her. However, Sarah would stick with it and would often focus more on giving Megan a choice or using target talk, talking just a little bit above the level of what the child is currently speaking, with her. At the beginning of the year, Megan relied on gestures to communicate with Sarah. By the end of the school year, Megan
was asking Sarah questions and responded to Sarah’s questions about what she was working on or playing. It was easier for Sarah to engage and interact with Megan as the year went on because Megan’s expressive vocabulary and skills had increased to the point where she was a capable conversation partner.

Erin was the second and last Spanish-speaking child in the classroom with whom Sarah implemented the milieu strategies. At the beginning of the year, Sarah would often have extreme difficulty encouraging Erin to talk with her. However, Sarah would persist and would often focus her interactions with Erin around a book or story. Sarah would then use target talk with her and focus on having Erin repeat words from a story or simply read the book to Erin. Once Erin had heard the story several times, Sarah would encourage Erin to tell her the story or finish a repetitious sentence. This pattern of interactions and strategy use by Sarah was consistent throughout the school year because Erin remained reticent and did not become more verbally or socially interactive.

Brian was the last child in the classroom with whom Sarah implemented the milieu strategies. He enjoyed the adult-centered attention he received because the nature of the strategies was to focus on the child and engage with the child around what he was already doing. The teacher did not often have difficulty encouraging Brian to talk with her, especially about what he was working on or doing. He thoroughly enjoyed explaining what he and his peers were doing and incorporating the teacher into their play.

**Kim’s classroom.** Paul was the first target child in his classroom with whom Kim started using the milieu strategies. Kim enjoyed using the milieu strategies of sabotage and mirroring and mapping with Paul. At first Paul was confused about what Kim was expecting of him because her attempts to engage in verbal interactions often involved removing
something that he needed or had been using. After the first couple of weeks of strategy use, Paul found the teacher’s attempts to engage in a verbal interaction amusing. He quickly figured out that she had changed something around him; especially at the drawing table, he would look at her with a look of “what did you just do?” and slowly smile as he realized she had hidden his coloring marker. Eventually he realized her tactics to verbally interact with him and he would simply find a replacement for what the teacher had hidden from him.

Scott was the second child in the classroom with whom Kim used the milieu strategies. He enjoyed the adult-centered attention he received because the nature of the strategies was to focus on him and engage with him around what he was already doing. The teacher did not often have difficulty encouraging Scott to talk with her. Consequently, Kim did not spend as much time interacting with Scott as she did with the other children in the classroom principally because he was an attention sponge with adults. Therefore, the teacher did not use the milieu strategies as often with Scott as she did with the other two children.

Susan was the third and last child in the classroom with whom Kim implemented the milieu strategies. Kim did not often have difficulty encouraging Susan to talk with her. Therefore, Kim did not use the milieu strategies as often with Susan as she did with Paul. The teacher often used target talk, talking just a little bit above the level of what the child is currently speaking, with Susan to encourage vocabulary growth and longer sentences. Some days Susan would talk incessantly and other days she preferred to speak in single words. The teacher would often use target talk with Susan to promote Susan’s content vocabulary, such as talking about which of the animals Susan was playing with was larger/smaller, colors, the number of animals she had.
Julie’s classroom. Katelyn was the first child in the classroom with whom Julie implemented the milieu strategies. Throughout the year, Julie would often have difficulty implementing any of the milieu strategies with Katelyn. Consequently, many of Julie’s and Katelyn’s interactions were not based on the strategies. Instead Julie would often use questions as a method for encouraging Katelyn to talk with her. By the end of the year, Katelyn was more verbally interactive with Julie and would respond easily to Julie’s questions or directions. Their interactions could also have been influenced by the frequency Katelyn was sick or absent from the classroom.

Anna was the second child in the classroom with whom Julie implemented the milieu strategies. As with Katelyn, Julie did not frequently use the strategies during her interactions with Anna. Since Julie struggled to use the milieu strategies with Anna as well, it was possible that she did not realize she was not using the strategies even when she was reminded about the strategies and when she could have implemented a strategy during the coaching. However, Julie used many questions with Anna to prompt interactions but did not use strategies such as expansion or recasting with Anna, which would have promoted her vocabulary growth and knowledge.

Joann was the second Spanish speaking and last child in the classroom with whom Julie implemented the milieu strategies. At the beginning of the year, Julie would often have difficulty encouraging Joann to talk with her because Joann relied on pointing for a lot of her communication. As with the other two target children, Julie used the strategies infrequently during her interactions with Joann. Since Julie struggled to use the milieu strategies also with Joann, it was possible that she did not realize she was not using the strategies even when she was reminded about the strategies and when she could have implemented a specific strategy
during the coaching process. However, Julie would often use questions with Joann to prompt interactions but did not use strategies such as talking at the child’s targeted language level or expansions with Joann, which would have promoted her vocabulary growth and knowledge.

**Consistent Strategy Implementation**

Two teachers, Sarah and Kim, consistently implemented the milieu language strategies with the children and only with the children who should be receiving the language strategies. These two teachers actively participated in the training sessions and at the end of each training session were able to identify through the discussion time at the end of the sessions different opportunities during which they could implement the strategies with the target child and then eventually with all three target children. Each week after the training session, Sarah and Kim would implement the strategy and the foundational components of the strategies during the center time observation with the target child. During the training phase, Sarah implemented the strategies and the prerequisite aspects of the strategies correctly 88.6% of the time and Kim 97% of the time. Their percentages were calculated by summing all of the items on the fidelity checklist they implemented and dividing by the total number of items. Each of these weeks during the training these two teachers were willing to try implementing the strategies and setting up the situations based on the foundational and common aspects underlying all of the strategies, even though at times they had doubts about if the strategies would work or how the child would respond. Each week at the beginning of the training sessions, the teachers would be asked how they felt the previous week of implementing the strategies went. These two teachers were excited to share their stories about different interactions they had had with the target child and how the child responded.
At the end of the training sessions, Sarah and Kim continued to implement the strategies and setting up the interactions consistently with the three target children. Sarah’s implementation of the strategies improved after the training, to 93% and Kim’s strategy implementation decreased after the training to 87.6%. Each week the teachers were asked at the beginning of the day how implementing the strategies the previous week had gone and if they had any questions or problems they needed help with in figuring out a solution. These two teachers enjoyed sharing an interaction that had made an impression on them the past week. During the weekly observations following the training sessions, these two teachers needed little to no coaching and feedback about their strategy implementation. Both of the teachers were comfortable implementing the strategies with the target children. These two teachers were able to flexibly use the strategies during their interactions with the target children. Over the entire school year, Sarah implemented the strategies correctly 91% of the time and Kim implemented the strategies 92.3% correctly of the time.

Table 3

Fidelity of Strategy Implementation

<table>
<thead>
<tr>
<th>Teacher</th>
<th>During Training</th>
<th>After Training</th>
<th>Overall Fidelity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah</td>
<td>88.6</td>
<td>93.0</td>
<td>91.0</td>
</tr>
<tr>
<td>Kim</td>
<td>97.0</td>
<td>87.6</td>
<td>92.3</td>
</tr>
<tr>
<td>Julie</td>
<td>62.6</td>
<td>50.3</td>
<td>56.5</td>
</tr>
</tbody>
</table>

Inconsistent Strategy Implementation

One of the three teachers, Julie, did not consistently implement the strategies with the target children. She participated in the training sessions, but struggled to implement what was presented and discussed during the training sessions. She participated in the discussions at the end of each training session when the teachers identified different activities and situations
during which they felt they could implement the strategies. Consequently, more time was spent with her going over the strategies and identifying how she could have used the strategy with the target child during an interaction observed earlier in the day at the training session. With this additional coaching, she implemented the strategies correctly 62.6% of the time during the training phase.

After the training sessions, she continued to receiving weekly coaching and feedback about different activities and interactions during which she could use the strategies with the target children. Each week prior to observing this teacher during center time, she was asked what questions or problems she had with implementing the strategies. Each week Julie said that she felt it was going well and that she did not have any questions or issues. She would share about interactions she had with the children since the previous week. Julie said that she felt the strategies were working well with the children and she could see a difference in the children’s language use. However, during the weekly observation, she would correctly implement the strategies 50.3% of the time. Overall, Julie was able to correctly implement the strategies 56.5% of the time during the entire school year.

**Summary**

All three teachers said they thought the strategies were helpful and that the strategies had influenced the children’s language use. Despite the high levels of support for the strategies by all the teachers, only two of the teachers consistently used the strategies with the target children. The third teacher did not use the strategies with the children even though she said she regularly used the strategies. Sarah and Kim who consistently used the strategies did not require much coaching or feedback beyond what was given in the training sessions. Julie required weekly coaching and feedback to assist her in implementing the strategies. Even
with weekly coaching and feedback, Julie was unable to consistently implement the strategies.

**Impact on Language Growth**

To answer the second research question, do milieu language strategies impact English language growth positively for children learning English as a second language, the children’s fall and spring scores on the Bracken language assessments and the weekly Picture Naming Individual Growth and Development Indicator scores were examined. First, the children’s scores on the Bracken language assessments will be presented by classrooms to provide an environmental context for understanding the children’s language growth. Second, the weekly Picture Naming Individual Growth and Development Indicator results will be presented, also by classroom.

**Bracken Language Assessments**

**Sarah’s classroom.** The scores on the Bracken Basic Concept Scales for each of the three target children in Sarah’s classroom are presented. Standard scores for each child in Sarah’s classroom are presented in Table 4, along with the chronological ages of each child at both Bracken Basic Concept Scales assessments. The Bracken scores do not reflect the linguistic proficiency of the two children learning English as a second language because their Spanish language knowledge and skills were not assessed. These two children’s scores are presented as if they were monolingual English speakers rather than their linguistic proficiency and understanding of the function and use of language. The scores are presented in this way to indicate English language growth during the school year these children demonstrated and the potential language “gap” their teachers might perceive them as having. Their scores are also not a reflection of their cognitive functioning or ability.
At the beginning of the year Megan, a native Spanish speaker, had not been exposed to English at home, or at least minimally exposed to English. At the beginning of the school year, her English skills were limited. According to her scores on the Receptive Language Measure, her English skills were considered to be at an approximate age of 3 years, 1 month. Based on this age approximation, Megan’s English language skills were about two full years behind typical English speaking children of the same chronological age. However, this score does not account for the linguistic knowledge Megan has or understands. On the Expressive Language Measure, her English productive skills were considered to be at an approximate age of under 3 years. Using this age approximation, Megan’s English language use was at least two years behind typical English speaking children of the same chronological age.

While her English language understanding and use appear dramatic, it is important to remember that prior to entering Head Start in August, she had limited to no exposure to English or opportunities to use her emerging English expressive skills. As a result, it was expected that her English skills be below that of her English monolingual peers because the assessment did not include measuring her linguistic knowledge and proficiency across her two languages.

By the end of the year, Megan showed growth in her receptive and expressive English language skills based on the Bracken Language Measures. Based on her scores on the Expressive Measure, Megan was considered to be at about an age of 3 years and 9 months compared to typical monolingual peers who speak English as a first language. According to the Receptive Language Measure, Megan made tremendous progress on her receptive English language skills based on the age approximations. In most areas, her English receptive skills were between just under 4 years to just over 5 years in her receptive language skills.
based on the age approximations of children who speak English as a first language with an age approximation of 4 years and 6 months.

