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The Efficacy of the Student Communication Repair Inventory and Practical Training Program on Adolescent's Self-Advocacy Skills in Communication Breakdowns

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By
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A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

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Abstract

KARLYE A. TOLBIRD: The Effects of the Student Communication Repair Inventory and Practical Training on Self-Advocacy Skills in Adolescents: Six Single Case Studies

(Under the direction of Dr. Rebecca Lowe)

Purpose

Hearing loss can affect several aspects of an adolescent's life, particularly their self-advocacy skills and ability to communicate their needs in the classroom. Literature shows that adolescents between the ages of 12 and 18 years have a prevalence of hearing loss between 14.9 percent and 19.5 percent (Shargorodsky et al., 2010). Therefore, early identification and intervention of hearing loss are necessary to reduce the adverse effects on the development of cognition, verbal communication skills, and self-advocacy skills (Michael & Zidan, 2018). This research study aimed to determine if the implementation of the SCRIPT program changes the communication repair behavior in adolescents as measured by the LIFE-R student and teacher appraisals and the SAID teacher checklist.

Method

A single case study method was utilized for six adolescents throughout this study to gather detailed information on the communication repair behavior as the SCRIPT program was implemented. Using a pre-and post-test research design, researchers gathered data on five of the adolescents' self-advocacy skills and communication repair strategies used in listening situations in the classroom. The SCRIPT program was implemented in-person and remotely in a counterbalanced format to teach self-advocacy and communication repair skills through the study. The participant's language samples were transcribed verbatim using CLAN and coded using CLAN's frequency function to minimize errors in the results. Results between the pre-and post-test measures were compared and interpreted.

Results

Regarding the LIFE-R teacher appraisals, the scores were inconsistent in improvement after implementing the SCRIPT program. The LIFE-R student appraisal scores rarely improved over the study. Regarding the SAID teacher checklist, four students showed improvement with more assertive communication styles, independent functions with their HATs, and communication repair strategies during communication breakdowns. According to the language

samples, each student improved using repair strategies, particularly repetition and nonverbal strategies.

Conclusion

The research results provide valuable insight into the outcome of SCRIPT intervention in adolescents. Researchers predicted that the adolescent's self-advocacy development and communication repair behavior would improve with the SCRIPT implementation, and the results indicated some increase in self-advocacy skills among the participants and an improvement in utilization of communication repair strategies.

PREFACE

This thesis seeks to address the effects of training in communication repair strategies in six adolescents between the ages of 12 and 17-years and track their progress and use of repair strategies. It was written to fulfill the graduation requirements for the Sally McDonnell Barksdale Honors College. The research conducted for this thesis took place from September to March of 2021-2022.

This research project was conducted under the direction of Dr. Rebecca Lowe and Dr. Ying Hao. This thesis assessed the effects of the Student Communication Repair Inventory and Practical Training Program on six students with hearing loss. The research with this study seeks to apply a holistic view of the students with hearing loss, focusing on their communication abilities and its impact in various environments. In addition, researchers included various members of the student's support system, such as parents, teachers, and two clinicians, to encourage a team approach to addressing the barriers of communicating needs in daily listening situations.

Researchers defined what a communication breakdown was, trained the students to identify when a communication breakdown happened, and how to repair the breakdowns through the use of a variety of communication strategies. However, the work of the family members, teachers, and speech-language pathologists contributed most to developing each student's self-advocacy skills over the past year. The dedication of these professionals has inspired me to further my education in Educational Audiology.

Over the entire course of this research project, the COVID-19 pandemic brought unprecedented circumstances and necessitated modifying and adapting to COVID-19

requirements. We learned to be flexible and patient as school closings, quarantine orders, and illnesses changed our original plans. In addition, technology allowed us to continue therapy and intervention through a hybrid format to work through the pandemic.

It has been an honor to work alongside the researchers and professionals who have made this study possible. I am incredibly grateful for their willingness to advise me and guide me throughout this process. In addition, it has been an honor to work with six clever students and watch their progress with their development of skills and confidence in repairing communication breakdowns and self-advocacy. It has been a privilege, and I am excited to see what the future holds for these students.

Writing this thesis has taught me so much about perseverance. I hope you enjoy this culmination of hours spent reading, writing, and conducting therapy.

