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## Use of Video-Models to Teach Language Stimulation Techniques

Jason Killian

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USE OF VIDEO-MODELS TO TEACH LANGUAGE STIMULATION TECHNIQUES

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
In partial fulfillment of the  
Requirements for the degree of  
Masters of Arts

In

The Department of Communication Sciences and Disorders

By  
Jason Killian  
B.A., San Diego State University, 2016  
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# TABLE OF CONTENTS

ACKNOWLEDEMENTS.....	ii
LIST OF TABLES.....	iv
LIST OF FIGURE.....	v
ABSTRACT.....	vi
CHAPTER 1. INTRODUCTION.....	1
Parent-Based Intervention.....	5
Enhanced Milieu Teaching.....	9
CHAPTER 2. METHODS .....	17
Design.....	17
Training Videos.....	17
Participants.....	18
Procedures.....	19
Participant Viewing.....	20
Video Coding.....	20
Reliability.....	21
CHAPTER 3. RESULTS.....	22
Participant Selection.....	22
Video Clarity.....	23
Participant Accuracy.....	24
Interrater Reliability.....	25
Intrarater Reliability.....	26
CHAPTER 4. DISCUSSION.....	27
First Research Question.....	27
Second Research Question.....	28
Reliability.....	28
Limitations.....	29
Future Directions.....	29
Conclusion.....	30
REFERENCES.....	31
VITA.....	32
APPENDIX: Participant Demographics.....	33
APPENDIX: Video Response Form.....	34

## LIST OF TABLES

Table 1. Targeted Enhance Milieu Teaching Support Strategies.....	17
Table 2. Video Master List.....	18
Table 3. Participant Demographics.....	19
Table 4. Participant Responses.....	22
Table 5. Participant Accuracy.....	24
Table 6. Interrater Reliability.....	25

## LIST OF FIGURE

Figure 1. Average Accuracy between First- and Second Year Graduate Students.....	24
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## ABSTRACT

The current study was designed to assess the feasibility of creating videos depicting Enhanced Milieu Teaching (EMT) support strategies and presenting them to graduate students in a communication sciences and disorders program, and whether differences in accuracy existed between first- and second-year graduate students. EMT support strategies were chosen due to the previous successes found within the literature. Twelve videos were presented to ten graduate students. Each participant response was analyzed for accuracy and overall responses were compiled to create overall video clarity.

Results showed that the Communication Temptation EMT support strategy videos achieved the highest levels of clarity, while Matched Turns videos achieved the lowest level of clarity. Of the twelve total videos presented, six videos met the criterion level for clarity (i.e., Matched Turns = 0, Expansion = 1, Modeling = 2, Temptations 3). The overall difference between accuracy for both groups of graduate students was found to not be statistically significant (i.e., First year graduate students = 70%; Second year graduate students = 69%).

These findings suggest that some of the videos with EMT support strategies can be used to teach the skills portrayed in the videos. However, the participant's subjective ratings played a factor in overall video clarity. If replicated, future studies should use groups consisting of graduate students and licensed speech language pathologist for a more accurate video clarity score

## **CHAPTER 1. INTRODUCTION**

Caregivers play an integral role within the speech therapy team and the creation of language-based intervention treatment plans. Hart and Risley (1995) sought to examine why school-aged children from different backgrounds developed their language skills at different rates. To do this, they recruited 42 families with children between the ages of 1- and 2-years of age that were learning to communicate. Family participant demographics consisted of upper, middle, and lower socioeconomic status (SES) as well as families on welfare. Researchers then divided each family into their respective SES group to measure the growth of child language within each group. The family participants were observed in their home environment for one hour a month over the course of 2 ½ years. Data on the child's language was collected during each session to be later examined as a comparative measure to each of the other child participants.

Over the course of observation, each of the children's vocabulary acquisition was found to be highly correlated to the parental vocabulary use. 86 percent to 98 percent of the new words added to the child's vocabularies over this time were also a part of their parent's vocabularies. The researchers found that by the age of three, a significant gap in vocabulary diversity had developed among the different groups of children. At the age of three, children from families on welfare exhibited the smallest vocabulary size when compared to the other groups. Based on their findings from the observations conducted, the researchers extrapolated a predictive model on the early experiences' children have with language. By using the predictive model, they found that children from welfare families were exposed to an average of 30 million fewer words by the age of four. This study highlights the impact caregivers play on their child's language



development and how crucial of a role they play in their child's lives. If a language disorder is present, intervention is required in order to remediate the difficulties. There are several language intervention strategies that incorporate parents into the therapy and show promising results in helping children with language disorders.

One approach is Enhanced Milieu Teaching (EMT) (Hemmeter & Kaiser, 1994). EMT is a naturalistic intervention that combines aspects of incidental teaching and environmental arrangement with a responsive conversation where language is modeled for the child (Kaiser & Hester, 1994) While traditional milieu teaching is conducted by a therapist, EMT is specifically designed to help parents learn techniques to implement with the child in the home environment. The simplistic techniques are easily adaptable by caregivers because of the similarity they share with natural adult-child interactions. Success with EMT is likely due to how each technique uses natural adult-child interactions to facilitate child language (Kaiser, A.P & Hancock, T.B., 2003).

EMT focuses on educating parents about normal language acquisition, such as how to model correct production of language targets, information about intervention procedures, and how to integrate the tasks done in therapy into everyday situations. Parents are taught various language support strategies while they are observing speech and language therapy. Further, parents are taught and asked to implement the techniques in the home environment (Sugden et al. 2013).

Ideally, they are involved in the selection of goals, observe therapy, and participate in therapy sessions (Sugden, Baker, Munro, Williams, 2016). Research has shown that caregivers of children with a language impairment were able to incorporate trained strategies into their daily lives. Following training, caregivers showed an increase use of strategies while the child showed positive gains in their language abilities (Roberts, Kaiser, Wolfe, Bryant, & Spidalieri, 2013).