At the beginning of the year Erin, a native Spanish speaker, had not been exposed to English at home, or at least minimally exposed to English. At that time her English skills were very limited to basically nonexistent. According to her scores on the Bracken Receptive Language Measure, her English skills were considered delayed to be at an approximate age of less than 3 years. Using this age approximation, Erin’s receptive English language skills were about one and a half years behind typical monolingual English speaking children of the same chronological age. Based on her scores on the Bracken Expressive Language Measure, her English productive skills were at an approximate age of under 3 years. Based on this age approximation, Erin’s language skills were about a year and a half behind typical monolingual English speaking children of the same chronological age. One area of her receptive English skills that she scored well in was the school readiness domains (i.e., colors, numbers, letters), which suggests that she may have had some exposure through television, or her family to begin to learn these basic school readiness skills. While her language use and understanding appear dramatic and quite varied, it is important to remember that prior to entering Head Start in August, she probably had limited to no exposure to English or opportunities to use her emerging English skills. Consequently, it was anticipated that her English skills be below those of monolingual English speaking children, especially as the Bracken assessments did not measure her linguistic knowledge or proficiency in both languages.
Table 4

*Bracken Assessment Scores in Sarah’s Classroom*

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Megan</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receptive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>5 yrs 1 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>3 yrs 1 mos**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Expressive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>5 yrs 1 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>54</td>
</tr>
<tr>
<td><strong>Erin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receptive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>4 yrs 5 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Expressive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>4 yrs 5 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>59</td>
</tr>
<tr>
<td><strong>Brian</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receptive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>4 yrs 6 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>5 yrs 6 mos**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Expressive Measure*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronological Age</td>
<td>4 yrs 6 mos</td>
</tr>
<tr>
<td></td>
<td>Age Equivalent Approximation</td>
<td>4 yrs 11 mos**</td>
</tr>
<tr>
<td></td>
<td>Standard Score</td>
<td>96</td>
</tr>
</tbody>
</table>

*Assessments were conducted in English and did not measure language proficiency across two languages or children’s linguistic knowledge. **Indicates English skills and use only and from a monolingual English framework.

By the end of the year, Erin’s Bracken Language Measure scores showed little growth in her receptive and expressive English language skills. Based on her scores on the Bracken Expressive Language Measure, Erin’s language use was at about an age of 3 years and 6 months compared to monolingual peers who speak English as a first language. According to the Receptive English Measure, Erin remained stable in her acquisition of receptive language
skills based on the age approximations. In most areas of her English receptive skills, she was between just over 3 years to just over 4 years based on the age approximations of monolingual English-speaking.

Brian was the native English speaking comparison peer in Sarah’s classroom. At the beginning of the school year, Brian’s receptive English skills were typical of a monolingual English-speaking child. Based on his scores on the Bracken Receptive Language Measure, his receptive English skills were considered to be at an approximate age of 5 years and 6 months. According to this age approximation, Brian’s language skills were considered typical and slightly more advanced than some monolingual English speaking children of the same chronological age. Based on his scores on the Expressive Language Measure, his English productive skills were considered to be within an age range of just over 3 years to over 5 years.

By the end of the year, Brian showed growth in both his receptive and expressive English language skills based on the Bracken Language Measures. Based on his scores on the Expressive Language Measure, Brian’s expressive language skills ranged from just over 4 years to just over 6 years compared to other monolingual peers who speak English as a first language. According to his scores, Brian was in some areas of his expressive language well over a year beyond what is expected based on the Bracken age approximations. According to his scores on the Bracken Receptive Measure, Brian also grew in his receptive language skills based on the age approximations. In all areas of his receptive language skills, Brian ranged from over 3 years to just under 6 years in his receptive English skills based on the age approximations of children who speak English as a first language.
Kim’s classroom. At the beginning of the year Paul, a native Spanish-speaking boy, had not been exposed to English at home, or at least minimally exposed to English. At the beginning of the year, his English skills were limited. According to his scores on the Bracken Receptive Language Measure, his English skills were considered to be at an approximate age of 3 years and 5 months. Based on this age approximation, Paul’s receptive English language skills were about a year and a half behind monolingual English speaking children of the same chronological age. His English productive scores from the Bracken Expressive Language Measure, were considered to be at an approximate age of under 3 years. Using this age approximation, Paul was about two years behind monolingual English speaking children of the same chronological age. While these language delays may appear dramatic, it is important to remember that prior to entering school in August, he had limited to no exposure to English. Thus, his receptive and expressive English language skills were expected to be different from monolingual English-speaking peers of the same age. The Bracken scores do not reflect his total language knowledge and proficiency, as only his English skills were measured.

By the end of the school year, Paul’s expressive and receptive language skills showed slow growth. Based on his scores on the Bracken Expressive Measure, his productive English language skills were about 2 years behind monolingual English-speaking peers and at about 3 years of age. His receptive English language skills, according to his scores on the Bracken Receptive Language Measure, indicated growth compared to his fall scores; he was at about age 4 compared to monolingual English speaking children of the same age. Based on the age approximation, Paul’s language use was about 1 year behind his same age peers who speak
English as a first language. However, he gained about a year’s amount of English knowledge during the six months between the Bracken assessments.

Table 5

*Bracken Assessment Scores in Kim’s Classroom*

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 10 mos</td>
<td>5 yrs 4 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>3 yrs 5 mos**</td>
<td>4 yrs 5 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>76</td>
<td>84</td>
</tr>
<tr>
<td>Expressive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 10 mos</td>
<td>5 yrs 4 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
<td>3 yrs 2 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>64</td>
<td>81</td>
</tr>
<tr>
<td>Scott</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 7 mos</td>
<td>5 yrs 1 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>5 yrs 4 mos**</td>
<td>6 yrs 4 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>101</td>
<td>122</td>
</tr>
<tr>
<td>Expressive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 7 mos</td>
<td>5 yrs 1 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>4 yrs 10 mos**</td>
<td>5 yrs 9 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>116</td>
<td>107</td>
</tr>
<tr>
<td>Susan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 11 mos</td>
<td>5 yrs 4 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>3 yrs 8 mos**</td>
<td>5 yrs 2 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>95</td>
<td>98</td>
</tr>
<tr>
<td>Expressive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 11 mos</td>
<td>5 yrs 4 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>3 yrs 5 mos**</td>
<td>4 yrs 8 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>86</td>
<td>87</td>
</tr>
</tbody>
</table>

*Assessments were conducted in English and did not measure language proficiency across two languages or children’s linguistic knowledge. **Indicates English skills and use only and from a monolingual English framework.

Scott was the native English speaking comparison peer in Kim’s classroom. At the beginning of the school year, Scott’s receptive English skills were at an approximate age of 5 years, 4 months. According to his scores on the Bracken Expressive Measure, his English
productive skills ranged between age approximations of just over 3 years to just over 5 years. By the end of the year, Scott showed growth in both his receptive and expressive language skills based on the Bracken Language Measures. On the Bracken Expressive Language Measure, Scott was considered to be at about an age of almost 4 years to over 6 and half years compared to monolingual peers who speak English as a first language. Scott grew in his receptive English language skills ranging from over 5 and half to over 7 years in his receptive English skills based on the age approximations of monolingual children who speak English as a first language.

Susan was the second target Spanish speaking child in Kim’s classroom. At the beginning of the year Susan, like Paul, had not been exposed to English at home, or at least minimally exposed to English and her English skills were limited. Based on her scores on the Bracken Receptive Language Measure, her receptive English skills were considered to be at an approximate age of 3 years, 8 months. According to her scores on the Bracken Expressive Measure, her English productive skills ranged from age approximations of under 3 years to almost 4 years. Based on this age approximation, Susan’s expressive English language skills were about one to two years behind monolingual English speaking children of the same chronological age. Her scores on the Bracken assessments do not completely and adequately reflect her linguistic skills and proficiency because only her English skills were measured.

By the end of the year, Susan showed growth in her receptive and expressive language skills based on the Bracken Language Measures. Based on her scores on the Bracken Expressive Language Measure, Susan was considered to be at about an age 4 and a half years compared to monolingual English-speaking peers. According to her scores on the Receptive Measure, Susan made tremendous progress on her receptive language skills based
on the age approximations. In most receptive English skill areas, she was between just under 4 years to just over 6 based on the age approximations of monolingual children who speak English as a first language.

**Julie’s classroom.** At the beginning of the year Katelyn, a native Spanish-speaking girl, had not been exposed to English at home, or at least minimally exposed to English. At the beginning of the year, her English skills were very limited. According to her scores on the Bracken Receptive Language Measure, her English skills were considered to be at an approximate age of under 3 years. Based on this age approximation, Katelyn’s receptive English language skills were about a full year behind monolingual English speaking children of the same chronological age. Similarly, her scores on the Bracken Expressive Language Measure, indicated her English productive skills to be at an approximate age of under 3 years. Using this age approximation, Katelyn’s English language use was at least one year behind monolingual English speaking children of the same chronological age. While her language delays seem considerable, it is important to remember that prior to entering Head Start in August, she had limited to no exposure to English or opportunities to use her emerging English expressive skills. Consequently, it was anticipated that her receptive and expressive English language skills would be limited, especially as the Bracken assessments did not measure her linguistic knowledge and proficiency in both Spanish and English. Thus, the above scores represent only her English knowledge rather than her total language knowledge and proficiency.

By the end of the year, Katelyn showed growth in her receptive and expressive language skills based on the Bracken Language Measures. Based on her scores on the Bracken Expressive Language Measure, Katelyn was considered to be at about an age of
under 3 years compared to monolingual peers who speak English as a first language. Katelyn remained at least a year and a half behind in her expressive English language skills based on the Bracken age approximations. However, according to the Receptive Language Measure, Katelyn remained stable in her receptive language skills based on the age approximations. Like her expressive English language score, in her receptive English language skills she remained about a year and half behind of same age monolingual peers who speak English.

Anna was the native English speaking comparison peer in Julie’s classroom. At the beginning of the school year, her scores on the Bracken Receptive Language Measure ranged about 3 and half to over 5 and a half years compared to monolingual English speaking children of the same chronological age. According to her scores on the Expressive Language Measure, her expressive English skills also ranged at age approximations of between just over 3 years to 5 years. By the end of the year, Anna showed growth in both her receptive and expressive language skills based on the Bracken Language Measures. Based on her scores on the Expressive Language Measure, Anna was considered to be at about an age of 5 years compared to monolingual peers who speak English as a first language. According to the Bracken Receptive Measure, Anna grew in her receptive language skills based on the age approximations which were ranged from just over 5 years to just under 6 years in her receptive English skills using the age approximations of monolingual children who speak English as a first language.

