**Silent Communication: The Use of Sign Language and Gestures as Alternative or Supplementary Communication for Hearing Students**

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**Research Abstract**

In response to delayed action from directives and poor reading comprehension in a second-grade special education resource room, an intervention was put into place to test the effectiveness of alternative communication on these areas. This study implemented the supplementary use of sign language and gestures with five classified second-grade hearing students. The participants in this study have a range of disabilities, yet are all verbal. Four of the five students maintain normal hearing while one student sustains mild progressive hearing loss. This study found that by introducing sign language and gestures as an additional visual cue when giving directions, the number of times the teacher needed to give verbal directives before an appropriate student response decreased by an average of 29%. Additionally, the use of signs and gestures as a visual cue when reading books aloud and discussing the content improved student comprehension by an average of 40%.

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**Introduction and Inquiry**

 As a student teacher in a first and second-grade resource-style special education classroom, I have learned a great deal about differentiated teaching practices used to reach all students. The abilities of students within the classroom range vastly along with the cultural and ethnic diversity within the school. Mamaroneck Avenue Elementary School located in White Plains, New York, houses 604 students between kindergarten and fifth grade, 47% of whom are male, and 53% of whom are female. The average student-to-teacher ratio is 14:1, which is higher than the New York State average of 13:1. This school is ethnically diverse with 50% of the student population of Hispanic descent, 29% White, 18% Black, 2% Asian and 1% unknown or unidentified ethnicity. In addition, 39% of the school population is eligible for free lunch in comparison to New York State’s average of 17% (“Public school review, year?”).

 In the resource classroom, I follow my mentor teacher to two different general education classrooms where we typically begin the day by *pushing in* to the classroom routine and assisting students with socialization and behavioral support. Pushing in is a term used in education when the special education teacher goes in to the general education classroom and supports the classified students in the inclusion setting. Later in the morning, the four to five students are pulled out of their general education classrooms and brought to the resource classroom to focus on literacy skills. Each student has their own unique learning needs and styles. Students in my classroom have frequently demonstrated difficult with both expressive and receptive language. Several students have communication disorders and a few are English Language Learners, which hinders their ability to follow directions and understand commands. For example, when the teacher asks students to sit on the edge of the carpet, students often respond with a blank stare or engage in an undesired behavior.

 The purpose of this study, therefore, was to investigate the introduction of American Sign Language as a visual cue for commands, directions, and simple classroom routines and as a support for students who struggle with receptive language.

 The inquiry questions that guided this investigation included: How does the use of gestures and/or signs affect the understanding of all students, including students who are learning disabled, English Language Learners, general education, and special education? How can the implementation of American Sign Language be used as a multi-modal approach to cue students and/or prompt students to transition? How will the knowledge of American Sign Language affect the expressive language of students in social context?

**Theoretical Framework**

 This classroom study focuses on improving language processing skills in five students in a second-grade resource room. This study is framed by several areas of research, including the effect of poor expressive and receptive language in the classroom, instructional strategies to improve language processing, and the effectiveness of signs and gestures in the classroom.

**The Effect of Poor Expressive and Receptive Language in the Classroom**

 Strong expressive and receptive language is imperative to a student’s learning within the classroom; a lack of these language processing skills can affect both the cognitive and social development of children (Kurt, 2011). According to research, bilingual students and students with language processing disabilities often experience a receptive—expressive language gap, meaning that students have a greater understanding of receptive vocabulary than they do expressive vocabulary in their native language (Gibson, Oller, Jarmulowicz, & Ethington, 2011). Due to this receptive—expressive language gap, students often develop poor vocabulary which leads to limited understanding of academic materials and possible behavior problems (Gibson, et al., 2011; Kurt, 2011). Difficulties in language and communication skills may also have a social consequence for children.

According to Gibson et al., children whose native language is not English, as well as students with language processing disabilities, have been shown to have less access to peer groups and those who speak English as their native language (2011). These authors allude that children seek to interact with peers who are like themselves; thus, if children cannot identify socially with another child, they are less likely to include the child with poor language processing in their peer groups (Gibson, Oller, Jarmulowicz, & Ethington, 2011). Unfortunately, without these social interactions, the child with language delays will struggle to catch up to their peers socially.