Further research was conducted to examine the impact parent interaction has on child language development.

Kaiser & Hester (1994) taught parents three techniques (i.e., environmental arrangement, responsive feedback, and milieu teaching). They measured frequency of use following the training in a multiple-baseline design with six parent-child dyads. Child participants in the study ranged in age from 37 to 80 months. Parents were taught to use the modeled EMT strategies (i.e., responsive feedback, environmental arrangement, and milieu teachings) with their child. It took them generally 24 intervention sessions to achieve their criterion. Five of the six dyads generalized their skills. The parents that had expressed the most interest and involvement were found to reach criterion levels before the predicted timeline. However, researchers found that children require intervention in variable dosages when compared to other language-impaired children and often cannot meet goals due to time constraints (e.g., length of school year). By implementing home-based therapy, parents can increase their child's overall language exposure.

Another study conducted by Hancock, Kaiser, and Delany (2002) has shown that the overall effectiveness, total length of intervention and generalization of parent training is contingent on the intensity of therapy, the location of the therapy site, and the overall attendance of the parent-child dyad. The use of strategies by caregivers in the home environment has been shown to increase over the course of intervention. Objective criterion for parent performance was established by Hancock, Kaiser, and Delany (2002) to measure the parent intervention success. Four parent-child dyads were taught strategies such as balanced turn taking, semantically responsive feedback, and expansions to model new language for the child. Parents were expected to match each child's utterance on a 1:1 ratio, provide responsive feedback with a greater than 80% occurrence, and greater than a 30% occurrence for modeling their child's utterance. By the

conclusion of the study, each caregiver was able to reach criterion levels for each strategy. However, factors such as low therapy attendance and shortened appointments lead to prolonged intervention and the need for parents to be re-trained on the intervention strategies (Hancock, Kaiser, Delaney, 2002). Again, as demonstrated in previous studies, caregivers were more likely to use language intervention strategies when they were interested in the techniques presented and had the time to use strategies while maintaining their other parental duties (Kaiser, Roberts, 2013).

In order to provide parents with further clarification of the intervention techniques, researchers have utilized video examples. Parents would be shown videos of the techniques within the clinic environment to provide a stable example of what was to be trained. The trained techniques were on how to prompt their child, how to illicit communication from their child utilizing communication temptations, how to model language for their children, and how to set up their environments to be more conducive for language facilitation (Hancock, Kaiser, Delaney, 2002).

Children made significantly more gains in their grammaticality and discourse when their caregivers were trained and watched video models of language techniques. The gains from the parent-training group were significantly higher compared to the direct child language intervention groups that had not received video models or parental training (Balkom, Verhoeven, Weerdenburg, Steop, 2010). Since video models are an effective method to demonstrate EMT strategies to parents, watching the videos only once during therapy sessions may not be sufficient for desired outcomes. The purpose of the current study is to investigate if speech-language pathology master's students are able to identify EMT strategies (i.e. matched turns, modeling, expansion and communication temptations) through video models with EMT strategies. Being

able to identify strategies is the first step to being able to implement these strategies. If students that are familiar with the strategies are able to recognize a strategy that is being taught, the videos could then be used with parents during therapy and in the home.

A literature review was conducted to examine the extent and effectiveness of parent-based intervention methods. Next, child language facilitation programs were evaluated to determine the program's model choice. Lastly, caregiver-child intervention environments were weighed against each other and research questions are proposed.

### **Parent-Based intervention**

In 2007, a national survey was conducted by Watts Pappas et al. (2007) to investigate the frequency and scope of parental involvement in speech-language therapy programs. 277 speech-language pathologists were asked about their beliefs and practices regarding parental involvement in the creation of therapy plans. A negative correlation was found between speech-language pathologist experience and parental inclusion, with the more experienced speech-language pathologist less likely to include parents in the therapy decision process. Of those 277 surveyed, 40% believed that parental involvement in speech-language therapy was lacking. However, while most of speech-language pathologists believed that therapy should include a family-centered approach, most speech-language pathologists were the sole decision makers in their therapy programs. By not incorporating the child's parents into the therapy decision making process, parental insight into the child's abilities and normal behaviors cannot be incorporated in therapy plans. Also, the parent is often left unaware or uneducated about strategies to help their child develop their language that can be used in the home when they are not included in the therapy process. Given that parents are interacting with their children the most, it is crucial to

involve them as much as possible. Finding effective methods to easily involve and train them is therefore crucial to our field.

In other research, Crais et al. (2006) surveyed early intervention professionals to self-rate their implementation of a family-centered therapy approach. 134 multi-disciplinary professionals responded to the survey in addition to 58 family members in triads (2 professionals and 1 family member). Participants were asked to identify 41 different family-centered practices and identify if they had been implemented in therapy (actual practice), or if the practice should be included into future therapy sessions (ideal practice). Families and professionals reached 69% agreement in the actual therapy practices, while early intervention professionals agreed 78% of the time in the way practices were conducted in therapy. For ideal therapy practice, parents and professionals reached an 82% agreement; this indicates most families and professionals know what is ideal for therapy. Although a high agreement was found between new and seasoned professionals for ideal therapy practice, nearly 50% of the professionals surveyed differed from what they believed was ideal and what was done in their therapy sessions. Parents were often left out of the pre-assessment planning phase (i.e., time or location of assessment) by the speech-language pathologist as well as answering family questions about the results of previous assessments. Speech-language pathologists surveyed stated they felt their current treatment styles were effective already even if parents were not included in the child's treatment. Possible factors that contributed to this difference in belief and practice could be the lack of information about the newest treatments, habitual therapy practices, or an unwillingness to change their therapy practices. By implementing a more family focused approach, therapists can move towards a more individualized and holistic treatment approach for the child.