At the beginning of the year Joann, a native Spanish-speaking girl, had not been exposed to English at home, or at least minimally exposed to English. Her English skills were very limited. Based on her scores on the Bracken Receptive Language Measure, her English skills were at an approximate age of 3 years, 2 months. According to this age
Table 6

Bracken Assessment Scores in Julie’s Classroom

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Katelyn</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 2 mos</td>
<td>4 yrs 7 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
<td>3 yrs 0 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>68</td>
<td>70</td>
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<tr>
<td>Expressive Measure*</td>
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<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>4 yrs 2 mos</td>
<td>4 yrs 7 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
<td>&lt;3 yrs**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>64</td>
<td>69</td>
</tr>
<tr>
<td><strong>Anna</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Measure*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>3 yrs 8 mos</td>
<td>4 yrs 2 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>4 yrs 5 mos**</td>
<td>5 yrs 8 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>118</td>
<td>125</td>
</tr>
<tr>
<td>Expressive Measure*</td>
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<td></td>
</tr>
<tr>
<td>Chronological Age</td>
<td>3 yrs 8 mos</td>
<td>4 yrs 2 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>4 yrs 4 mos**</td>
<td>5 yrs 0 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>105</td>
<td>109</td>
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<tr>
<td><strong>Joann</strong></td>
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<td>Chronological Age</td>
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<td>4 yrs 6 mos</td>
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<tr>
<td>Age Equivalent Approximation</td>
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<td>4 yrs 5 mos**</td>
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<tr>
<td>Standard Score</td>
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<tr>
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<tr>
<td>Chronological Age</td>
<td>4 yrs 0 mos</td>
<td>4 yrs 6 mos</td>
</tr>
<tr>
<td>Age Equivalent Approximation</td>
<td>&lt;3 yrs**</td>
<td>3 yrs 5 mos**</td>
</tr>
<tr>
<td>Standard Score</td>
<td>72</td>
<td>77</td>
</tr>
</tbody>
</table>

*Assessments were conducted in English and did not measure language proficiency across two languages or children’s linguistic knowledge. **Indicates English skills and use only and from a monolingual English framework.

approximation, Joann’s receptive English language skills were about one full year behind monolingual English speaking children of the same chronological age. Similarly, her scores on the Bracken Expressive Language Measure indicated her English productive skills were at an approximate age of under 3 years. As with the other children learning English as a second language, it is important to remember that prior to entering Head Start in August, Joann had
limited to no exposure to English or opportunities to use her emerging English expressive skills. Therefore, her receptive and expressive English language skills were expected to be limited, especially as the Bracken assessments did not measure her total linguistic proficiency and knowledge, only her English language skills.

By the end of the year, Joann showed growth in her receptive and expressive language skills according to the Bracken Language Measures. Based on her scores on the Bracken Expressive Measure, Joann was considered to be at about an age approximation of 3 years and 5 months compared to monolingual peers who speak English as a first language. On the Receptive Language Measure, Joann made progress on her receptive English language skills based on the age approximations ranging from just under 4 years to just under 5 years.

**Picture Naming Individual Growth and Development Indicator Results**

The results of the Picture Naming Individual Growth and Development Indicator are presented by classroom. Missing data is indicated by a discontinuous line in the figures. Missing data was due to the child not being at school on that particular day, typically due to illness or the weather, or the researcher being unable to travel due to weather. A solid colored line connecting two data points indicates that the data was collected over consecutive weeks. The dashed line between the graphs in each figure is the phase line, which distinguishes between the baseline phase, when no intervention was being implemented, and the intervention phase, when the intervention was being implemented.

**Sarah’s classroom.** The data from Megan’s scores from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year during the baseline phase, indicated she could correctly identify on average 6 pictures out of the 17 to 23 pictures
attempted within one minute (See Figure 1). Megan did not use Spanish at all throughout the year, which was her choice, during the minute-long structured assessment. However, in mid-spring, she started providing no response when asked to identify the pictures and frequently used this strategy for the remainder of the school year. I speculate that she might have used the non-response strategy because she knew that each picture had a specific English name that she did not know, but did not want the assessment administrator to “figure out” that she did not know the word. After the implementation of the milieu language intervention, Megan could correctly identify on average 10 pictures out of a range of 13 to 32 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in her language use during 11 out of the 18 assessments following the implementation of the milieu language intervention, or approximately 61 percent, which is a moderate to slight effect size (Scruggs & Mastropieri, 1998). Based on the percentage of nonoverlapping data for the incorrectly identified pictures, there was a decrease in her language use during 12 out of the 18 assessments following the implementation of the intervention, or approximately 67 percent, which is a moderate effect size, which can be considered an indicator of an effective intervention or treatment (Scruggs & Mastropieri, 1998).

Based on the data from the Picture Naming Individual Growth and Development Indicator, at the beginning of the school year during the baseline phase, Erin could correctly identify on average 3 pictures out of 8 to 14 pictures attempted within one minute. Erin did not use Spanish at all throughout the year, which was her choice, during the minute-long structured assessment. However, during the entire school year she would often not provide a response as a method of not identifying the pictures and consistently used this strategy. After
Figure 2. Weekly Picture Naming Individual Growth and Development Indicator assessment results in Sarah’s classroom. The dotted horizontal line indicates percent of nonoverlapping data and the dotted vertical line indicates the staggered baseline across the children.
Erin could correctly identify on average 7 pictures out of a range of 8 to 27 pictures attempted within the implementation of the milieu language intervention, in one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in her language use during 10 out of the 15 assessments following the implementation of the milieu language intervention, or approximately 67 percent, which is a moderate effect size, this percentage can also be considered an indicator of an effective intervention (Scruggs & Mastropieri, 1998). Once the milieu intervention was started with Erin, the number of correctly identified pictures fell sharply. This change could have been due to the differences in language opportunities she had for verbally communicating compared to prior to the intervention implementation, which made her anxious thus increasing her already extreme reticence. It is also possible something occurred at home during this time, which was not shared with the researcher that adversely affected her willingness to respond during the minute-long assessments for several weeks.

Based on Brian’s data from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year, before receiving the milieu language intervention, he could correctly identify on average 29 pictures out of 27 to 43 pictures attempted within one minute. After the implementation of the milieu language intervention, Brian could correctly identify on average 33 pictures out of a range of 28 to 40 pictures attempted within one minute. Based on the percentage of nonoverlapping data, 27 percent, for the correctly identified pictures, there was a stable pattern in his overall language use during assessments following the implementation of the milieu language intervention. The overall stability in his language use during the assessments could have been due to his lack of interest in the task over time because he frequently asked if there were different pictures one
week compared to a previous week even though the pictures were rotated weekly. The stability could also be because it is difficult to get through more pictures than what he was doing within one minute.

**Kim’s classroom.** Based on Paul’s data from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year, prior to the milieu language intervention, he could correctly identify on average 14 pictures out of 18 to 26 pictures attempted within one minute. Paul did not use Spanish at all, which was his choice, during the minute-long structured assessment. After the implementation of the milieu language intervention, Paul could correctly identify on average 20 pictures out of a range of 21 to 33 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in his language use during 11 out of the 19 assessments following the implementation of the milieu language intervention, or approximately 58 percent, which is a moderate to slight effect size (Scruggs & Mastropieri, 1998).

Based on Scott’s data from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year, before receiving the milieu language intervention, he could correctly identify on average 19 pictures out of 17 to 29 pictures attempted within one minute. After the implementation of the milieu language intervention, Scott could correctly identify on average 24 pictures out of a range of 15 to 37 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an overall decrease in his language use during assessments following the implementation of the milieu language intervention. The percentage of nonoverlapping data was 47 percent, which according to Scruggs and
Figure 3. Weekly Picture Naming Individual Growth and Development Indicator assessment results in Kim’s classroom. The dotted horizontal line indicates the percent of nonoverlapping data and the vertical line indicates the staggered baseline across the children.
Mastropieri (1998), is considered an indicator of an ineffective intervention or treatment. The decrease in correct identification of the pictures in the 15 assessments following the implementation of the milieu language intervention, could have been due to his desire to talk about each of the pictures, tell a story about the picture, or tell when and where he most recently saw the pictured item, or the decrease could have been due to the fact that he wanted to read the backs of the assessment cards and go back and correct his response based on the outcome of his reading.

Based on Susan’s data from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year during the baseline phase, she could correctly identify on average 16 pictures out of 21 to 27 pictures attempted within one minute. Susan did occasionally use Spanish in the beginning but ceased using Spanish after several weeks, which was her choice, during the minute-long structured assessment. Also, in mid-spring, she started using non-responses as a method of not identifying the pictures and frequently used this strategy for the remainder of the school year. After the implementation of the milieu language intervention, Susan could correctly identify on average 20 pictures out of a range of 20 to 33 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in her language use during 9 or approximately 60 percent, which is a moderate to slight effect size (Scruggs & Mastropieri, 1998).

Julie’s classroom. The data from Katelyn’s scores from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year during the baseline phase, indicated she could correctly identify on average 2 pictures out of 11 pictures attempted within one minute. Katelyn used Spanish throughout the year, which was her
choice, during the minute-long structured assessment. However, in mid-spring, she started not providing a response as a method of not identifying the pictures and frequently used this strategy for the remainder of the school year. She, like Megan, might have used the non-response strategy because she knew that each picture had a specific English name which she did not know, but did not want the assessment administrator to “figure out” that she did not know the word. After the implementation of the milieu language intervention, Katelyn could correctly identify on average 6 pictures out of a range of 13 to 28 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in her language use during 13 out of the 14 assessments following the implementation of the milieu language intervention, or approximately 93 percent, which is a high effect size and is an indicator of a very effective intervention (Scruggs & Mastropieri, 1998).

Based on Anna’s data from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year, before receiving the milieu language intervention, she could correctly identify on average 21 pictures out of 26 to 28 pictures attempted within one minute. After the implementation of the milieu language intervention, Anna could correctly identify on average 29 pictures out of a range of 25 to 43 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an overall increase in her language use during assessments following the implementation of the milieu language intervention. There was an increase in her language use during 9 out of the 17 assessments following the implementation of the milieu language intervention, or approximately 53 percent, which indicates a slightly effective intervention for her (Scruggs & Mastropieri, 1998). The overall increase in her
Figure 4. Weekly Picture Naming Individual Growth and Development Indicator assessment results for Julie’s classroom. The dotted horizontal line indicates percent of nonoverlapping data and the vertical dotted line indicates the staggered baseline across the children.
language use during the assessments could have been due to verbal interactions she had at home with her family or what she received in the classroom perhaps due to occasional use of the strategies.

The data from Joann’s scores from Picture Naming Individual Growth and Development Indicator, at the beginning of the school year during the baseline phase, indicated she could correctly identify on average about 4 pictures out of 16 to 24 pictures attempted within one minute in English. Joann used Spanish throughout the year, which was her choice, during the minute-long structured assessment. However, over the course of the school year, the number of responses she gave in Spanish decreased significantly from the number she gave in the fall. Also in the in mid-spring, she started not providing a response as a method of not identifying the pictures and frequently used this strategy for the remainder of the school year. She might have used the non-response strategy because she knew the name of the picture in Spanish, but did not want the assessment administrator to “know” that she did not know the word in English and that she only knew it in Spanish. After the implementation of the milieu language intervention, Joann could correctly identify on average about 12 pictures out of a range of 11 to 32 pictures attempted within one minute. Based on the percentage of nonoverlapping data for the correctly identified pictures, there was an increase in her language use during 12 out of the 15 assessments following the implementation of the milieu language intervention, or 80 percent, which is a large effect size and is an indicator of an effective intervention (Scruggs & Mastropieri, 1998).