**Instructional Strategies**

 There are numerous instructional strategies that can be implemented to improve the receptive and expressive language in students struggling with language processing, such as a multimodal approach to teaching and the use of visual cues in the classroom. Examples of these visual cues include graphic symbols, manual signs or gestures, and voice output; these are often referred to as Augmentative and Alternative Communication (AAC). Graphic symbols provide visual support, in the form of pictures, in order to assist individuals in communicating. A well-known graphic communication system is, the Picture Exchange Communication system, referred to be professionals, as PECs (Branson & Demchak, 2009). This program allows students to either point to or select a graphic symbol that represents their desire. This empowers students to communicate their desires and make their own choices (Tincani, 2004) (Mirenda, 2001). In addition to graphic symbols, manual signs and gestures, such as head nods, claps, hand movements, and facial expressions, have been proven to support comprehension in receptive language and expression in expressive language (Branson & Demchak, 2009) (Mirenda, 2001).

**Effectiveness of Signs and Gestures in the Classroom**

 The instructional and communicative use of signs and gestures in the classroom is an effective strategy to improve language processing. In a study conducted by Dr. Onur Kurt, assistant professor at the Department of Special Education at Anadolu University, this manual communication system was implemented with two subjects, ages five and twelve, through sessions involving visual support based on gestures and signs along with verbal instruction (2011). Results of this study proved that instruction with visual support, such as gestures and signs, was more effective on the participants than solely verbal instruction (Kurt, 2011).

**Methodology**

 In order to gather information about the students’ verbal language comprehension, I used both qualitative and quantitative approaches to data collection. One form of data determined the number of times that students initiated the use of signs versus the number of times that the teacher initiated the sign, to assist with comprehension. In addition, a record of correct and incorrect answers of comprehension questions, from the class, after a story has been read aloud. Finally, qualitative field notes were taken to assess the students’ use of signs and gestures to communicate ideas as well as students’ comprehension of teacher signs and gestures.

**Context of the Study**

This study will be conducted in a second-grade pull-out group in Mamaroneck Avenue School. The students from this pull-out session are members of a second-grade inclusion classroom and have varying disabilities. The general education teacher along with the special education teacher have a very coordinated and structured classroom routine. For this reason, behavior and listening skills are essential within their classrooms. Several minutes a day are taken to practice simple classroom routines such as sitting on the carpet, showing “listening bodies,” raising a quiet hand and transitioning between activities and/or areas of the room. These simple routines are practiced using the *Responsive Classroom* technique, developed by a group of public school teachers to emphasize social, emotional and academic growth among all children. The special education teacher, especially, holds students to a high standard in their listening comprehension skills for both directives and academic work.

 This study will be conducted in the general education setting as well as the special education, pull out, setting. The general education classroom is set up with six tables, aligned with three tables in each row; approximately four students sit at each table, where they often work either independently or collaboratively with peers. Most students are facing the front of the room, which holds the interactive white board. In the general education classroom, all students meet for whole-group mini-lessons at the rug. Following the mini-lesson, a few of the special education students are called to the back table to work as a small group on the class assignment. The table is situated by the back counter and is next to the window.

 For 40 minutes, at least once a day, five of the special education students are pulled out of the classroom for tier two instruction by the special education teacher, in her own classroom. This classroom is much smaller and contains only two tables placed directly next to the interactive white board. There is a small carpet where students meet with the teacher for small-group instruction. Next to the carpet is a small dog bed, and food and water bowl, for the classroom pet dog, Gus. Gus is a registered therapy dog and is used throughout the school by both teachers and administrators. Because this classroom is much more intimate and the group size is smaller, the students’ communication and language barriers are more evident. The special education teacher takes full advantage of this small group meeting time to focus heavily on both receptive and expressive language.

**Participants**

 The five students who participated in this study are all part of a second-grade inclusion class. Of the students in this group, three are classified as Speech and Language Impaired; one is classified as Other Health Impaired due to a hearing impairment; the last is classified as Emotionally Disturbed. Out of the five students participating in this study, two are English language learners and three speak only Spanish at home with their families. Three of the students are male and two are female.