A child's language development typically relies on caregiver involvement and frequency of input. Kaiser and Roberts (2011) conducted a meta-analysis of parent-implemented language interventions for children with primary and secondary language impairments. 18 studies were evaluated for language outcomes, parent reports, and effect size. The exclusion criteria for each study to be included was set to incorporate studies that only had parent-implemented interventions that were found to have a significant effect on the child's expressive and receptive language abilities. An aggregate score was compiled to measure the overall effectiveness of caregiver-based interventions as a whole. Children of caregivers that had been involved in caregiver-implemented intervention were reported to have made an average gain of 52 vocabulary words across each study. To further analyze this gain, the researchers examined the methodology of the 18 studies to compare types of parent-based interventions.

To examine how each of the reviewed studies approached parent directed language intervention, Kaiser and Roberts (2011) calculated the parent reports on their child's vocabulary. The 18 studies were reviewed to determine whether language intervention would be more effective when it was delivered by either a parent or by parents in conjunction with a speech-language pathologist. Seven language constructs were evaluated from the parent reports and compared to determine which group had made the greatest gains during the intervention period. The constructs measured for this purpose were: overall language ability, general receptive language, general expressive language, expressive vocabulary, receptive vocabulary, expressive morphosyntax, and rate of speech. Five of the seven language constructs were found to have no difference between the intervention type groups; receptive language and expressive syntax were the only two found to have a significant positive effect on child language outcomes when the intervention was delivered by a parent and speech-language pathologist.

A problem language delayed children often face is the amount of parental language input they receive. Vigil, Hodges, and Klee (2005) compared how the language behaviors of parents of toddlers with a language delay and parents of typically developing toddlers differed from one another. 29 parent-child dyads were grouped into language normal (n=19) and language delay (n=10) groups. Each child's language was categorized into normal and language delay categories based upon a parent report of vocabulary using the Language Development Survey (Rescorla, 1989). The researchers examined language samples and subtests selected from the Infant Mullen Scales of Early Language (i.e., receptive language and expressive language) and to exclude children with any other types of intellectual disorders from participation in the study.

The child-parent dyads were then filmed for 20 minutes playing in a room alone to simulate natural parent child interactions. The first 10 minutes of filmed play was transcribed and coded into three categories: Grammatical language (mean length of utterance, total number of utterances, and total number of words), discourse function (initiations, responses, self-directed speech, number of turns in a conversation, proportion of responses to a child's initiations), and behavior/pragmatic functions (questions, gestures, labelling, descriptives, behavioral directives). Interpretations, expansions, and imitations were coded in the response category due to the fact they can only occur following a child's statement.

Parents of both groups were found to produce language with similar MLU, number of utterances, and number of words. However, a difference in parental use of conversational discourse was found between the normal and language delayed groups. Parents of the normal language group took more conversational turns with their children and would expand on the subject than the parents of language delayed group. However, because parents displayed similar

linguistic characteristics, the current gap in conversational discourse can be bridged with parent training.

### **Enhanced Milieu Teaching**

Training parents is an effective intervention technique for any population of children since parents are a child's first communication partner. When parents are trained to use strategies with their child, there is often a measurable gain in the child's language development. Gillet and LeBlanc (2006) conducted a study that explored parents acting as language facilitators for their child. The studies' participants included three child-parent dyads with a diagnosis of autism. The authors taught each parent to implement the Natural Language Paradigm (NLP) to increase communication between child and parent. Natural Language Paradigm is a technique similar to EMT in that it utilizes natural parental tendencies such as modeling language and expanding a child's utterance. The purpose of the study was to measure the effects NLP would have on the child's language development. The three children recruited were reported to have little to no spontaneous language with their mothers. The participant's ages ranged from 4 to 5 years of age. Researchers administered the Peabody Picture Vocabulary Test, Third Edition (PPVT-III; Dunn & Dunn, 1997) to measure baseline language abilities and parents completed the Gilliam Autism Rating Scale to confirm the child's diagnosis of autism.

Each parent was trained during individual speech-language therapy sessions with the researcher present in the room. Parents were instructed and trained on matching turns, expanding their child's utterance, and setting up the room for communication. These techniques were similar to natural parent behaviors and modified to illicit spontaneous language from the child. The child dependent variable of the study was to measure the total frequency of vocalizations, mean length of utterance, percentage of intervals of appropriate and inappropriate play. Parental



dependent variables were measured through observing behaviors during play (i.e., providing three toys, preventing access to items, providing an action model for 5 seconds before modeling a vocalization, reinforcing relevant responses, presenting the item with a new model prompt, and modeling during the play interval).

Each parent participant successfully learned the NLP procedure within the minimum number of 10 sessions with 96 percent accuracy by the end of the study. Each parent demonstrated high accuracy for NLP procedures (M=97.25 percent, range= 96-98 percent) during each training session. Baseline and post-evaluation transcriptions were analyzed to determine the rate of vocalizations for each participant during videotaped play sessions. Results indicated that each child increased their spontaneous vocalizations from baseline measures (3.0 per minute) to the final session (8.5 per minute). Mean length of utterance increased from baseline (2.47) to final session (3.55) and reported an increasing trend in MLU in later sessions. The findings from this study show that parents are capable of being trained to facilitate communication with children that will lead to meaningful gains. While parents reported they would continue to use the NLP procedures with their children, there was no way to ensure they would maintain an accurate use of the strategies over time. By providing parents with a reliably accessible video model of strategies to reference following the conclusion of the study, likelihood of continuation of correct use of strategies could be ensured and researchers would be able to track how frequently parents accessed the provided strategies.

Using EMT has also been shown to be effective when it is incorporated into parent training in other language disordered populations as well. EMT utilizes naturalistic adult-child communication and highlights key components that serve to benefit child language growth. Kaiser et al. (2000) investigated how EMT could be used to train parents of children with autism.