Summary

Overall, most of the Picture Naming Individual Growth and Development Indicator data of the children indicated an increase in the children’s expressive language skills over the
course of the school year. A couple of children, Brian and Scott, who did not have increases in their expressive language skills based on the Picture Naming Individual Growth and Development Indicator were acquiring other language skills, such as reading. The acquisition of reading skills probably influenced their expressive language use during the assessments, however, both children exhibited typical development at the beginning of the study and the teachers did not have concerns about their language development. However, all of the children had increases in their English language skills based on the Bracken language measures. While many of the children learning English as a second language were below the age approximations of expected monolingual English language skills based on their age, the children came closer to the age approximations at the end of the school year compared to the beginning of the school year. The children learning English as a second language still lagged behind their native English speaking peers but they made gains during the school year. Additional graphs of the trends of the children’s language use during the Picture Naming Individual Growth and Development Indicator assessments are in Appendix D.

**Teachers’ Perceptions of the Strategies**

To answer the third and final research question, “What are teachers’ perceptions regarding the effectiveness of milieu language strategies as a teaching tool on children’s English language growth?”, the transcripts of the focus group and the individual teacher interviews were examined. The primary aim of the focus group was to determine what strategies the teachers were using and their perceptions of the effectiveness of those strategies. The goal of the two sets of individual interviews was for each teacher to describe her perceptions of the effectiveness of the milieu strategies on the target children’s language growth over the school year. The teachers’ responses were examined for common themes
regarding their perceptions of teaching strategies and the effectiveness of the milieu language strategies on the children’s language growth and use. The focus group occurred at the first meeting of the three teachers and the researcher. The focus group lasted about 45 minutes and was recorded for later verbatim transcription. The length of the transcript from the focus group was 16 pages single spaced. During the focus group, the teachers were asked questions such as, what teaching strategies do you currently use when teaching the children, how effective do you feel the strategies are that you are using when interacting with the children, how long have you been teaching, and how many children do you have learning English as a second language in your classroom.

The two sets of individual interviews occurred in March and May. Each individual interview lasted between 15 and 20 minutes and was recorded for later verbatim transcription. Transcripts varied in length from one page to three pages single spaced. See Appendix E for excerpts from two individual interviews. During these two sets of individual interviews, the teachers were asked similar questions to determine how their perceptions were changing and how they were using the milieu language strategies over time with the target children in their classrooms. The teachers were asked questions such as, how effective do you think the strategies have been with the children, what challenges have you had when you implement the strategies with the target children, and can you describe a situation in which you used the strategy and how did it work.

Themes emerged from the transcripts following several readings of the transcripts and reviewing my journal about the focus group and individual interviews. The transcripts were coded for ideas that related to the research question; however, ideas and perceptions that did not directly relate to the research question were not ignored. Ideas and perceptions that
indirectly and directly related to the research question were explored across teachers to determine similarity and support for emerging themes. After main themes were identified, the transcripts were again read to determine if there were underlying sub-themes and how the sub-themes related to the main themes and fit within the main themes. Themes did not undergo formal member checks with the teachers. Instead informal, on-going member checks were used on a weekly basis to determine how the implementation of the strategies was going and to discuss any issues and share stories of how the children responded since the previous week. The resulting themes and sub-themes emerged from the transcripts of the focus group and individual interviews.

**Perceptions of Teaching Strategies**

The primary goal of the focus group was to understand the teachers’ perceptions of teaching strategies before introducing them to the milieu strategies. Two main themes emerged from the focus group, strategies, and second language acquisition observations. Within both of the main themes there were two sub-themes. Within the strategies theme, there were structured strategies and strategy use in general. Within the second language acquisition observation theme, there were adjustments for children learning English as a second language and observations of the children’s learning during second language acquisition.

**Strategies.** There were two sub-themes with the strategies theme. The first sub-theme was structured strategies. Within the structured strategies, the teachers referred to the Positive Behavioral Support (PBS; which has been recently renamed to Positive Behavioral Interventions and Supports, PBIS) as a source of some of the strategies they used with the children in their classrooms. The structured strategies were strategies that at least one of the
teachers, Julie, had received training on how to implement the strategies, when to implement the strategies, and how to manipulate the strategies to address challenging behaviors and guide children’s behavior and learning. Julie, who had received PBIS training, pointed out that the focus of the PBIS strategies is to reduce and prevent challenging behavior problems. She had used with them with all of the children in her classroom to teach and maintain the classroom rules and limits.

The PBS it has different strategies to try at different times with different problem behaviors but a lot of PBS is trying to prevent problem behaviors from occurring and so you try to do all these different things like you start out introducing the rules and showing them what it looks like sounds like feels like (Julie).

Julie felt that with PBIS, she had more strategies she could use than what she would have had otherwise if she were not a pilot classroom for PBIS. She also felt that because she was familiar with and using the PBIS strategies she had a better understanding of how to adjust and be flexible in her strategy use with the children.
I kind of think I kind of have a wider variety [of strategies] with that [PBS] than just one strategy that I use all the time I mean I use the same things but then I can see where I can add in this or try this at this time because that’s not working (Julie).

While the other two teachers, Sarah and Kim, had not completed the training on the PBIS strategies, they had other strategies to contribute to the discussion about the usefulness of strategies in general when interacting and teaching young children. Thus, the second sub-theme within strategies was the use of strategies in general to help children learn in the classroom. All three of the teachers struggled to identify specific strategies they use with children and specifically with children learning English as a second language. Kim commented that it was difficult for her to identify strategies because strategies are something you “just do and you don’t have to think about it and spit it out what it is”. Many of the other references the teachers made to teaching strategies were broader rather than specific strategies they had found particularly effective over the years they had spent teaching young children. Within their discussion about teaching strategies, the teachers mentioned the importance of a yearly trial and error period when they used various strategies from their arsenal of strategies to determine which strategies would work well with that specific class of children and need to adjust which strategies they used depending on both the entire class of children and with individual children.

Well often you might try a strategy and the strategy you used in the past might not work for a particular child. So you sort of go through a series of things that you try until you find something that sort of clicks [for that child] (Kim).

Similarly, the teachers described the need to adjust the strategies they used with the entire class of children based on the countries from which the children came. The teachers agreed that often times they would try out a strategy that required the children to negotiate
which word best represented a word in the first language as a way of encouraging the children to verbally interact with each other and expand their vocabulary and knowledge. However, the teachers noted that this strategy could lead to arguments between the children if the children came from too many different countries that spoke the same language but had regional or dialectal differences between the countries.

Sometimes I’ll just ask the children, ‘how would you say this in Spanish?’ And some years that works really well and some years they come from some different areas that they’ll argue over what the word is for this or that (Kim).

All the teachers stated that strategies were an important aspect of teaching young children, regardless of the children’s first language. Despite any frustrations they had trying to determine which strategies were going to work well each year with that particular class of children and the individual children, the teachers recognized the benefits and value they gained by utilizing different strategies in their interactions with the children and teaching the Table 8

**Interpretations of the General Use of Strategies**

<table>
<thead>
<tr>
<th>Findings</th>
<th>Practical Interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Something you just do and don’t think about”</td>
<td>Strategy use becomes automatic. Little reflection is given to the intended purpose of using a strategy.</td>
</tr>
<tr>
<td>Trial and error</td>
<td>Try to individualize strategy use to meet yearly changes in children.</td>
</tr>
<tr>
<td>Adjust strategy use</td>
<td>Try to use strategies that incorporate the children’s culture and language.</td>
</tr>
<tr>
<td>Communication as negotiation</td>
<td>Willingness to incorporate children’s language ideas into the classroom dialogue.</td>
</tr>
<tr>
<td>Strategies are important when teaching children</td>
<td>Important to determine which strategies work well with each class of children.</td>
</tr>
</tbody>
</table>
children. “I think the strategies overall do work throughout the year because you’ll see such big growth in their learning and not just learning English but other things the other academic skills we’re working on (Julie).”

**Second language acquisition.** The second main theme from the focus group was the teachers’ observation of children’s second language acquisition. Within this theme there were two sub-themes, adjustments for children learning English as a second language and observations of the children’s learning during second language acquisition. Underlying both of these sub-themes was the idea that “young children learn so quickly”, which created an interesting analysis of the teachers’ responses because the teachers would acknowledge the importance of adjusting the strategies used with the individual children to conveying a belief that strategy use was not overly effective teaching the children since they would learn the content and the language easily through exposure to English.

The first sub-theme focused on how the teachers adjusted their teaching and interactions with the children learning English as a second language, which was often the majority of the children in their classrooms. Also within this theme were references to the teachers’ acknowledgement that depending on the language acquisition stage of each child, the children would need varying adjustments to the strategies implemented to benefit from the teachers’ language use. Many times when trying to adjust their own language use, the teachers would use Spanish, since that often was the language spoken by the majority of the children in the classroom, to assist a child in understanding what was said or was expected of them. “A lot of times when the children speak only Spanish I’ll let them speak Spanish to me but I’ll repeat back to them what they said in English (Julie).” Repeating what the child said was important to the teachers because they stated it provided the child an opportunity to hear
Table 9

*Interpretations of Second Language Acquisition*

<table>
<thead>
<tr>
<th>Sub-Theme</th>
<th>Findings</th>
<th>Practical Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustments for Children</td>
<td>Need to recognize child’s language development stage</td>
<td>Requires observation of child’s language use.</td>
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<tr>
<td></td>
<td>Teachers’ use of Spanish</td>
<td>Requires a knowledge of how to adapt teaching to child’s comprehension level.</td>
</tr>
<tr>
<td></td>
<td>Teachers’ repetition of child’s utterances</td>
<td>Need to learn and maintain personal knowledge of Spanish.</td>
</tr>
<tr>
<td>Observations of Spanish/English use</td>
<td>Teachers felt the need to help children acquire English</td>
<td>Increased English demands on the children without accepting Spanish responses.</td>
</tr>
<tr>
<td></td>
<td>Teachers reduced the amount of Spanish used to communicate</td>
<td>Required to teach kindergarten level vocabulary to prepare children for kindergarten entry.</td>
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<tr>
<td></td>
<td>Teachers permitted first language use in the classroom</td>
<td>Did not rely on basic Spanish words for communication during the whole school year.</td>
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<tr>
<td></td>
<td>Teachers only knew a few Spanish words and none in other languages spoken by the children</td>
<td>Created an immersion setting for the children.</td>
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<tr>
<td></td>
<td></td>
<td>Non-verbally communicated Spanish was not the preferred or socially desirable language.</td>
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<tr>
<td></td>
<td></td>
<td>Did not reinforce or interfere with English or Spanish use in the classroom between children.</td>
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<tr>
<td></td>
<td></td>
<td>Imbalanced language environment for all children, not just those from Spanish or English backgrounds.</td>
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</tbody>
</table>
the way it would be said in English. “[I] might rephrase how they stated some[thing] because especially with our Spanish [speakers] you know when they are learning the English they put their words [together] like they would if they were saying Spanish (Kim).” While the teachers would rely on their limited knowledge of Spanish to communicate and teach the children learning English as a second language, they expressed difficulty in maintaining their own Spanish fluency from year to year.

In the summer [it’s hard to practice Spanish to prepare for the fall] you know I have nobody to practice with so it sort of goes away and then I have to start up again and depending on how much I need it in the fall is how much I end up using it (Kim).