Sincerely,
Karlye Tolbird

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LIST OF ABBREVIATIONS

CDC	CENTER FOR DISEASE CONTROL AND PREVENTION
ASHA	AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION
HAT	HEARING ASSISTIVE TECHNOLOGY
AAA	AMERICAN ACADEMY OF AUDIOLOGY
SLP	SPEECH-LANGUAGE PATHOLOGIST
EAA	EDUCATIONAL AUDIOLOGY ASSOCIATION
SCRIPT	STUDENT COMMUNICATION REPAIR INVENTORY AND PRACTICAL TRAINING
LIFE-R	LISTENING INVENTORY FOR EDUCATION-REVISED
SAID	STUDENT ADVOCACY AND INDEPENDENT DEVELOPMENT
WHO	WORLD HEALTH ORGANIZATION
SLI	SPECIFIC LANGUAGE IMPAIRMENT
RSES	ROSENBERG SELF-ESTEEM SCALE
RCBS	REVISED CHEEK AND BUSS SHYNESS SCALE
IEP	INDIVIDUALIZED EDUCATION PROGRAM
IRB	INSTITUTIONAL REVIEW BOARD
CHILDES	CHILD LANGUAGE DATA EXCHANGE SYSTEM
HIPAA	HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT

CHAPTER I

INTRODUCTION

In the United States, hearing loss among children has become increasingly prevalent. Records show that the prevalence of hearing loss has increased from 14.9 percent to 19.5 percent (Shargorodsky et al., 2010). The Center for Disease Control and Prevention (CDC) reported that between the ages of three and 17 years, five of 1,000 children might be diagnosed with hearing loss (CDC, 2019). With the rise in hearing loss becoming more prevalent in the U.S., the impact on language development and self-advocacy skills is increasing (ASHA, 2015). According to the American- Speech-Language-Hearing Association [ASHA] (2020), the gap between normal-hearing children and those with hearing loss grows over time, with effects indicating ramifications to educational outcomes (Huttunen & Sorri, 2001). Early identification and intervention of hearing loss are necessary to reduce the adverse effects on the development of cognition, verbal communication skills, and self-advocacy skills (Michael & Zidan, 2018).

Children with hearing loss may require various people to support their social, academic, and personal development. Multiple intervention methods may be implemented to lessen the language and academic gap between children with hearing loss and their typical hearing peers. Parent and teacher training, support groups, special education plans, and hearing assistive technology (HAT) are all intervention measures used to advocate for and support children with hearing loss.

Audiologists practice prevention, identification, assessment, diagnosis, and treatment of hearing loss (American Academy of Audiology [AAA] 2004). Educational audiologists provide the same services in school settings while working alongside teachers, speech-language pathologists (SLPs), parents, and other professionals to ensure the children have appropriate access to auditory information in the classroom (Educational Audiology Association [EAA], 2019). Providing recommendations to teachers based on students' individual communication needs in the classroom is one of many services educational audiologists practice daily. Educational audiologists may make recommendations that include but are not limited to implementing appropriate accommodations for each classroom, modifying assignments, and using visual cues in the classroom. An overlooked but necessary audiology service is coaching children and adolescents to advocate for clean communication and personal needs. This study aims to determine if implementing the Student Communication Inventory and Practical Training

(SCRIPT) program changes the communication repair behavior in adolescents as measured by the Listening Inventory for Education-Revised (LIFE-R) student and teacher appraisals and the Student Advocacy and Independence Development (SAID) teacher checklist. This study utilized a hybrid format of teletherapy and in-person sessions to deliver services.

CHAPTER II
LITERATURE REVIEW

Prevalence of Hearing Loss

Hearing loss among children has become increasingly prevalent within the United States. According to the Center for Disease Control and Prevention (CDC), in the United States, the number of identified hearing losses in babies increased from 855 to 6,337 annually between 2005 and 2016 (CDC, 2019). Between the ages of three and 17, five of 1,000 children will be diagnosed as deaf or hard-of-hearing (CDC, 2019). The prevalence of hearing loss in children ages six to 19 is 14.9 percent (CDC, 2019), but with any hearing loss, prevalence has increased from 14.9 percent to 19.5 percent (Shargorodsky et al., 2010). The increase in prevalence indicates that more children are diagnosed with hearing loss.

The rise in the prevalence of hearing loss in the United States may increase the impact of hearing loss on children (American Speech-Language-Hearing Association [ASHA], 2018). Impacts of hearing loss may have long-standing consequences on a child or individual, including difficulty with localization, delayed response to sounds, impaired communication, social withdrawal, and emotional issues, including self-esteem and confidence levels (ASHA, 2018).

Impact of Hearing Loss on Academics

Academics and education are essential factors in life that children experience. For some children, education is challenging, but with the added challenge of hearing loss, learning difficulties can be enhanced. Hearing loss can impair children's academic performance, but with appropriate knowledge and intervention of hearing loss, the impact can be significantly reduced (Klein et al., 2019).