Using a modified single-subject design with six parent-child dyads, EMT was implemented to monitor the child's language development. Parents' acquisition and generalization of strategies was assessed during intervention sessions, as well as in the home setting. All six parents attended 24 intervention sessions that were conducted in a clinical setting to teach EMT with therapist feedback. Parents were able to implement EMT strategies (beginning with a child's verbal or nonverbal request, following a prompting hierarchy [model, mand, time delay], corrective prompting, and expansion of child utterance) at an 80 percent criterion by at least 12 sessions.

Results from the study showed that five of the six parents successfully implemented the EMT strategies to criterion by the end of the intervention sessions and generalized the skills into their home environment. In a 6-month follow up, four parents maintained the use of EMT in the home and clinical setting. All six children experienced an increase in language from baseline to the follow-up assessment. Receptive language skills of each child were noted to have increased their developmental norms by 10 months and an average increase in their expressive language skills by 9 months. Researchers found 18-months post intervention to be the time the children to experience the largest gain in their expressive and receptive vocabularies. However, parents were observed to display an increase in their use of expansions before the expansion intervention had been introduced by researchers. This was due to an experienced interventionist modeling all of the EMT support strategies prior to the introduction of the expansion phase of training.

Researchers were unable to control for the introduction of future strategies. By replacing the interventionist modeling strategies that risks modeling strategies unknowingly with video models that are controlled for other strategies, a genuine emergence of the skills can be observed.

Over years of research, parent-training programs have been developed to involve parents in their child's intervention process. Milieu language intervention works to strengthen a parent's

natural communication abilities to enhance their child's language. Alpert and Kaiser (1992) evaluated the effectiveness of incidental teaching methods when mothers were taught the EMT intervention techniques. The participants were six preschool-aged boys with a diagnosis of a language impairment and their mothers. Each child's expressive language abilities were evaluated using the Houston Test for Language Development (Crabtree, 1963), the Goldman-Fristoe Test of Articulation (Goldman and Fristoe, 1969) and informal observation conducted by the school speech-language pathologist. The six child participants were found to have expressive language delays of a minimum of 10 months behind their typically developing peers. All of the mothers had completed high school with the highest education being a master's degree, low to medium incomes, and five of the six were stay-at-home mothers. Baseline observation sessions were conducted with the mother and child playing on the floor; no training or feedback was provided to the mothers.

The initial training stages began in a university clinic where each mother individually attended four clinic-based sessions where researchers trained on the four techniques (model, mand-model, time delay, and incidental teaching). All training done was based as cumulative curriculum with the most basic techniques taught to the more advanced techniques in the final training stages. Each session began with a 30-60-minute lecture on the target technique, followed by videotaped examples of the experimenter performing one-on-one play interactions with language delayed children while utilizing the targeted technique. Home-based training sessions occurred twice a week for four of the six dyads and three times a week for two of the dyads. Parents were then allowed to listen to recordings of examples of the correct technique and each trainer modeled the technique with the child. The sessions were audiotaped for a 10-minute period and verbal feedback was provided after each of the training sessions.

Transcriptions from baseline training and the final session were analyzed for parental use of the techniques (model, mand-model, time delay, and incidental teaching condition) and child language data (mean length of utterance, total number of words produced, and novel words produced). Baseline data revealed that the mothers used expansion, recasting, and modeling inconsistently or incorrectly with their children. Researchers found that mothers used all four techniques correctly by the end of the training sessions. Mothers were found to also correctly use the techniques in 15 of the 18 maintenance probes during follow up observations. The children's language performance was seen to increase in all domains throughout the training and follow-up periods. Mean length of utterance increased from baseline (average  $M=1.53$ ) to maintenance (average  $M=2.65$ ), which was statistically significant ( $t(5) = 3.11, p < .025$ ). Novel and total number of words produced had a substantial increase from baseline measures (Novel=49.58, Total=138.75) to the final maintenance session (Novel=119.5, Total=337.16). Finally, an increase requesting was seen in four of the six children during the incidental teaching procedure. Baseline session and incidental request session data showed that requests made went from: 4.32 to 10.17 for Child A, 4.49 and 11.82 for Child C, 6.04 and 14.3 for Child D, and 8.88 and 12.83 for Child F. Little change was seen in Child B and E ( $M= 7.07$  for Child B and 6.35 for Child E). Findings from this study show that a child's language abilities can be impacted when parents are trained to be home-based interventionists with only slight modifications to their current skills. However, the researchers believed that due to the intensity of their study that the practicality of their program would not serve well outside of non-research-based programs. A majority of the mothers stated a concern about the length of the training and the strain it would place on their schedules to frequently attend the training sessions. The researchers believed that an effective

intervention program should use a subset of simplified milieu teachings in a more convenient setting for caregivers.

Roberts, Kaiser, Wolfe, Bryant, and Spidalieri (2013) developed EMT into a structured program for caregivers known as the Teach-Model-Coach method. To test the efficacy of their model, four caregiver-child dyads participated in a single-subject, multiple-baseline across groups design. Caregiver education ranged from high school to master's degrees with an average household income of \$80,000/year. Children were included in the study based on age (24-42 months), average IQs (composite standard score of 80 or above on Bayley Scales of Infant and Toddler Development, Third Edition, Bayley-III), and impaired language (total language standard score of 79 or less on Bayley-III).