Although the teachers felt that it was important to try to use Spanish with the native Spanish speaking children in their classrooms, they also expressed the need to help the children acquire English at the same time. All of the teachers agreed that they would often start off the school year using phrases or sentences in Spanish to help guide and interact with the children who were native Spanish speakers, but as the school year progressed, the teachers reduced the frequency with which they used Spanish as a method of communication with the children. All of the teachers stated they felt the children acquired English more quickly when they used less Spanish during their interactions with the children. “They seem to pick up English more quickly when I just kind of slowly drop out the Spanish (Julie)” and “they pick up the English pretty quickly even though you don’t use Spanish a lot with them (Julie).” Consequently, the teachers believed that they did not need to completely adjust their strategy use and interaction patterns with the children learning English since the children would acquire English and be able to function in the classroom with minimal input through their first language. Despite the belief that the children understood what was occurring in the
classroom and what was expected of them, the teachers still allowed the children to use Spanish in the classroom and for assessments even when they had decreased the amount of Spanish they used with the children.

I think what I do to kind of lead them out of their native language I mean I’ll still let them use their native language or even answer questions like when I’m assessing except for the Boehme [school district predetermined requisite words children need to know upon kindergarten entry]. When I’m assessing I’ll accept answers in either language because they are just three (Julie).

All three teachers had their own method of decreasing the amount of Spanish they used in their classrooms with the children learning English as a second language. However, even though the native Spanish speaking children were often the greater majority of the children in their classrooms, the teachers did not use as many basic words in the other non-English speaking children’s first language, such as German, Lao, or Sudanese. Instead, the teachers used English with a few words to short sentences in Spanish to communicate with all of the children in their classrooms.

**Effectiveness of Milieu Language Strategies**

The primary focus of the two sets of individual interviews was for the teachers to describe their perceptions of the effect of the milieu language strategies on the target children’s language growth over the course of the school year. From the two sets of individual interviews, a total of six interviews across the three teachers, two main themes emerged, the teachers’ observations about the milieu strategies, and the impact of the strategies on language use in the classroom. Within the first main theme, the teachers’ observations about the milieu strategies, there was one major sub-theme and a minor sub-theme. Within the second main theme, the impact of the milieu strategies on language use in the classroom, there were two sub-themes.
**Teachers’ observation of the milieu strategies.** There were two sub-themes within this main theme. The first sub-theme was the similarity of the milieu language strategies to the strategies frequently used by the teachers and the second sub-theme was how the strategies could be used in other ways. The teachers said they were already using many of the milieu strategies with the children, Julie was asked about the effectiveness of the milieu strategies, she replied, “I think they’re [very] similar to what we have always done and I think they were successful (Julie).” If Julie’s response is taken on face-value, it is obvious she believes that using strategies to help children understand and learn is important. However, if her response is looked at more closely, it becomes apparent that she does not stop and reflect on the impact that strategies, when thoughtfully, appropriately, and intentionally used, can have on children’s learning and development. Sarah mentioned how learning about the milieu language strategies made her stop and think about when to use specific strategies and what her intended outcome for using a specific strategy was because using strategies for her had become a routine, automatic behavior. While it is hoped that using strategies to facilitate children’s learning becomes easier over time, it is also desirable for the teacher to stop and reflect on the outcomes that strategies can lead to and how strategy use can be changed to meet individual learning and developmental goals.

Well I guess I try to think about what I am saying but I also find it hard because it seems like you always do it [interact and use strategies] the way you [are] used to do it because you don’t think about the specific strategies but then again, I use a lot of those strategies and I don’t realize that I am doing it (Sarah).

One outcome of Sarah stopping to reflect and recognize her strategy use with three target children was she thought about how these strategies function and different ways she could change how she used them and being able to adjust her use of strategies to each child’s level
of language ability and production. Kim also reflected on her strategy use and thought of other ways she would like to be able to use the milieu strategies, in the children’s native languages, rather than being limited to only using the strategies in English to help the children acquire English skills.

They [milieu strategies] are basically strategies that you use and you build on, you just continue to build. Individual children may be at different stages and [you need to] present it or use it a little bit differently. [I think] using it [the milieu strategies] in Spanish, because I can’t, that would help them in the beginning move a little farther along. That would be useful if you could speak it in their native language. I think because that may help them a little bit faster and then be able to transfer it into English and then eventually drop that strategy (Kim).

There were two aspects of the strategies that the teachers kept hinting at throughout their discussion of the milieu strategies. The first was the idea of automaticity when using strategies in general. The teachers described how using strategies was automatic for them and that they did not think about what strategies they were using, or even if they were using appropriate strategies with the children. The second idea was a desire to not need strategies after the child had acquired the skill or knowledge that was the focus of the lesson or activity. This idea of the disposability of teaching strategies is frightening when one considers the flexibility and purpose of teaching strategies, to allow teachers to mold their teaching and scaffolding to promote continual learning and development in children. Teaching strategies should not be only a means to end, a way of encouraging children to learn to speak English, but to also facilitate the children’s understanding of the content they will face in kindergarten and later grades, to build vocabulary so they can talk about what they are learning, and to teach social interaction skills so children can learn from each other and how to interact with others who are linguistically different from them.
**Perceived impact of strategies on language use.** The second main theme from the individual interviews was the perceived impact of the milieu strategies on language use.

Within this second main theme, there were two sub-themes, which were opposing views on the impact of the strategies on the children’s language growth and use over the course of the Table 10

*Interpretations of Milieu Strategies*

<table>
<thead>
<tr>
<th>Sub-Theme</th>
<th>Findings</th>
<th>Practical Interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarity to other strategies</td>
<td>Importance of strategies to help children understand and learn</td>
<td>Need to identify learning outcomes and select strategies to help children reach the learning outcomes.</td>
</tr>
<tr>
<td></td>
<td>Automaticity of strategy use</td>
<td>Need to reflect, identify the intended outcome, and determine appropriate strategy.</td>
</tr>
<tr>
<td></td>
<td>Role of examining teaching practices</td>
<td>Need to identify the function and purpose of strategy use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify learning goal for each child and select strategies to individually assist each child.</td>
</tr>
<tr>
<td>Behavioral evidence of strategy effectiveness</td>
<td>Vocabulary acquisition</td>
<td>Benefits of repetition and rephrasing child’s utterances.</td>
</tr>
<tr>
<td></td>
<td>Social skills and interactions</td>
<td>Language is foundational for interpersonal relationships.</td>
</tr>
<tr>
<td></td>
<td>Increased English use</td>
<td>Children will acquire what they are exposed to.</td>
</tr>
<tr>
<td>Teachers’ endorsement of milieu strategies</td>
<td>Similar to other strategies already used</td>
<td>Struggle to determine the application possibilities of the strategies.</td>
</tr>
<tr>
<td></td>
<td>Fluctuation in children’s language use clouds actual effectiveness</td>
<td>Need to collect data and observe children’s language use.</td>
</tr>
<tr>
<td></td>
<td>Encouraged to re-examine teaching strategies used</td>
<td>Value in self-reflection.</td>
</tr>
</tbody>
</table>
school year. The first sub-theme was the behavioral evidence of the effectiveness of the milieu strategies on the children’s language growth and use and social interactions with both teachers and peers.

All of the teachers were able to provide many great examples of how the target children’s language use and social interaction patterns had changed, especially of the children learning English as a second language. The teachers’ comments provide an important context for understanding the complete reversal of their comments in the second theme on their endorsement of the strategies. Each of the following examples provides behavioral evidence of the benefits the teachers saw from using the strategies with the children, such as the children using new words while interacting with a teacher, the children taking more initiative with peers, and a greater willingness to continue talking despite having an incomplete vocabulary to express his or her thoughts.

I have noticed that after I use the example of describing while playing with Katelyn, she uses those words with other friends or in a different setting. So she is not just picking up the words, she is transferring them to a different setting (Sarah).

She [Katelyn] has even started doing that [talking and interacting] with [the] other children where before she wouldn’t even ask anyone to play, she would just stand there and watch. It has helped her more, not just language wise but personally, socially (Sarah).

He [Paul] doesn’t have the high language but he is using sentences now, and comparable with some of the other children, and he does try and use a whole sentence but occasionally he leaves a word out because he is not sure what the word is. Susan does that once in awhile but her sentences have gotten longer and more detailed (Kim).

Joann will use more English. In the beginning she knew who spoke Spanish and who spoke English and she would go to the Spanish speaking children and speak with them but now she and lately Katelyn has gone from only speaking to Spanish children to speaking with everyone (Julie).
Erin is definitely talking more and using more words. Megan, I think from the beginning of the school year to now, she is talking way more and isn’t as hesitant to talk. She seems more sure of herself and will say something even though sometimes it isn’t grammatically correct (Sarah).

I think actually they’re doing better [the target children] than the other kids [non-target children] because I think ‘oh I should’ve used that with them too. They would’ve gained more language’ (Julie).

In these quotes, all three of the teachers refer to the behavioral evidence they have seen about the changes in these target children’s language growth, especially the children learning English, that occurred over the course of the school after the milieu strategies had been implemented. However, each quote indicates differences each child exhibited in their own personal growth and acquisition of English and their willingness to use their emerging English skills to interact with others.

One aspect of the sub-themes in these main findings from the individual interviews is the complete juxtaposition of the innumerable examples of how the children have grown in their English knowledge and use to the second sub-theme, the teachers’ tentative endorsement of the milieu strategies. Thus, it is important to remember the teachers’ comments and examples of how surprised they were about the children’s language growth as the following examples of their tentative endorsement of the milieu strategies. Many of the following statements from all three of the teachers appear to be positive and supportive of the milieu strategies, but upon closer examination of the wording and the references they make to other strategies they have used, the interpretation of their statements as supportive becomes more doubtful and whether the teachers will actually use them in the future with other children.
I think they’re a lot similar to what we have always done and I think they were successful. I mean, Katelyn has picked up more language than I ever expected her to (Sarah).

The strategies do work. And I am sure that has helped them continue on with skills they have picked up but it does go up and down so much [daily language use] (Kim).

It [the strategies] has really worked well with Paul because he just thought it was a riot when I was teasing him [through sabotage]. Susan would giggle but probably didn’t use it as much with Scott because he needed the higher level of trying to get him to expand (Kim).

I will probably continue because I have always used those [strategies]. I will probably do more of the joking teasing thing [sabotage] on children who are having more difficulty than in the past. I think that promoted me to use it more than I have been (Kim).

Oh yeah [I will keep using them]. Some of them I already used I just didn’t have a name for them and some of the new ones that you have that I hadn’t done before worked with the kids (Julie).

When you come back and say, ‘wow’, I think ‘oh it is working’. I keep doing it [using the strategies] without thinking about how it is working (Julie).

I think sticking with it [the strategies] over time you can tell the growth of the two girls (Sarah).
Definitely [will continue using the strategies], especially [with] the limited English [children] (Sarah).

In these statements about the effect of the milieu strategies on the children’s language growth, there is considerable hesitancy in believing that the strategies had much influence on the children’s language acquisition. In some of the comments, the teachers would, in one sentence, convey uncertainty, but in the next sentence express surprise about how much the child had progressed in his or her English acquisition and use. Julie stated that she has always used these strategies but did not have a “name for them” and when the strategies work, she does not reflect on the outcome of the strategies or about other ways she could use the strategies to teach the children. Yet, Kim admitted that implementing these strategies had
caused her to stop and think about the influence these strategies and ones she typically uses had on the children’s language growth and use. Additionally, Sarah was confident that she would use the milieu strategies with children learning English as a second language in the future. Based on the teachers’ comments and statements, all three of the teachers were at different places on a continuum based on their endorsement of the milieu strategies and the effectiveness and benefits of the milieu language strategies.