Each of the students have different strengths and weaknesses academically, however the whole group has been identified for their low reading performance and weakness in receptive and expressive language. These weaknesses have caused the students to fall behind their peers within the general education class and they require more support. These students were selected for this study in hopes that the use of signs and gestures as an added visual cue for directives and language comprehension would lead to increased understanding and performance.

My role in this study was to collect pre- and post-intervention data as well as introduce and implement the study to teachers and students. I also planned and executed lessons to teach the signs used in the study. My stance toward students’ learning is that with the correct tools, resources and strategies all students are able to learn. I also believe that alternative and supplementary forms of communication can be effective to improve children’s receptive and expressive language.

**Procedures**

 In order to help the students improve their receptive and expressive language, I have designed a multi-modal approach to integrate the use of signs and gestures in directives and content area work. My goal is to use this strategy to provide added visual support for all students in order to improve understanding and performance in and out of the classroom.

 This research study requires pre-intervention assessment, implementation of the approach, and post-intervention assessment. The pre-assessment is intended to evaluate two separate elements: students’ response to directives and students’ language comprehension. This information will provide a baseline with which I may compare my post-assessment data. In order to collect the data I need, I will use two separate assessments. The first will be a record of the number of times the directive is given before the student responds. The second will be a reading comprehension assessment during which the teacher will read a story and ask five comprehension questions. The students will be asked the answer the questions and responses will be marked either correct or incorrect.

Second, the study requires implementation of the approach. The use of signs and gestures will be introduced over a two day period, during which the participating students will learn American Sign Language signs for common directives, such as sit down, raise your hand, go to the desk, look, and listen. This will be taught by teacher modeling; the students will repeat the teacher’s signs. Students will be given the opportunity to practice using the signs through both guided and free practice and will use the signs to communicate with one another. The use of these signs will be reinforced by the teacher at various times throughout the day.

 Finally, the post-assessment data must be collected. For this, the same data collection methods will be used again. One form of assessment will be a record of the number of times the directive is given, with the use of signs, before the student responds. The second will be a reading comprehension assessment during which the teacher will read a story, using signs as added visual cues, and ask five follow-up comprehension questions. This data will be compared with the pre-assessment data.

**Timeline**

***Table 1***

|  |  |
| --- | --- |
| **Day** | **Agenda** |
| **1** | Pre-assessment- teacher records the number of times directive is given before student responds appropriatelyPre-assessment- teacher questionnaire given |
| **2** | Pre-assessment continued- teacher records the number of times directive is given before student responds appropriately |
| **3** | Pre-assessment continued- teacher records the number of times directive is given before student responds appropriatelyPre-assessment- read aloud with comprehension questions |
| **4** | Lesson 1- Introduction of American Sign Language signs for common directives/guided practice |
| **5** | Lesson 2- Review of American Sign Language signs for common directives/guided practice/group practice |
| **6** | Lesson 3- Read aloud with the use of signs as visual cues (introduction to this method) |
| **7** | Post-assessment- teacher records the number of times directive is given before student responds appropriately |
| **8** | Post-assessment continued- teacher records the number of times directive is given before student responds appropriately |
| **9** | Post-assessment continued- teacher records the number of times directive is given before student responds appropriatelyPost-assessment- read aloud, with the use of signs, followed by comprehension questions supplemented with signs (who, what, where, when, how?)Post-assessment- teacher questionnaire given |

**Data Collection and Analysis**

 Using both qualitative and quantitative approaches, a series of informal assessments were implemented to provide triangulation of results. Four separate assessments were collected for analysis. In order to triangulate results, different assessments were used to gather the teacher’s perspective and the students’ perspectives along with my observations and the analysis of student work. The goal of the data collection is to determine the effectiveness of using signs and gestures in the classroom for hearing students as additional visual cues; to ascertain this information, data will be collected before the intervention occurs and results will be compared with data collected after the intervention has been introduced.