Each caregiver-child dyad was assigned two interventionists, one to work directly with the child and the other to educate the caregiver. Baseline sessions were filmed for 10 minutes while the parents were instructed to select toys and play with their child as they normally would. Intervention began with the parents receiving instruction of the four different EMT language support strategies in individual sessions with the interventionist. Use of each strategy was considered cumulative and once taught, the caregiver was expected to use the strategy in all subsequent sessions. For the first phase of the program, the Teach component was taught to the participants. Teach included a one-hour workshop in a clinical setting that defined the language support strategy that was to be measured by researchers, provide the rationale for each component of the strategy, describe how to do the strategy to the parent, showed video examples of the strategy in the clinic, and answered caregiver questions about the use of the strategy. Parents practiced the language support strategy taught during the Teach phase for two 40-minute intervention sessions each week in the clinic with clinician support for 12 weeks. Each session

included four 10-minute sections to review the 4-components of the Teach-Model-Coach program with the participants to review what was taught in the previous sessions. These sessions included: restating and giving an example of the strategy, role-playing with the caregiver, and discussing ways to use the strategies with specific toys with the caregiver. During the Model portion of the intervention program, the child interventionist would model the targeted support strategy during a 10-minute session with the child while the caregiver educator highlighted the targeted strategy use to the caregiver. Then for the Coach component, the caregiver would play with the child for 10 minutes while the caregiver educator provided verbal feedback on the strategy use to the parent to reinforce correct usage and modify missed opportunities. Lastly, the caregiver educator would review the session to gauge how the caregiver felt about the session, their overall feelings the caregiver had about the technique being used and answer any overall questions the caregiver had.

The dependent variables for this study were based on how the caregivers performed the Teach-Model-Coach program. The measures were: matched turns, expansions, time delays, inadequate portions, and milieu prompting episodes. The video samples were collected during each session and reviewed to evaluate for the caregivers use of the strategies during play.

Results from this study indicated that all four caregivers successfully used each of the four EMT support strategies taught in the Teach-Model-Coach program. The use of the support strategies was able to be generalized in the home environment for three of the four caregivers. Expansion were found to be the most successful strategy with the high incidence of home carry-over, while prompting had the fewest amount of home carry-over. However, the researchers found that the live modeling of interventions created an additive effect on untrained strategies following modeling sessions from a trained interventionist.

The purpose of this study was to assess the feasibility of using videos to portray EMT support strategies accurately and clearly. The following research questions guided this study:

1. Can graduate students in a communication sciences and disorders program identify Enhanced Milieu Teaching strategies through videos of a speech language pathologist?
2. Is there a difference in the ability to identify EMT strategies through videos between first- and second-year graduate students?

## CHAPTER 2. METHODS

### Design

For this feasibility study, videos for four different EMT strategies were recorded.

Strategies are listed and defined in Table 1.

**Table 1.** Targeted Enhanced Milieu Support Strategies

<b>Technique</b>	<b>Implementation Strategies</b>
Matched turns	A 1:1 ratio of child to parent utterances
Modeling	Repeat child's utterance to include target word (correct for grammaticality) with additional words
Expansion	Simplifying language to match the child's language, modeling that is in response to a child's communication
Temptation	Provide the child with inadequate portions, use toys requiring adult assistance, pausing before completing an expected task

### Training Videos

Two experienced speech-language pathologists (SLP) were recruited to assist in filming the videos. Both have had more than five years' experience practicing as an SLP with pediatric populations. The videos were recorded in a home and clinical setting with children who have been diagnosed with a language disorder. Recordings took place during play-based sessions. The SLPs were asked to use the four EMT strategies under investigation.

One large video from each SLP was recorded and subsequently shorter videos were created from the larger sample to isolate individual skills. Three videos depicting each support



strategy were created and a total of twelve videos were developed and edited by the researcher. Videos ranged from 19 to 42 seconds in length with an average video length of 31 seconds. Videos were selected based on the researcher’s identification of the support strategies being used during each of the SLP’s sessions (i.e., matched turns, expansion, modeling, communicative temptations). The videos were then individually screened by three SLP’s with an expertise in child-language. Twelve videos were found to be in high agreement and selected to be used in the study. Four videos (i.e., one from each strategy) were randomly selected to be viewed twice by participants to collect intrarater reliability. The unique and duplicate videos were given randomly generated names unrelated to the strategy (<https://www.name-generator.org.uk/>). Table 2 displays the master list along with the names of the videos. The videos were then included in ten randomly ordered playlists consisting of sixteen videos (12 training videos, 4 intrarater reliability videos). Each playlist used in the study was created in a media player (VLC Player; Version 3.0.4 Vetinari) by selecting the video files and opening them with said media player.

**Table 2.** Video Master List

Strategy	Randomly assigned names			
Matched Turns	Monar*	Mie	Marmet	Myers*
Expansion	Miatian*	Mielipe	Mitglobe	Moundshti*
Modeling	Myserswood*	Marmen	Mafra	Mead*
Temptation	Milegrate*	Margee	Meonpids	Mannalo*

*\*Duplicate videos*

## Participants

12 participants were recruited from Louisiana State University’s Communication Sciences and Disorders program. All participants were first- and second-year graduate students with at least some pediatric clinical experience. Two participants were excluded due to equipment failure and videos not playing properly.

**Table 3.** Participant Demographics

<b>Participants (N=10)</b>	<b>First Year Graduate Students (n=3)</b>	<b>Second Year Graduate Students (n=7)</b>
Age (mean)	23.3 years	23.3 years
Ethnicity		
Caucasian	2	6
African American	1	1
Gender		
Female	3	7
Male	0	0

\*W= White, AA=African American

### **Procedures**

After Institutional Review Boards approval of the study, written consent was obtained from each participant using the following procedure. First, recruitment packets were given to graduate students who had expressed an interest in participating in the current research study. The participants were then asked to look over and read the written consent form provided to them. Once the participant provided their consent, they were randomly assigned a playlist with a series of EMT training videos to watch. All participants of the study were then assigned a numerical code associated with each playlist. Each participant received a handout with EMT strategy definitions and a data collection sheet (see Appendix). Participants were then instructed to select the option they believed to be the intended target. More than one response option was

allowed for each participant. All data was collected in a quiet environment using headphones. The author collected the data and analyzed the participant responses.