It is interesting to compare the teachers’ examples of how they had seen the target children grow in their language use to their comments about the effectiveness of the milieu strategies. All three of the teachers provided examples of behavioral evidence of the impact of the strategies on the children’s language growth and all three teachers also made comments that reflected their personal tentative endorsement of the milieu strategies. All three teachers were supportive of the amount of growth they saw in the target children’s language use and confidence in using their emerging English skills but all three teachers were not convinced the strategies were effective in scaffolding and fostering the target children’s language growth and use.

Summary

Based on the teachers’ statements in the focus group and the individual interviews, a mixture of beliefs about strategies in general and the milieu strategies emerge. All of the teachers acknowledged the benefits and value in using milieu language strategies with young children, but also expressed doubt about the necessity of using strategies once the children had acquired the skills and knowledge targeted by the strategies. It was intriguing that the teachers were able to describe how each of the target children learning English as a second language had progressed in their English acquisition, but yet all of the teachers were tentative
in their endorsement regarding the effectiveness of milieu strategies, much less strategies in
general that they had used for years.
CHAPTER 5. DISCUSSION AND IMPLICATIONS

Summary of Findings

Several conclusions can be drawn from the results of this exploratory study. Based on the results on the teachers’ fidelity of strategy implementation, on-going coaching and feedback was helpful for two teachers. Two of the teachers were able to reach high levels of fidelity during the training phase and maintain those for the rest of the school year. These two teachers did not require regular on-going feedback and coaching. The third teacher was not able to reach high levels of fidelity either during or after the training phase. She received weekly on-going coaching and feedback, but did not improve in her fidelity of strategy implementation with the target children.

Overall, the children showed signs of language growth during the language intervention. Children learning English as a second language showed gains in expressive and receptive language skills on the Bracken Basic Skills Measure as well as the Picture Naming Individual Growth and Development Indicator. Most of these children had moderate to high effect sizes for the amount of language acquired during the study. The children who were native English speakers also increased in their language skills during the study. Their language growth was not as dramatic as the language growth of the children learning English as a second language because their language skills were already at typical monolingual age levels. However, the results indicate that the strategies were successful with the children learning English as a second language as they had the steepest language growth trajectories. The children learning English as a second language still lagged behind their native English speaking monolingual peers, but they made gains in their English skills. Even though the assessment scores place the children learning English as a second language behind their
monolingual English speaking peers, the assessments did not measure the children’s linguistic knowledge and proficiency in both Spanish and English, which would have provided a better understanding and representation of the children’s language skills. These results indicate that language-based teaching strategies are helpful in reducing the language achievement gap that exists between young children who are native English speakers and those who are learning English as a second language. Based on the children’s language growth in preschool, it is important to identify appropriate and effective language-based teaching strategies that can be used in kindergarten and the early elementary grades to help them continue their language acquisition. Being able to reduce the language gap between children learning English as a second language is one way of reducing the academic achievement gap between native English speakers and children learning English as a second language (Xu & Drame, 2008). However, it is important that through the process of acquiring English as a second language children do not lose their language skills in their first language (Baker, 2006; Valdes & Figueroa, 1994).

Finally, based on the teachers’ statements in the focus group and the individual interviews, they were supportive of milieu language strategies but were tentative about the effectiveness of the strategies on language growth. All three of the teachers acknowledged there were benefits and value in using teaching strategies with young children, but they were doubtful if they would use the milieu strategies again in the future with other children acquiring language skills. It was fascinating that the teachers were able to describe how each of the target children learning English as a second language had progressed in their English acquisition but yet all of the teachers were tentative in their endorsement regarding the effectiveness of milieu strategies, including strategies that they had used for years. Therefore
it is important to provide training and learning opportunities to teacher about the evidence supporting the use of developmentally appropriate and effective teaching strategies, such as milieu language strategies. It is important that teachers receive on-going training and learning opportunities about effective teaching strategies since most teachers will at some point have children learning English as a second language in their classroom (Gray & Fleischman, 2004-05; NCES, 2010; NSDC, 2001; USDE, 2007). However, for teachers to receive the maximum benefit from trainings and learning opportunities about teaching strategies, the trainings need to be on-going over several days or weeks (NSDC, 2001; USDE, 2007) and present ways teachers can implement new knowledge and skills into their teaching practices through self-reflection and coaching (Crandall, 2001; Hsieh, Hemmeter, McCollum, & Ostrosky, 2009). According to Crandall (2001), one of the goals of on-going coaching and feedback is to increase teachers’ knowledge and skills to incorporate into their teaching practices.

These results indicate that milieu strategies can be used with fidelity by teachers in their daily routines and teaching and can positively impact children’s language growth and acquisition. The results support other research regarding the effectiveness of milieu language strategies on children’s language growth when the child is acquiring language skills (Kaiser, Ostrosky, & Alpert, 1993; Yoder, Kaiser, Goldstein, Alpert, Mousetis, Kaczmarek, & Fischer, 1995). While these studies focused on children with language delays, there are some parallels with children learning a second language. One parallel is that with scaffolded language through intentional use of language-based teaching strategies, children acquire language and social skills they previously did not have. Another parallel between the research and the current findings is these strategies can be embedded easily into daily
routines and activities with children, which promotes engagement and learning (Kaiser, Hancock, & Nietfeld, 2000).

Additionally, the results of the current study support the research (Noell, et al., 2005) describing the need for on-going training and feedback to maintain fidelity of an intervention or of a new skill, such as language-based teaching strategies. Each of the teachers had her own unique fidelity record in this study. One teacher, Sarah, was able to implement the milieu strategies well during the training phase, and increased in the level of intervention implementation fidelity over time with on-going coaching and feedback. Kim’s pattern of intervention implementation fidelity was the opposite; she had high levels of fidelity during the training phase and then dropped after the training was completed. The third teacher, Julie, never reached high levels of implementation fidelity, even during the training phase of the study. She remained consistently low in her implementation fidelity. These mixed results of intervention implementation fidelity are common in research examining the value of on-going coaching. On-going coaching has been found to be important for maintaining fidelity (Hsieh, Hemmeter, McCollum, & Ostrosky, 2009; Noell, et al., 2005), however, it is possible that different types of coaching and feedback are needed to achieve high levels of fidelity by all participants. Julie’s inability to implement the strategies with fidelity could be tied to her lack of self-reflection on her strategy use, which came through the individual interviews. The ability to implement a new skill into daily routines requires self-evaluation and self-reflection regarding performance (Bailey, 2001; Murphy, 2001). Coaching can increase the need for self-evaluation and self-reflection because the coach provides performance feedback as a way to facilitate a discussion about what the participant can do in the future based on current performance levels (Bailey, 2001; Hanft, Rush, & Shelden, 2004; Murphy, 2001). As a
teacher, the use of performance-based self-evaluation and self-reflection supports a growing knowledge of the teaching-learning process and how “to enhance the quality of learning opportunities” provided to students learning a second language (Murphy, 2001, 500).

**Limitations**

This study sought to measure children’s language use and growth over the course of a school year. By measuring language use and growth over the course of a school year, there are several limitations to the results of the study. The first limitation is that while there were language gains in all of the children participating in the study, their language gains could be partly due to natural language acquisition processes. Even though a multiple baseline single subject research design was used to provide greater strength to the results, it is impossible to remove language input from children to determine the absolute effectiveness of an intervention. A second limitation of the study was that only Spanish speaking children were used as the target children to receive the language-based intervention. Thus, the results cannot be generalized to other languages. However, it is likely there would be similar results with other languages. Another limitation of the study was that it was conducted in a Head Start program. Therefore, the results cannot be generalized to other preschool programs or to in-home care options for young children, especially as Head Start enrolls children from lower socio-economic homes than may be typical for most preschool programs or in-home care. A fourth limitation was the small sample size, which also affects the ability to generalize the results to other preschool programs and young children learning English as a second language. Another limitation was that insufficient information was gathered regarding all three teachers’ practices of self-evaluation and self-reflection to see if these processes affect one’s ability to implement a new skill with fidelity over time. Another limitation was that
language data regarding the children’s language growth were collected of only one language, English, instead of both English and Spanish and their language growth from a monolingual English perspective.

**Implications for Future Research**

Additional research is needed to determine the effectiveness and benefits of using milieu language strategies with preschool-aged children learning English as a second language. More research is needed to examine if shorter interventions that do not span an entire school year would result in similar levels of effectiveness. As most of the research on milieu language strategies to date has been with children with a language delay, it is important to determine if the strategies provide a unique influence on children’s language acquisition who are learning English as a second language. Also, more research is needed with milieu language strategies when used in the child’s first language to determine if the strategies can positively influence the child’s first language maintenance. It is possible that using the strategies in this way would promote the children’s continue use and growth in their first language rather than abandon it over the course of the school year, as was evidenced by the amount of Spanish used by the participating children at the beginning and ending of the school year. It is important to find and utilize methods of teaching English to young children but not at the expense of their first language. Finally, additional research is needed that examines the use of milieu strategies across activities and throughout the day rather than focusing only on one activity, center time. It is possible that different patterns of strategy use by the teachers would emerge as well as different patterns in the children’s language use and acquisition would emerge.
Implications for Practice

There are several implications for practice emerged from the results of the study. The first implication for practice is recognizing that research from other fields regarding teaching strategies can be applied to new contexts and settings. However, it is important to recognize that each child has unique characteristics that will influence the outcome of teaching strategies and that not all children are alike, thus, similar results cannot be expected. While milieu language strategies originated from research with children with a language delay, children learning English as a second language are not the same as children with a language delay. However, both groups of children have a similar need, to be able to communicate with those around them. Consequently, both groups of children need positive interactions with adults and their teachers to promote language growth over time. Milieu language strategies provide a positive interactive framework for building language skills into on-going classroom and home routines. Milieu language strategies also provide a systematic framework for increasing the language expectations of children’s language use in a positive interactive manner.

A second implication of the study for practice is the usefulness of on-going training and coaching. On-going training and coaching assisted two of the preschool teachers in their implementation of the language strategies. However, it is important to note that each person may need a different type of coaching than what is being offered. Regardless of the type of coaching needed, coaching, feedback, and mentoring have been shown to facilitate the acquisition and use of new skills into daily routines and activities (Baily, 2001; Hanft, Rush, & Shelden, 2004; Murphy, 2001). However, within the context of coaching and feedback, each person needs to be actively involved in self-evaluation and self-reflection practices to
obtain the greatest benefit from the coaching and feedback. Teaching is an on-going learning process that lasts a lifetime (Crandall, 2001).