 Each of the assessments introduced to the students as well as the response forms provided for the teachers are both reliable and valid as discussed in each section. Four separate artifacts will be used to ensure triangulation of results and have been generated to provide a valid and reliable measure of progress. These assessments include a rating scale provided to the teacher both before and after the intervention to assess student needs, reading comprehension checklists, a survey to determine student success and evaluation of the intervention and coded field notes to provide a third-party perspective and analysis of the effectiveness of the use of sign.

 **Rating scale.** The rating scale was given to the general education and special education teachers to complete twice throughout the study. This form can be found in Appendix B. First, the scale was completed prior to the intervention to determine a baseline of student performance and gain a more concrete understanding of the strengths and challenges the teacher faces in the classroom. This form was completed for a second time after the intervention was complete to determine any change that may have occurred in classroom performance. The rating scale includes a series of five questions, asked to determine how well students follow directives given by the teacher, student understanding of basic question words, student levels of reading comprehension and attentiveness to instruction. Teachers are given the opportunity to answer the question using a rating system in which the number 1 means ‘strongly disagree’, 2 means ‘disagree’, 3 means ‘agree’, and 4 means ‘strongly agree’. Below these questions is a space provided for the teachers to add any comments and/or examples. The second page of the rating scale includes short-answer questions used to determine the successful strategies used in the classroom as well as the greatest hindrance to student learning.

 This artifact is valid because it contains clear language, it has been checked for overlapping themes and questions and it tests what it is intended to test. In addition, this form is reliable because I, the individual conducting the study, will be present when the teacher is taking the assessment and will be able to explain and/or clarify the meaning of the questions if there is any uncertainty.

 This form of data collection is both quantitative and qualitative as is provides the opportunity to collect numerical data through the rating scales, yet also allows for open-ended feedback. In order to analyze this data, the percentage of change will be determined for the rating scales and the open-ended comments and questions will be coded (Corbin and Strauss, 2007). Comments, notes and written responses will be read and coded by determining the common themes within the response and then identifying three overarching themes and/or trends.

 **Reading comprehension checklists.** As seed in Appendix C, the reading comprehension checklist will be given twice to the five students participating in the study**.** First, the assessment will be given to the students prior to the intervention to establish a baseline for student performance data. The assessment will be given a second time after the intervention has been established to determine the percentage of growth in comprehension.

 The comprehension checklist is composed of five questions that will be read orally to the students, as well as being presented visually, after the students hear a book read aloud. Each of the five questions is intended to test students’ reading comprehension with and without the use of sign language. The five questions on this assessment are as follows: Who was the main character? Where did the story take place? When did the story take place? What was the problem in the story? How was the problem resolved? These questions will be presented to the students on strips of paper while the teacher reads the questions aloud to the students. The students will answer orally as the teacher takes notes using the key listed on the form. If the student answers the question correctly, then they would indicate a plus (+) sign. Conversely, if the student answers the question incorrectly, the teacher would indicate a minus (-) sign. The form also allows for specific notes and comments to be written about students’ responses.

 This form is valid and reliable for several reasons. First, the two stories read to the students in conjunction with this assessment were on the same Fountas and Pinnell reading level to ensure that the content is on the same academic level and that the form is valid. Fountas and Pinnell is a system of reading levels used to lead guided reading practice; this ensures that the data is not skewed due to the books being unequal in difficulty. Additionally, this form is reliable because the questions will be presented to the students in two different ways; it will be presented to them visually using sentence strips as well as orally as the teacher reads the questions.

 This form of data collection is both quantitative and qualitative. It provides the opportunity to collect numerical data through the plus and minus system by determining the number of questions answered both correctly and incorrectly. , It also allows for comments and notes to be written as the student verbalizes their answers. In order to analyze this data, the percentage of change will be determined for the number of correct and incorrect responses between the first and second administration of the test. The note portion of the artifact will be used as support.

**Survey.** The survey, provided in Appendix D, was given to the students participating in the study following the intervention. The survey contains four questions using the Likert scale and one short-answer questions. The four multiple choice questions were as follows: Did you enjoy learning to use sign language in the classroom? Did signs make it easier for you to remember the details in a story? Did signs help you to understand what your teacher was asking you to do? Will you continue to use signs in the classroom? To answer these four questions, students were instructed to color in one of the four smiley faces displayed below the question. The various smiley faces indicate that the students loved it, liked it, disliked it or hated it. The students were instructed to color in the face that matched their response. Lastly, the short-answer question asked students to explain in writing, why they would or why they would not continue to use signs in the classroom.