### **Participant Viewing**

The researcher individually moderated all viewings of the playlist in a quiet classroom environment. A short-definition of each support strategy was provided prior to viewing and each participant was instructed to review each definition. Viewing of the first video commenced. Participants were then asked to write the name of the video they were watching on the data sheet and make their selections from a multiple-choice list of strategies (see Appendix for definitions and data sheet). Each participant was told to mark what they felt they believed to be the intended strategy portrayed in each video. This process was repeated for all 16 videos (i.e., 12 unique, 4 duplicate). All participants viewed their respective playlists on the researcher's laptop using headphones. Pauses in-between each video were provided to allow each participant enough time to write the name of the video on their data collection sheet and to assure sufficient time to select strategies. Participants were permitted to mark multiple strategies. Upon completion of each viewing, the participant was thanked for their participation and their data collection sheets were collected.

### **Video Coding**

The participants provided all their responses on a data collection sheet. The data collection sheets were analyzed for individual video responses. Participants identification numbers and video names were entered into a Microsoft Excel spreadsheet along with each individual participant

response. Participants were organized into numerical order and video names were organized into categories based on the intended support strategy. Participant responses to each video was entered based on video name and not play order due to the randomness of each playlist. A video clarity rating of 70% was determined to be the criteria for a training video to be portraying the intended EMT support strategy.

### **Reliability**

Intrarater reliability was assessed by comparing participant responses between duplicate videos in their assigned playlist. A response was marked to be reliable when both of the participant's selections for the duplicated videos were in agreement. Interrater reliability was assessed by a second researcher evaluating the accuracy of response input and calculations.

## **CHAPTER 3. RESULTS**

### **Participant Selections**

In order to examine each participant response for the training videos, a frequency count was completed for each EMT support strategy. A total of 16 videos were watched by each participant (12 unique, 4 duplicate). Accuracy was determined by comparing the participants responses against the master list (see Table 1). To assess overall video clarity, the correct responses were counted, multiplied by 100 and divided by the total number of participants (n=10). This number was then compared to the 70% criterion set by the researcher. Table 4 displays individual interpretations of the videos and the overall clarity. Of the twelve unique videos shown, five videos met the 70% criterion level. Matched Turns failed to meet the clarity criteria. Videos demonstrating communication temptations were identified most accurately with each video being identified by 70% of the students or more. Two videos displaying modeling and one video depicting expansions were successful in identifying the intended strategy. Interestingly, one modeling video, which was used to identify intrarater reliability, met criterion the first time it was shown, but not the second time. Thus, the lack of consistency in ratings indicates that only one modeling video was successful in displaying intended strategy and that further investigations need to take place.

**Table 4.** Participant Responses

<i>Participant</i>	001	002	003	004	005	006	007	008	009	010	
<b>Matched Turns (MT)</b>											<b>Clarity</b>
Monar*	<i>E, M, MT</i>	<i>MT</i>	<i>M</i>	<i>E</i>	<i>MT, T</i>	<i>E</i>	<i>E</i>	<i>T</i>	<i>MT</i>	<i>MT</i>	50%
Mie	<i>E,M,MT</i>	<i>E</i>	<i>MT</i>	<i>MT</i>	<i>E, MT</i>	<i>T</i>	<i>T</i>	<i>MT,T</i>	<i>T</i>	<i>E</i>	50%
Marmet	<i>E, M, MT</i>	<i>MT</i>	<i>E</i>	<i>MT</i>	<i>E, M, MT,T</i>	<i>T</i>	<i>T</i>	<i>MT</i>	<i>MT</i>	<i>E</i>	60%
Myers*	<i>E, MT,T</i>	<i>E</i>	<i>M</i>	<i>MT</i>	<i>E,M,MT,T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>E, MT</i>	40%
<b>Expansion (E)</b>											
Miatian*	<i>E,M,MT,T</i>	<i>E</i>	<i>M</i>	<i>E</i>	<i>E,MT,T</i>	<i>E</i>	<i>E</i>	<i>E, MT</i>	<i>E</i>	<i>E</i>	90%**
Mielipe	<i>E,M,MT</i>	<i>MT</i>	<i>M</i>	<i>E</i>	<i>E,M,MT,T</i>	<i>E</i>	<i>M</i>	<i>E, MT</i>	<i>E</i>	<i>E</i>	70%**
Mitglobe	<i>E,M</i>	<i>MT</i>	<i>M</i>	<i>M</i>	<i>E,M,MT</i>	<i>MT</i>	<i>E</i>	<i>E, MT</i>	<i>MT</i>	<i>E</i>	50%
Moundshti*	<i>E,M,MT</i>	<i>E</i>	<i>M</i>	<i>E</i>	<i>E,MT,T</i>	<i>E</i>	<i>E</i>	<i>E,MT</i>	<i>E</i>	<i>E</i>	90%**
<b>Modeling (M)</b>											
Myerswood*	<i>E,M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>E,M</i>	<i>M</i>	<i>E</i>	<i>M</i>	<i>M</i>	<i>M</i>	90%**
Marmen	<i>E,M</i>	<i>E</i>	<i>M</i>	<i>M</i>	<i>E,M,MT</i>	<i>M</i>	<i>M</i>	<i>E</i>	<i>E</i>	<i>E</i>	60%
Maфра	<i>E,M,MT</i>	<i>M</i>	<i>M</i>	<i>T</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>MT,T</i>	<i>M</i>	<i>E</i>	70%**
Mead*	<i>M,MT</i>	<i>E</i>	<i>E</i>	<i>T</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>MT, T</i>	<i>M</i>	<i>MT</i>	50%
<b>Temptations (T)</b>											
Milegrate*	<i>M, MT, T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>E, M, MT</i>	<i>MT</i>	<i>M</i>	<i>MT, T</i>	<i>T</i>	<i>T</i>	70%**
Margee	<i>T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>M,T</i>	<i>MT</i>	<i>T</i>	90%**
Meonpids	<i>E, M,MT,T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>E, M, MT,T</i>	<i>T</i>	<i>T</i>	<i>M,T</i>	<i>T</i>	<i>T</i>	90%**
Mannalo*	<i>M, MT, T</i>	<i>T</i>	<i>T</i>	<i>T</i>	<i>E, M, MT,T</i>	<i>MT</i>	<i>T</i>	<i>MT</i>	<i>M</i>	<i>M,MT,T</i>	70%**