Another implication for practice based on the study is the challenges that preschool teachers face teaching young children learning English as a second language. It can be difficult to juggle the learning needs of all the children in the classroom; however, this will become a challenge that will face more and more teachers in the coming years as the number of children learning English as a second language continues to increase. It is important for teachers to know the “why” behind the recommended use of teaching strategies and to be able to see how the strategies affect the children’s learning. Yet, it is also important for teachers to be able to flexibly use the strategies they have when they encounter new challenges and be able to purposefully choose which strategies to use with a child based on the known and desired outcome afforded with specific strategies. Consequently, teaching young children requires on-going learning and self-reflection to be able to meet all the needs of all the children in the classroom.
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**APPENDIX A. TEACHER STRATEGY IMPLEMENTATION FIDELITY FORM.**

<table>
<thead>
<tr>
<th>Establishes Routines</th>
<th>Yes</th>
<th>No</th>
<th>N/O</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified child preferred routines, activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies functional communication/language</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>outcomes appropriate to context for embedding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages child in beginning and ending of routine</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Follows predictable or logical sequence</td>
<td></td>
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</tr>
<tr>
<td>Provides opportunities for repetition of communication and/or routine</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Total for Establishing Routines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental Arrangement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical arrangement (positioning) encourages engagement</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adult uses materials to encourage communication (e.g., retains control of some materials so child can request, comment, protest)</td>
<td></td>
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<tr>
<td>Adult manages materials during interaction by adding or taking away materials when child loses interest or wants to expand routine</td>
<td></td>
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<tr>
<td>Adult gives child some choice between/within activities</td>
<td></td>
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<tr>
<td>Adult expands the routine in a way that supports the child’s continued engagement</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total for Environmental Arrangement</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Responsive Interaction</strong></td>
<td></td>
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<tr>
<td>Adult follows child’s interest</td>
<td></td>
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<tr>
<td>Adult physically engages in child’s activity</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adult nonverbally imitates child’s action (mirroring, contingent imitation)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adult takes turns with the child, verbally or nonverbally (balanced turn taking)</td>
<td></td>
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<tr>
<td>Adult uses descriptions of child’s actions after mirroring (mapping)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Adult responds contingently</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total for Responsive Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Modeling</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adult models language at the child’s target level</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Adult models specific targets</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adult incorporates child’s mode of communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult appropriately expands child’s communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total for Modeling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Prompting**
Prompting occurs in response to child’s requests or is embedded in routines
Adult prompts language at target levels
Adult follows the prompting sequence
Adult stops prompting when child loses interest
Total for Prompting

**Total Fidelity Percentage**
N/O refers to No Opportunity
APPENDIX B. SAMPLE OF TRAINING MATERIALS FROM TEACHER TRAINING SESSIONS.

Language Strategies for Teachers to Use to Manipulate Children’s Communication Presentation

The presentation was adapted from Kaiser and Hancock’s Enhanced Milieu Teaching training for teachers by Emily Worthington for use by Buena Vista Head Start 2010.

Arranging the Environment

- Arrange the environment to provide opportunities for the child to communicate
- Notice when and what the child is communicating about
- Notice what the child is interested in
- Respond to the child’s communication and engage with the child
- Model new forms of communication and language
- Expand on what the child communicates
- Prompt for target language

Using Strategies in the Environment

- Strategies:
  - In sight, out of reach
  - Gatekeeper
  - Choices
  - Silly situations
  - Sabotage/ missing parts
- Refer to the handout for examples

Mirroring and Mapping Strategy

- Mirroring occurs when the adult imitates the child’s nonverbal behaviors
- Mirroring means you wait, watch, and then do exactly what the child did
- Mapping occurs when the adults describes and narrates exactly what the child is doing while the adult also simultaneously “copies” the child’s actions
- Promotes engagement and joint attention around the activity
- Informs the child that you are attending to her activities
- Connects you to the child and orients her to you
- Refer to the handout and clip 1

Target Talk for the Child

- Definition:
  - Target talk is talk at the child’s “target level”
    - Within one to two words of the child’s current language,
    - Includes the specific communication targets (verbal and/or non-verbal) that have been identified for the individual child.
• Provides the basis for modeling communication and establishing communication expectations for the child

**Modeling Communication**

• Arrange the environment using one of the strategies and then wait for the child to request:
  - Interesting materials
  - Choice Making
  - In View, Out of Reach
  - Assistance
  - Inadequate Portions
  - Sabotage
  - Silly Situations

• If the child did not use the expected or desired language (target talk) then ask:
  - Open-ended question (What do you want?)
  - Choice question (Want the dog or the pig?)

• You can ask an open question or a choice question or both
  - If you ask both an open and a choice question, then always start with an open question

• If the child did not use the expected or desired language (target talk) when you asked, then you:
  - Prompt child to imitate modeled language
    - Model begins with “SAY”
      - Make the prompt clear to the child
    - Adult waits for child response
    - Approximations may be accepted
      - Criteria for response are predetermined
    - If the child does not respond, then say the model again as you give the child the material

**Expanding Communication**

• When the child uses expected or desired language (target talk), you expand:
  Adult holds a red car and a blue car and waits
  Child says, “Blue car” (Target level language)
  Adult says, “Want the blue car”

• If you use all the prompts (Wait – Ask – Say) and the child did not follow your model, then repeat the model and give the child the reinforcement:
  Adult holds the red car and the blue car and waits
  Child points to the blue car
  Adult asks, “What do you want?”
  Child says, “Blue”
  Adult says, “Blue car” and give the child the blue car

• Prompting sequence is: wait—ask—say—expand and give the object
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definition</th>
<th>Adult Skill</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interesting Materials</td>
<td>Materials and activities that children enjoy.</td>
<td>Knows child toy/activity preference. Good observation skills to discriminate child interest.</td>
<td>Complete toy/activity preference list for each child. Consider putting toys together in “fun” ways like the farm animals and shaving cream or race cars and water.</td>
</tr>
<tr>
<td>In View, Out of Reach</td>
<td>Placing some desirable materials within view but out of reach of children.</td>
<td>Makes a physical environmental plan of how toys/materials can be in the child’s view and out of reach.</td>
<td>Put toys in see-through plastic bins or Ziploc bags on a shelf taller than the child.</td>
</tr>
<tr>
<td>Gatekeeper</td>
<td>Placing yourself between the child and the desired material or activity.</td>
<td>Limiting number of toys. Behavior management strategies for engaging child and gently retaining control of materials.</td>
<td>Keep some of the materials in your lap or in see through container/Ziploc bags beside or behind you.</td>
</tr>
<tr>
<td>Assistance</td>
<td>Creating a situation in which children are likely to need adult assistance.</td>
<td>Accurate assessment of child’s fine/gross motor and self help skills. Ability to be able to watch child “struggle” without always doing it for the child.</td>
<td>Toys that have zippers/ buttons, that are windup, pieces are kept in child proof containers.</td>
</tr>
<tr>
<td>Inadequate Portions</td>
<td>Providing small or inadequate portions of preferred materials,</td>
<td>List of preferred materials with multi parts. Behavior management skills to keep child engaged while gently maintaining control of materials.</td>
<td>Legos, blocks, potato head, cars and trains, playdoh, pegs, puzzles, bubbles, one chip or cookie instead of the entire bag.</td>
</tr>
<tr>
<td>Sabotage</td>
<td>Not providing all of the materials children will need to complete a task or otherwise preventing them from carrying out an instruction.</td>
<td>List of child’s preferred tasks/activities and how each can be adapted/sabotaged so the child may need to communicate about it.</td>
<td>Putting your hand over the button that makes the game work. Blocking the door for the dolls, farm animals.</td>
</tr>
<tr>
<td>Protest</td>
<td>A situation in which a child wants the adult to stop doing something.</td>
<td>Ability to identify tasks which child finds frustrating and translate components of that task into play context.</td>
<td>Something that the child likes to do by himself but not something that is “mean” or the child finds particularly upsetting (like tickling). Examples might be pouring his own drink, pushing the elevator button, closing the door by himself.</td>
</tr>
<tr>
<td>Silly Situations</td>
<td>A situation the adult sets up that violates a child’s expectations or that</td>
<td>Ability to know what makes child laugh, knowledge of child’s cognitive understanding of</td>
<td>Putting the potato head parts (like glasses and mustache) on adult face. Wearing the child’s hat, socks, shoes. Putting child’s hat</td>
</tr>
<tr>
<td><strong>Choice Making</strong></td>
<td>A situation in which the child is given an opportunity to make a choice between two or more activities or objects.</td>
<td>Assessment of choices that will be meaningful to the child within the context of routines or play, knowledge of child’s target language level.</td>
<td>Choices about drinks, food, clothing, toys, games, videos or tv programs, dinnerware, play location, music, books, where they sit.</td>
</tr>
</tbody>
</table>
APPENDIX C. PICTURE NAMING INDIVIDUAL GROWTH AND DEVELOPMENT INDICATOR ADMINISTRATION INSTRUCTIONS.

Retrieved and available from

http://ggg.umn.edu/get/procedures_and_materials/PictureNaming/adminInstr_pictnam.html

Sample Administration for Picture Naming

Remember
- Follow directions below exactly as written, reading aloud all words in bold.
- Continue to Picture Naming Test Administration, only if the child names all four sample cards correctly during this Sample Administration.

Procedure
1. Select these four (4) cards from the stack to use as sample items: apple, baby, bear, cat. Always use the same sample cards, even if you are re-administering the test.
2. Say, “I’m going to look at these cards and name these pictures. Watch what I do.”
3. Look at and clearly name the four sample cards while the child observes.
4. Say, “Now you name these pictures.”
5. Show the four sample cards to the child in the same order as you named them, and give the child an opportunity to name each picture.
6. Praise the child for naming the picture correctly; otherwise, provide the correct picture name. If the child responds in a different language, say “This is also called a (picture name). Call it a (picture name).”
7. Continue on to Test Administration only if the child names all four pictures correctly. Write NA on the recording form if you don’t continue administration.

Test Administration for Picture Naming

Remember
- This is a timed, 1-minute task. Be sure to watch your stopwatch!
- Shuffle cards prior to each administration. Don’t include sample cards.
- As the child responds, separate cards into two piles: one for correct responses and one for incorrect or skipped responses.

Procedure
1. Say, “Now we’re going to look at some other pictures. This time, name them as fast as you can!”
2. Start the stopwatch and immediately show the first card to the child.
3. If the child does not respond within 3 seconds, point to the picture and say: “Do you know what that is?” or “What’s that?”
4. If the child still does not respond within an additional 2 seconds, show the next card.
5. As soon as the child names a picture, show the next card.
6. After 1 minute, STOP showing cards to the child. Record the total number of correctly named pictures on the recording form (do not include correct responses from sample items).
APPENDIX D. PICTURE NAMING INDIVIDUAL GROWTH AND DEVELOPMENT INDICATOR GRAPHS BY CLASSROOM.

Trend lines were based only on Intervention Correct, the number of words correctly identified during the intervention phase of the study. Trend lines do not include the values in the baseline phase, even though the trend line crosses through the baseline phase area. The dotted line connecting the three graphs visually represents the staggered entry of the second and third target child in the classroom.

Within graphs, a discontinuous colored line indicates the child was not at the school that day (missing) for the assessment. A solid colored line connecting two data points indicates the data was collected over consecutive weeks.
Sarah’s Classroom

Intervention phase
Nonoverlapping data line
Trend line

Baseline phase
Baseline phase line

Megan

Weeks
0 5 10 15 20 25 30 35 40 45
Number of Identified Pictures

Baseline Correct
Baseline Incorrect
Intervention Correct
Intervention Incorrect
Linear (Intervention Correct)

Erin

Weeks
0 5 10 15 20 25 30 35 40 45
Number of Identified Pictures

Baseline Correct
Baseline Incorrect
Intervention Correct
Intervention Incorrect
Linear (Intervention Correct)

Brian

Weeks
0 5 10 15 20 25 30 35 40 45
Number of Identified Pictures

Baseline Correct
Baseline Incorrect
Intervention Correct
Intervention Incorrect
Linear (Intervention Correct)
APPENDIX E. OPEN CODING EXCERPTS FROM INDIVIDUAL INTERVIEWS.