 This form is valid and reliable because the language is clear and questions were not value laden. Furthermore, directions were given explicitly by the individual conducting the study, myself. I was also present in the room at the time the students filled in this form to answer any clarification questions that were asked.

 This form of data collection is both quantitative and qualitative. The use of the Likert scale for the first four responses allows for numerical data to be collected and assessed. The follow-up question asking, “why or why not,” allows for qualitative data to be collected. These responses were coded to find the common themes amongst all students involved in the study.

**Field notes.** Two forms of field notes were created for me to complete throughout the study. The purpose of these notes was to keep a record of events, comments, challenges and strengths of the intervention for support in specific areas of the study.

The field notes were recorded on two separate documents, found in Appendix E. The first document was in the form of an observational chart with the focus being on the use of signs and gestures between teachers and students and the number of times directives were given before a student responded appropriately. A series of numbers and letters were used to complete the form as per the key on the document. In addition to this form of field notes, a second document was created in the form of a logging sheet with space for a summary of activity. This free-writing document allows for very general information to be written and used at a later time.

 This form of data is qualitative as it does not provide numerical data, but open-ended informational data. In order to analyze this data, the written responses in the field notes will be coded to determine the common themes or trends in events during the intervention and/or study.

**Findings or Results**

 Overall, the results of the intervention indicate positive changes in the students’ ability to respond to verbal directives, attend to whole-group lessons and comprehend stories read aloud. Specifically, the data supports that each of the five students improved in the area of comprehension through the ability to answer “who, what, where, when, why, and how” questions about stories read aloud. The results of the study were triangulated from three perspectives; that of the teacher, the students and the data.

 The findings of this study can be clearly explained through the qualitative and quantitative data.

**Quantitative Data Results**

 There were two pre- and post-intervention assessments for students and one teacher-completed rating scale. Additionally, there was a post-intervention survey distributed to students at the completion of the intervention study.

 The first child-centered assessment was a checklist on reading comprehension involving the five common question words: who, what, where, when, and how. After hearing a story read aloud, the students were asked to answer five comprehension questions using these question words. Each student was given a score based on the number of questions answered correctly out of five. If the answer stated was incorrect, the teacher took qualitative notes in order to diagnostically assess the problem. Upon reviewing the students’ performance on this assessment, the scores were compiled to determine the percentage of students who answered each question correctly. As shown in Appendix A, the percentage of students who answered the “who”, “where” and “when” questions correctly post-intervention increased by 20%. The percentage of students who answered the question, “how” increased by 40% post-intervention. Lastly, the percentage of students who answered the “what” questions correctly post-intervention swelled by 60%. Because some of the students lacked formal instruction on the meaning of these question words, it is possible that a portion of the progress noted in the students can be attributed to direct instruction of this vocabulary rather than simply the use of sign language.

 The second student-centered assessment was observation of the number of times teacher directives were given before students responded appropriately. In this case, “appropriately” can be operationally defined as responding to the directions or commands to the best of the student’s understanding or ability. During this observation, a key was used to take notes over a span of three days. In compiling the data, the number of times a directive was given was averaged for each student. This observation chart was completed pre-intervention as well as post-intervention to determine the percentage of change due to the use of sign language as a supplement to verbal directives. As exhibited in Appendix G, each of the five students displayed a decrease in the number of directives required before an appropriate response. Student A decreased by 25%; Student B decreased by 33%; Student C decreased by 36%; Student D decreased by 18%; Student E decreased by 33%. The results of this assessment indicate that the use of sign language as a supplement to verbal directives was effective for this group of five students.