\*indicates duplicate videos,

\*\*indicates met criterion

### Video Clarity

Each support strategy video, within their respective categories, was assessed for their overall clarity based on the participant’s ability to accurately identify the intended strategy. Videos that met the 70% criterion were judged to be clear enough to be used in future parent training video modeling research or for other instructional use. Communicative temptation videos were found to have the highest rate of clarity, with each of the videos meeting criterion levels. Modeling and Expansion videos both had two videos to meet criterion levels. Meanwhile,

Matched Turn videos did not meet the level of criterion with 60% being the highest rating of clarity.

### **Participant Accuracy**

The overall accuracy of each participant was assessed by comparing their responses to the master list created. Table 5 shows the participant and their percentage of correct responses.

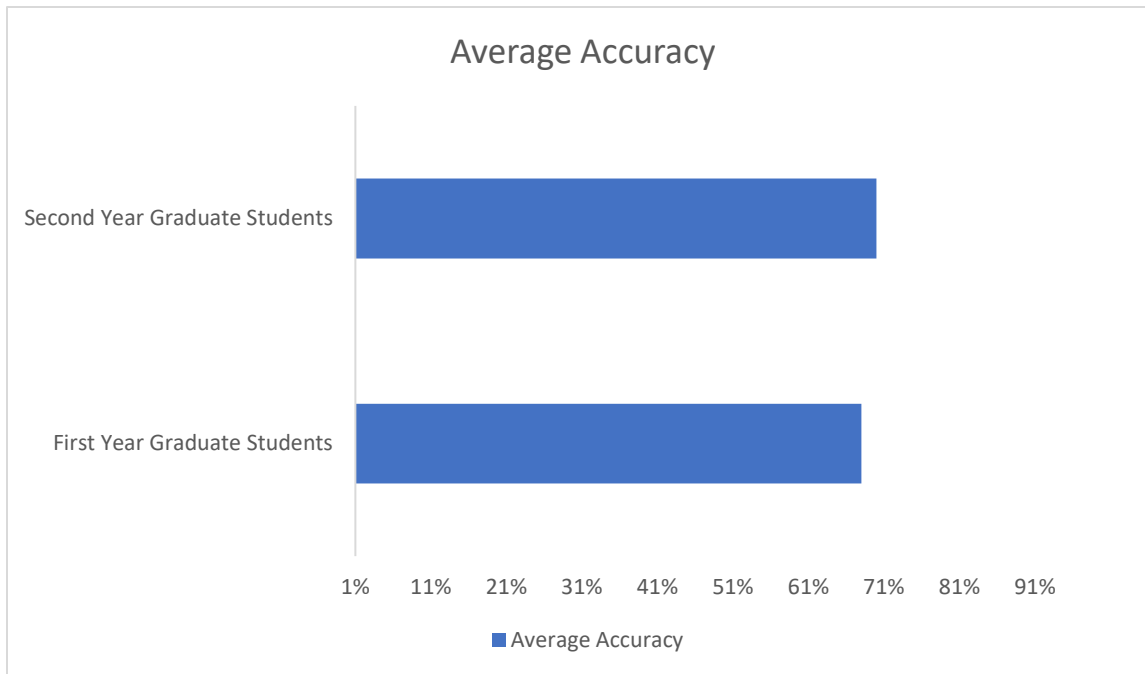
**Table 5.** Participant Accuracy

<b>Participant</b>	<b>Grad Experience (years)</b>	<b>Accuracy</b>
001	2	100%
002	2	62%
003	2	43%
004	2	75%
005	1	93%
006	2	62%
007	1	50%
008	1	68%
009	2	68%
010	2	68%

*Average accuracy: 69%*

The average accuracy across participants was 69%, ranging from 43% to 100%, with a majority of participants falling below the 70%. Participants 001, 004, and 005 were found to be the most accurate participants. However, those participants also tended to choose more than one strategy, therefore increasing the likelihood of a correct response.

Upon further analysis of data between groups (i.e., First Year, Second Year Graduate Students), using non-parametric statistical analyses (Mann-Whitney U Test), demonstrated no statistical significance between the groups regarding percentage of accuracy. Figure 1 displays the comparison between the two groups using a bar-graph.



**Figure 1.** Average Accuracy between First- and Second Year Graduate Students

### **Intrarater Reliability**

Intrarater reliability for each participant was assessed by comparing responses for duplicate items in their playlist (n=4). Table 6 shows the participants and their overall intrarater reliability in a percentage. Reliability was given for response exactness between the two options, regardless of the correctness of their response. Of the ten participants, all participants responded outside the level of chance, being reliable above 25%.

**Table 6.** Intrarater Reliability



<b>Participant</b>	<b>Grad Experience (years)</b>	<b>Interrater Reliability</b>
001	2	100%
002	2	50%
003	2	75%
004	2	50%
005	1	75%
006	2	75%
007	1	50%
008	1	50%
009	2	75%
010	2	75%

### **Interrater Reliability**

Interrater reliability was conducted on 20% of the protocols to determine the accuracy of data entry. All discrepancies were resolved between both researchers with a reliability measure of 93%.