Even with aided hearing, language acquisition may be complex for a child with hearing loss and could result in challenges in learning. In Dye et al. (2014) study, children with hearing loss show poor sustained attention, which is not ideal in classroom settings. Thirty-seven deaf children and 60 hearing children between the ages of six and 13 completed a vigilance task to

measure sustained attention. The deaf children in this study did not have any HATs, but after the surgical procedure of receiving a cochlear implant, the children's attention span began to increase over time. Their results showed that younger children demonstrated lower sustained attention than older children and that boys displayed weaker sustained attention than girls. In addition, the results showed that males reflected better selective attention than females (Dye et al., 2014). The study results are significant because adolescents' communication repair and self-advocacy abilities may be affected if their sustained and selective attention is weak.
Khairi et al. (2010) investigated children's academic levels with mild hearing loss. The prevalence of hearing loss in the school in the study was 15 percent of the student body. After the researchers examined each of the students participating in the study, the researchers discovered a strong correlation between mild hearing loss and academic performance (Khairi et al., 2010). Furthermore, the students with untreated mild hearing loss were the children who were seen with the lowest academic performance (Khairi et al., 2010). Therefore, the researchers in the study suggest that early hearing loss screenings should be conducted to propose early intervention services. Thus, an individual with mild hearing loss may need intervention services such as HATs and appropriate educational accommodations.

Krijer et al. (2020) suggested that children with hearing loss, even those with cochlear implants, may have a more challenging time hearing in classroom environments than normal-hearing children. The purpose of the study by Krijer et al. (2020) was to investigate the listening difficulties of children with cochlear implants in mainstream secondary education. The results showed that children with cochlear implants reported more listening difficulties than typical hearing participants. Krijer et al. (2020) found speech signal distortions, distance from sound, lack of visual aid, and reverberation as primary challenges for children with cochlear implants when trying to listen in the classroom. Listening during group work, to multimedia, and in large-sized classrooms were the situations that were recorded to show difficulty for the participants wearing cochlear implants. (Krijer et al. 2020). Listening during group work, multimedia, and large classrooms may impact children with hearing loss's ability to communicate and the need to advocate for communication repairs. Most participants in the study were seated at the front of the room to lessen the reverberation of sounds in large-sized classrooms. In addition, the participants were given visual cues to enhance speech perception. Researchers recommended directional microphones to reduce reverberation and communication

breakdowns in classrooms and visual cues and repetition strategies when the listening difficulty was during times when a student answered in-class discussion.

Impact of Psychological Effects of Hearing Loss in Adolescents

Hearing loss is a global public health problem, according to Idstad et al. (2019), and the World Health Organization (WHO) lists hearing loss as one of the leading causes of disability worldwide (World Health Organization, 2021). According to Nunes et al. (2020), deaf and hard-of-hearing children were neglected more often than their hearing peers, which may explain differences in assessments regarding ignorance and exclusion. The study had two objectives: (1) comparing deaf/hard-of-hearing and hearing participants on the prevalence of victimization and levels of parental and child variables. (2) Analyzing the impact of parental variables and child variables on victimization and whether strengths of relationships differed for children who have hearing loss. The study included 188 children, 94 were hearing, and the other 94 had hearing loss. The control group of normal-hearing children was matched for age, gender, socioeconomic status, nonverbal IQ, and language comprehension with the hearing loss group. The parents completed a parental sensitivity questionnaire that measured parenting styles in the study. The child measures included the Bully/Victim Inventory questionnaire, covering physical, verbal, and indirect bullying. Some examples include: “are you invited to birthday parties?” Communication between parents and children with hearing loss was measured using a six-item questionnaire explicitly developed for this study. Examples include: “my parents look at me when they want to communicate with me.” The mood questionnaire was also administered to measure four mood scales, including negative and positive moods. Each of the questionnaires was scored on a 3-point scale, with one resulting in rarely and three often. The results suggest that deaf and hard-of-hearing children in special education reported more victimization than deaf and hard-of-hearing children in regular education (Nunes et al., 2019). Hearing loss negatively affects language development; psychological effects may still occur even after language acquisition is similar to their peers. The recommendations from this study indicate that the children need more promotion and prevention measures directed to auditory health, such as self-advocacy training, hearing screenings, and professionals in the speech-and-hearing field.

Barriers in Self Advocacy in Adolescents with Hearing Loss

Self-advocacy is a developmental process in which individuals gradually gain confidence in expressing themselves and assume responsibility for their lives (Kozminsky, 2004).