 Additionally, the teacher-completed rating scale was given both pre- and post-intervention. The questions were coded and separated into three distinct foci: students’ ability to follow verbal directives, student reading comprehension, and attentiveness to large-group instruction. The teacher’s responses on the rating scale were averaged for the questions relating to each focus. As seen in Appendix H, results of the pre-intervention survey indicated that the classroom teacher found the greatest struggle in the attention of her students with a score of 1. Following the intervention, the teacher was asked to rate her students again and change was evident based on her scores. According to her rating scale, students’ ability to follow verbal directives increased by 0.5 points. Students’ reading comprehension skills increased by 1.5 points. Attentiveness to teacher instruction also increased by 1 point. The results of this assessment indicate that the intervention was successful in improving students’ response to verbal directives, reading comprehension and attention.

 Lastly, students were given a survey following the completion of the intervention to determine their point of view on the use of sign in the classroom. The results were compiled as a group and percentages were derived based on their answers on the Likert scale. The outcomes are displayed in Appendixes I, J, K, and L. Results indicate that 80% of the students “loved” the use of sign language in the classroom and 100% of them plan to continue the use of sign in school. Additionally, 60% of the focus group found it “much easier” to remember the details of a story with the supplementary use of sign, while 40% claimed that it was “somewhat easier”. The student survey also indicated that 40% of students in the focus group found sign to be “very helpful” in understanding and processing teacher directives.

**Qualitative Data Results**

 The qualitative data was derived from the analysis of field notes assembled throughout the study, as seen in Appendix E, and additional comments written by the classroom teacher as a part of the Teacher Rating Scale, as seen in Appendix B. Each of these written notes/responses was assessed through the coding process.

 The field notes exposed some important findings during this study. The notes were coded to determine the three main themes: limited vocabulary, frustration level and slow processing.

 Upon observing the students, it was noted that they lacked the basic vocabulary necessary to display accurate comprehension of a text. Students were unable to differentiate between the terms *who, what, where, when,* and *how*. This hindered their ability to comprehend a text and especially hampered their ability to express the information that they did retain. It is possible that this lack of understanding hindered the pre-assessment data for comprehension. In order to proceed in the study, these question words had to be taught through direct instruction; this may have skewed the results of the post-intervention data. Furthermore, it was noted several times throughout the study that students were unable to respond appropriately to teacher directives because their limited vocabulary prevented them from fully understanding the directions. For example, during a math lesson on skip counting, the teacher asked the students to tell her the number that came before eight and the number that came after five. Students were unable to respond to this question because they did not understand the meaning of the terms, *before* and *after.*

 The coded field notes also indicated that students’ frustration levels were a hindering factor in their learning and performance. According to observation notes, there were several instances when students shutdown—physically or emotionally—during instruction or assessments due to high levels of frustration. Students displayed their frustration in different ways. Some students put their heads down on the desk, others acted out with unsavory behaviors and one physically left the table. It was noted that students responded well to frequent breaks from study and a very casual teaching style. When the use of signs was presented as a game or fun activity, students responded well and were able to participate freely without being limited by frustration.

 Lastly, the filed notes indicated a struggle with oral and visual processing. Through the observation of various mini-lessons, independent work, collaborative work, and assessments, it was evident that many students struggle with very slow processing speeds. Some students responded better to verbal prompts while others displayed quicker response time through visual prompts. Because of this, sign language was always supplemented with speech. Signs were never given silently. The purpose of the use of sign language in the classroom was to provide an supplementary means of communication to assist student in processing directives both orally and visually.

**Discussion**

 The results of this study revealed that the use of signs and gestures in the classroom did improve student responses to verbal directives, along with student levels of attention. While students displayed improvement in their reading comprehension, this change cannot be fully attributed to the use of signs; partial credit must be given to the direct instruction given in differentiated the question words. Further study and analysis would need to be completed to determine the success of the use of signs on improving reading comprehension.

 The results of this study are similar to that of Onur Kurt, professor from Anadolu University (2011). The results of Kurt’s study on the use of signs and gestures in improving the receptive language of children with autism indicated that giving verbal instructions with the addition of gestures and/or signs was slightly more effective than teaching without (Kurt, 2011). Additionally, the results of Diane Branson and Maryanne Demchak’s research study on the use of augmentative and alternative communication (AAC) methods—including sign language—with young children with disabilities indicated that seven out of twelve studies provided evidence that the use off AAC as an intervention was effective (2009). The results of these professional studies indicate similar results to that of this study.