## **CHAPTER 4. DISCUSSION**

The purpose of this study was to assess the feasibility of using videos to portray EMT support strategies accurately and clearly. Given that research into EMT strategies has demonstrated positive outcomes for children with a language disorder (Kaiser, A.P., & Hester, P.P., 1994; Kaiser, A., & Roberts, M. 2013; Roberts, M., Kaiser, A., Wolfe, C., Bryant, J., & Spidalieri, A., 2014) the researcher sought to create training videos that can be easily accessed by parents and give SLP's a valuable resource to share with families they are working with. However, before distributing such videos for training purposes, clarity of displayed EMT strategies first had to be identified. Therefore, videos portraying EMT support strategies were presented to graduate students in a communication sciences and disorders program. Videos presented expert speech-language pathologists playing with a child using a variety of target strategies. The following research questions guided this study: 1) Can graduate students in a communication sciences and disorders program identify EMT strategies through videos of a speech language pathologist? 2) Is there a difference in the ability to identify EMT strategies through videos between first- and second year graduate students?

### **First Research Question**

Six videos that had been intended to clearly portray an EMT support strategy did not meet the expected levels of clarity. It is possible that the videos were not made well enough to accurately portray the intended skill. This further shows that portraying a single skill in a video is often difficult due to the naturalistic nature of EMT and the likelihood of other skills being unintentionally presented.

The responses given by the graduate student participants were highly variable between each participant, with a majority of participants reaching 60% accuracy. Ideally, participant

responses would be mostly similar to responses from the expert SLPs. However, since the participants are students and the experts hold a doctorate degree, their unfamiliarity with EMT support strategies could have played a role in their divergent responses. Future studies should include a training portion in which participants watch a sample video of each strategy including a discussion of the skill prior to identifying them on their own. Further, SLP's that have been working in the pediatric field that hold their Certificate of Clinical Competence (CCC) from the American Speech Language and Hearing Association (ASHA) should be included.

### **Second Research Question**

Data from ten first and second graduate students (i.e., 7 second year, 3 first year) was evaluated and compared between the two groups. The overall difference in performance of both groups did not approach statistical difference. Similar performance can most likely be attributed to both of the groups having a similar knowledge base (i.e., same graduate program pre-requisite coursework) and clinical experience with the pediatric population. Future research should examine the differences between undergraduate students and graduate students and professionals from the pediatric field to obtain a better understanding of differences in the groups. Another possible investigation could examine the overall performance and accuracy between graduate programs around the country in order to explore possible differences between schools.

### **Reliability**

All participants responded above chance level regarding reliability for duplicate videos. Yet, despite the above chance level performance for participant reliability, video clarity for Myserwood (90%) Mead (50%) (i.e., Modeling) varied significantly despite being the exact same video. Six participants varied in between their selections for these videos. The variability of

responses further highlights the difficulty in clearly portraying a support strategy in videos independent of any other prompting.

### **Limitations**

There were many limitations in the way this study was conducted. Firstly, the videos used in this study did not include on-screen visual prompts for the participants to cue off of; and due to the nature of EMT, it is difficult to portray a support strategy in perfect isolation. If training videos for parents were created, on-screen prompts could enhance the ability to identify and therefore highlight a specific strategy. Secondly, participants were allowed to select more than one item for each video, therefore increasing the likelihood of selecting the correct response. Those who selected more than one item tended to have higher accuracy scores that may have inflated the overall clarity scores for the videos. A final limitation to this study was the population of participants selected. Due to the recruitment process and the participants being subjects of convenience, it is possible the data is not indicative of SLPs with pediatric experience.

### **Future Directions**

Ideally, future research in this field would be conducted similarly with a few modifications. Videos that train EMT support strategies should be made to include on-screen prompts to cue the participants to highlight certain behavior the person is doing. Also, participant recruitment should be expanded to include speech-language pathologists with more pediatric clinical experience as well graduate students; rather than solely graduate students to identify if there are differences between the seasoned speech-language pathologists and the graduate students. Further, it should be investigated to find differences between an example video or a

short discussion of each strategy prior to each viewing would have an effect on participant accuracy and the current study.

## **Conclusion**

In conclusion, this study sought to gain a better understanding of creating videos clearly depicting EMT support strategies to graduate students. Despite the low success rate of the initial round of videos, modifications could be made to future studies that would greatly increase the clarity score of videos. Given the results of this study, creating training videos for EMT support strategies is a feasible endeavor and could greatly further the scope of evidence-based practice within the field.

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## **VITA**

Jason Robert Killian graduated from San Diego State University in 2016 with a Bachelor of Art degree in Speech Language and Hearing Sciences. Following graduation, he began the pursuit of the degree of Master of Arts in speech-language pathology at Louisiana State University. He anticipates to graduate with his M.A. degree in May 2019.

## Appendix 1:

### Participant Demographics

<b>Participant N=10</b>	<b>Age Mean = 23</b>	<b>Ethnicity*</b>	<b>Grad Experience (years)</b>
001	23	W	2
002	23	W	2
003	22	W	2
004	24	W	2
005	23	AA	1
006	23	AA	2
007	22	W	1
008	25	W	1
009	24	W	2
010	24	W	2



## Video Response Form:

Video 1 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation
Video 2 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation
Video 3 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation
Video 4 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation
Video 5 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation
Video 6 <hr/>	<input type="radio"/> Expansion <input type="radio"/> Modeling <input type="radio"/> Turn Taking <input type="radio"/> Temptation

<p>Video 7</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 8</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 9</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 10</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 11</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 12</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>

<p>Video 13</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 14</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 15</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>
<p>Video 16</p> <hr/>	<ul style="list-style-type: none"> <li><input type="radio"/> Expansion</li> <li><input type="radio"/> Modeling</li> <li><input type="radio"/> Turn Taking</li> <li><input type="radio"/> Temptation</li> </ul>

**Turn Taking:**

Allow time for the child to communicate and wait to respond. Only respond after the child communicates

**Modeling:**

Simplifying language to match the child's language, modeling that is in response to a child's communication

**Expansion:**

Imitate what the child is attempting to communicate, and connect the child utterance with new information beyond what was said

**Communication Temptation:**

Offering choices, pausing within a routine, waiting with a cue, inadequate portions, activities that need for assistance