Excerpts from the transcript of the interview with Sarah at time 2.

Emily: These are the assessments I have been doing with the kids. So Brian, he isn’t going to show a lot of growth. Then Erin I did it two different ways also but I finally decided to take her total number of words and graph those compared to those she didn’t respond to at all and compare those two. So she is talking more. She is extremely quiet which just cracks me up. So then I broke them apart where if it was a correct name with the card versus the wrong label and no response a little bit more growth there. Then Megan is just all over the place. We are going up and going down. Then this is from when I went back and transcribed all of the video recordings of the interactions with the kids. Brian just kind of hung in there. Erin is all over the place a little bit, kind of just stuck in one place. Megan has a really nice increase over time. Have you noticed any changes since the last couple of months? Sarah: Erin is definitely talking more and using more words. Megan is, I don’t know about the last couple of months but I think from the beginning of the school year to now, she is talking way more and isn’t as hesitant to say. She seems more sure of herself and will say something even though sometimes it is grammatically correct. I would say they have both improved because I expect more out of Megan. I think she can do more but she is really just a clam, like “I am not going to say it”.

Emily: It has been funny because the last couple of weeks doing that picture naming with her for whatever reason she just wanted to hold the cards and whenever she would hold the cards, that’s when I could get her to start talking. It’s crazy. Another thing is nothing nothing nothing and then if I let her put it down after saying it, I get a lot more out of her. I know a couple of months ago you weren’t so sure about the successfullness of the strategies. Sarah: I think sticking with it over time you can tell the growth of the two girls.

Emily: Do you think you will use the strategies next year with different kids? Sarah: Definitely. Especially the limited English. Yes.

Emily: I think that is everything that I wanted to know at this point.
Excerpts from the transcript of the interview with Julie at time 2.
Emily: ‘Cause I just get to see this end of it. This is the one where I go and take them and have them name the pictures. Let’s start with Joann. She is just all over the board but she has the nicest line she has the nicest line by far of all the kids. Those are her correct, wrong and Spanish. Here is Anna and Katelyn was just all over the board which was kind of funny. And then this is what I videoed and went back and transcribed the number of meaningful sounds. There is Katelyn she just kind of hung out. This one is Joann… and then Anna who is also all over the board.
Julie: That is like today.
Emily: Exactly. Have you noticed any changes in their language skills and interactions?
Julie: Yeah Joann will use more English. In the beginning she knew who spoke Spanish and who spoke English and she would go to the Spanish speaking children and speak with them but now she and lately Katelyn has gone from only speaking to Spanish children to speaking with everyone. It is more lately but it has taken a long time. Anna has always been a talker.
Emily: Do you feel like the strategies have been successful?
Julie: Yes I do.
Emily: Do you think you will use them next year?
Julie: Oh yeah. Some of them I already used I just didn’t have a name for them. And some of the new ones that you have that I hadn’t done before worked with the kids. So I will hang on to that.
Emily: How do you think the three kids compare to the rest of the kids you did not use the strategies with? Were they being pretty typical?
Julie: I think actually they’re doing better than the other kids because I think “oh I should’ve used that with them too” and they would’ve gained more language. It is hard not to use it with the other children. ‘Cause I know that they would’ve benefited from it and even with his speech problems I think it would’ve helped him. By being here once a week you see growth and improvement where I see them everyday I see little improvements. When you come back and say “wow” I think “oh it is working”. I keep doing it without thinking about how it is working.
APPENDIX F. FOCUS GROUP THEMES AND SUB-THEMES.

Strategy/Observation and Perception

PBS (Positive Behavioral Support)
- “I use a lot of PBS [because I am a pilot PBS classroom and it] works really well especially with the ESL learners”
- “the PBS the picture cues, repetition quite a bit, and just giving them the words because you know they don’t [know them]”
- “the PBS it has different strategies to try at different times with different problem behaviors but a lot of PBS is trying to prevent problem behaviors from occurring and so you try to do all these different things like you start out introducing the rules and showing them what it looks like sounds like feels like”
- “I kind of think I kind of have a wider variety [of strategies] with that [PBS] than just one strategy that I use all the time I mean I use the same things but then I can see where I can add in this or try this at this time because that’s not working”

Acquisition process for children learning English as a second language
- “Just trying to cue them open ended type things depending on what stage of language they are at with at the moment”
- “[I] might rephrase how they state some[thing] because especially with our Spanish [speakers] you know when they are learning the English they put their words [together] like they would if they were saying Spanish”
- “A lot of times when the children speak only Spanish I’ll let them speak Spanish to me but I’ll repeat back to them what they said in English”
- “One word- two word cue type things in the Spanish. In the summer [it’s hard to practice Spanish for the fall] you know I have nobody to practice with so it sort of goes away and then I have to start up again and depending on how much I need it in the fall is how much I end up using it”
- “But especially the first few weeks it [music and musical cues] helps them feel more comfortable and gives them more of a clue”

Strategies in general
- “You just do some things and you don’t have to think about it and spit it out what it is”
- “Sometimes I’ll just ask the children “how would you say this in Spanish?” And some years that works really well and some years they come from some different areas that they’ll argue over what the word is for this or that”
- “Well often you might try a strategy and the strategy you used in the past might not work for a particular child. So you sort of go through a series of things that you try until you find something that sort of clicks [for that child]”
- “You know the children who don’t speak English do not understand that [the classroom rules]. And in the beginning I use more songs- First we’ll do it in English and then it’ll be in Spanish”
- “I think the strategies overall do work throughout the year because you’ll see such big growth in their learning and not just learning English but other things the other academic skills we’re working on”
Observations of children who are ESL

- "I think what I do to kind of lead them out of their native language I mean I’ll still let them use their native language or even answer me certain questions like when I’m assessing except for the Boehme. When I’m assessing I’ll accept answers in either language because they are just three”
- “They seem to pick up English more quickly when I just kind of slowly drop out the Spanish”
- “I do know that I’ve seen like your kids, that you know they pick up the English pretty quickly even though you don’t use Spanish a lot with them”
- “Young children learn so quickly”
- “I think I have a child that just isn’t paying attention like she should and isn’t picking it [English] up as quickly as [some of the others]”
- “I think the strategies overall do work throughout the year because you’ll see such big growth in their learning and not just learning English but other things the other academic skills we’re working on”
APPENDIX G. INDIVIDUAL INTERVIEWS THEMES AND SUB-THEMES.

Perceptions of Milieu Strategies

Similarity of Milieu strategies to other strategies
- “I think they’re a lot similar to what we have always done and I think they were successful.”
- “Well I guess I try to think about what I am saying but I also find it hard because it seems like you always do it [interact] the way you used to do because you don’t think about the specific strategies but then again, I use a lot of those strategies and I don’t realize that I am doing it.”
- “I will probably continue because I have always used those [strategies].”

Successfulness of the Milieu strategies
- “I think they’re a lot similar to what we have always done and I think they were successful. I mean, Katelyn has picked up more language than I ever expected her to.”
- “The strategies do work. And I am sure that has helped them continue on with skills they have picked up but it does go up and down so much [daily language use].”
- “It [the strategies] has really worked well with Paul because he just thought it was a riot when I was teasing him [through sabotage]. Susan would giggle but probably didn’t use it as much with Scott because he needed the higher level of trying to get him to expand.”
- “I will probably continue because I have always used those [strategies]. I will probably do more of the joking teasing thing [sabotage] on children who are having more difficulty than in the past. I think that promoted me to use it more than I have been.”
- “Oh yeah. Some of them I already used I just didn’t have a name for them and some of the new ones that you have that I hadn’t done before worked with the kids.”
- “I think actually they’re doing better [the target children] than the other kids [non-target children] because I think ‘oh I should’ve used that with them too. They would’ve gained more language’.”
- “When you come back and say, ‘wow’, I think ‘oh it is working’. I keep doing it [using the strategies] without thinking about how it is working.”
- “I think sticking with it [the strategies] over time you can tell the growth of the two girls.”
- “Definitely [will continue using the strategies], especially [with] the limited English [children].”

Observations of the Milieu strategies
- “No because they are basically strategies that you use and you build on, you just continue to build. Individual children may be at different stages and [you need to] present it or use it a little bit differently. [I think] using it [the Milieu strategies] in Spanish, because I can’t, that would help them in the beginning move a little farther along. That would be useful if you could speak it in their native language. I think because that may help them a little bit faster and then be able to transfer it into English and then eventually drop that strategy.”
Changes in interaction patterns
- “I have noticed that after I use the example of describing while playing with Katelyn, she uses those words with other friends or in a different setting. So she is not just picking up the words, she is transferring them to a different setting.”
- “She [Katelyn] has even started doing that [talking and interacting] with [the] other children where before she wouldn’t even ask anyone to play, she would just stand there and watch. It has helped her more, not just language wise but personally, socially.”
- “Susan is interacting more with her peers. She was sort of a loner and all of a sudden, now she seems to work, she is at the art table, talking to the others.”
- “He [Paul] doesn’t have the high language but he is using sentences now and comparable with some of the other children and he does try and use a whole sentence but occasionally he leaves a word out because he is not sure what the word is. Susan does that once in awhile but her sentences have gotten longer and more detailed.”
- “Paul has a lot more verbal skills and can elaborate and initiate more on his own…. So now he is interacting with the children not just me. His sentences have gotten longer and when he gets to a word and he isn’t sure he will pause and he will just leave it out and go on.”
- “Susan has gotten more elaborate and just keeps adding more.”
- “Joann will use more English. In the beginning she knew who spoke Spanish and who spoke English and she would go to the Spanish speaking children and speak with them but now she and lately Katelyn has gone from only speaking to Spanish children to speaking with everyone.”
- “Erin is definitely talking more and using more words. Megan, I think from the beginning of the school year to now, she is talking way more and isn’t as hesitant to talk. She seems more sure of herself and will say something even though sometimes it isn’t grammatically correct.”
APPENDIX H. INSTITUTIONAL REVIEW BOARD APPROVAL LETTER.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

DATE: 22 September 2009
TO: Emily Worthington
63 LeBaron Hall

CC: Gayle Luze
51B LeBaron Hall

FROM: Roxanne Bappe, IRB Coordinator
Office for Responsible Research

TITLE: Training Head Start Teachers to Use Milieu Teaching with Children

IRB ID: 09-384

Approval Date: 22 September 2009
Date for Continuing Review: 20 September 2010

The Chair of the Institutional Review Board of Iowa State University has reviewed and approved this project. Please refer to the IRB ID number shown above in all correspondence regarding this study.

Your study has been approved according to the dates shown above. To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Use the documents with the IRB approval stamp in your research.
- Obtain IRB approval prior to implementing any changes to the study by completing the "Continuing Review and/or Modification" form.
- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.
- Stop all research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- Complete a new continuing review form at least three to four weeks prior to the date for continuing review as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Research investigators are expected to comply with the principles of the Belmont Report, and state and federal regulations regarding the involvement of humans in research. These documents are located on the Office for Responsible Research website [www.compliance.iastate.edu] or available by calling (515) 294-4566.

Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 1138 Pearson Hall, to officially close the project.