 The first inquiry question posed in this study was: How does the use of gestures and/or signs affect the understanding of all students, including students who are learning disabled, English Language Learners, general education, and special education? Through this study, I have concluded that the use of signs and gestures as a supplementary visual cue is beneficial for all students, including hearing students. Results have shown vast improvement in the behavior and reading comprehension of all five students that participated in the study.

 Through reflection of this research study, it has been noted that the second inquiry question has not yet been answered. The second inquiry questions states: How will the knowledge of American Sign Language affect the expressive language of students in social context? After working more closely with the students in this focus group, I came to realize that this inquiry questions was not really appropriate for them. These students were not as limited as I originally concluded, and they did not require the additional use of sign language in their expressive language with peers. These students were able to communicate effectively verbally.

**Implications**

 The results of this study are significant to several groups within education including teachers, students, parents, and families. The results of this study will aid teachers and families meet their children’s needs more effectively and will equip students to access language in a way that is most effective for them.

**Teachers**

 An important implication for teachers is that all students learn differently, and it is essential that students receive information in a variety of manners. The multi-modal approach to education is crucial to differentiating material to students and is a tool for teachers to use to communicate effectively with students. Part of this multi-modal approach involves both verbal and visual cues to assist students in language processing. One way to provide supplementary visual cues for students is through the use of signs and gestures.

**Parents and Families**

 An implication for parents and families is that there is a more effective method of communication available to assist children in understanding directives. Parents often note that their children do not respond appropriately to their directives, or that they need to repeat the same directions to their children over and over. This can lead to extreme frustration for the parent. If the parents and families are willing to commit to leaning a few basic signs, they may find that their children respond positively to the additional visual cue. This could help speed their processing time, thus helping them to respond in a more time-efficient manner.

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**Appendix A- Consent Form**

Name

Mamaroneck Avenue School

(\_\_\_) \_\_\_-\_\_\_\_\_

PARENT CONSENT FORM

Your child is invited to participate in a study to help with expressive and receptive language, led by Stephanie Moody, as student teacher from Pace University. In this project, teachers will be helped to find new ways to communicate with students and provide visual cues for the remainder of the 2012-13 school year. Your child was introduced to Stephanie Moody at the beginning of the school year by his or her teacher. He or she can talk to the teacher if there are any problems. Participation in this study is voluntary.

Results of the project will be shared with school district administrators, and may be shared through publications and presentations. Names of students will not be used to protect their privacy. Please speak to your child about the project. The teacher and/or researcher will ask for his or her permission to participate in the study and any videotaped and/or audiotaped lessons. The tapes will remain in the teachers’ offices. We need your permission to view test results.

You may contact Dr. Falk-Ross at FFalkross@pace.edu, or at (\_\_\_)\_\_\_-\_\_\_\_\_ if you want more information about your children’s rights or if you have any questions concerning the program.

**Participation Agreement**

I agree to allow my child to participate in this study. I understand that all names will remain confidential unless otherwise specified. I understand that my child’s test results will be viewed by researchers, but that no names will be used for test reporting. The researcher will obtain the child’s oral assent for participation in school using a separate form. I understand that participation is voluntary and there will be no problem if your child chooses not to participate. The researchers will obtain the child’s oral assent for participation in school using a separate form.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name Date

I understand that audiotape and videotape recordings of classroom reading activities and notes may be collected and used throughout the study. The researcher will obtain the child’s permission for participation in school using a separate form.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Name Date

**Appendix B- Teacher Rating Scale**

**Appendix C- Comprehension Checklists**

**Appendix D- Student Surveys**

**Appendix E- Field Notes**

**Appendix F- Comprehension Question Graph**

**Appendix G- Response to Teacher Directives Graph**

**Average Number of Directives Given Before Appropriate Response**

**Appendix H- Teacher Rating Scale Graph**

**Key:**

**1-** Strongly Disagree **3-** Agree

**2-** Disagree **4-** Strongly Agree

**Appendix I- Student Survey Chart**

**Appendix J- Student Survey Chart**

**Appendix K- Student Survey Chart**

**Appendix L- Student Survey Chart**