Self-advocacy involves three main components: knowledge, motivational features, and skills (Michael & Zidan, 2018). Knowledge includes personal knowledge and environmental knowledge (Michael & Zidan, 2018). Personal knowledge includes an individual's needs, while environmental knowledge consists of the duties, rights, and facilities to help the child function (Michael & Zidan, 2018). Michael and Zidan (2018) measured the three main components of self-advocacy in 54 students who were hard-of-hearing. All participants attended general education classes and did not participate in self-advocacy intervention. However, the participants did receive additional support once or twice a week from teachers who specialize in deaf and hard-of-hearing education (Michael & Zidan, 2018). Awareness of strengths was measured using the Hope Scale, which assessed understanding of personal strengths and resources to help form goals for the participants. Self-esteem was measured using Rosenberg's Self-Esteem Scale, and self-efficacy was measured using the Self-Efficacy Questionnaire for Children. The results showed that self-esteem might positively correlate with the academic self-efficacy variable (Michael & Zidan, 2018). The positive correlation with the academic self-efficacy variable implies that as a child with hearing loss may have increased self-esteem, his or her self-efficacy will also increase. Therefore, increased self-esteem may increase an individual's efficiency with everyday tasks, such as advocating in class, solving various problems, and expressing themselves. Results also showed that problem-solving and emotional self-efficacy correlated significantly, and students' age and self-advocacy correlated. (Michael & Zidan, 2018). In addition, the results reported that emotional self-efficacy was positively correlated with age in the hard-of-hearing students. In contrast, normal-hearing individuals negatively correlated effort and hope with age.

The results also showed that hard-of-hearing students' ages were highly correlated between syntactic and pragmatic abilities and self-advocacy, which may mean that as the children continue to grow, they may be more likely to advocate for themselves. The results above indicate that when a child can problem-solve effectively, he or she will have a higher emotional self-efficacy, which improves motivational factors. In addition, problem-solving benefits the child with hearing loss in everyday situations, which may help improve self-esteem, self-efficiency, and self-advocating skills. Finally, communication repair strategies can be utilized as a practical problem-solving skill for when a communication breakdown occurs.

According to Wadman, Durkin, and Conti-Ramsden (2008), children and adolescents with language impairments have a range of social issues, including poor social competence and poor peer relations (Conti-Ramsden & Botting, 2004; Durkin & Conti-Ramsden, 2007; Fujiki, Brinton, & Todd, 1996). Adolescents with impairments such as hearing and language are at risk for lower self-esteem due to social difficulties and communication difficulties (Wadman, Durkin, & Conti-Ramsden, 2008). Shyness is also a barrier to self-advocacy due to the characterization traits including tension, discomfort, and inhibition while in the presence of people (Cheek & Buss, 1981; Jones, Briggs, & Smith, 1986; Wadman, Durkin, & Conti-Ramsden, 2008). Shyness is a social factor that makes public situations in the adolescent years more difficult (Wadman, Durkin, & Conti-Ramsden, 2008). In the study by Wadman, Durkin, and Conti-Ramsden (2008), the researchers measured the shyness and sociability of fifty-four adolescents with specific language impairment (SLI) and fifty-four adolescents with typical language abilities using the Rosenberg Self-Esteem Scale [RSES] and the 12-item Revised Cheek and Buss Shyness Scale [RCBS]. The RSES consists of 10 items, including five positive statements and five negative statements about self-esteem (Wadman et al., 2008). Some examples include: "I feel that I have many good qualities" and "At times I think I am no good." The RCBS consists of 12 questions designed to measure tension and inhibition while in the presence of other individuals (Wadman et al. 2008). Some examples include: "It does not take me long to overcome my shyness in new situations" and "It is hard for me to act natural when meeting new people." In Wadman et al. (2008) study, each participant was assessed individually in one session in a quiet room and at home or in a school/ college. The ten statements from the RSES and the 12 questions from the RCBS were read aloud to the participants. The participants were to indicate how much they agreed with each statement. The participants could point to their response, or they could verbally respond. The study revealed that participants with hearing loss and language impairment had higher shyness scores than those with everyday speech and hearing (Wadman, Durkin, & Conti-Ramsden, 2008). Gender did not significantly impact the shyness scores in the study. The sociability scores for all participants were on the higher end of the scale. (Wadman, Durkin, & Conti-Ramsden, 2008). Overall, Wadman, Durkin, & Conti-Ramsden (2008) discovered that shyness may be a barrier for children with hearing loss and may cause self-advocacy skills to decrease.

Durkin et al. (2017) performed a similar study that involved face-to-face interviews with participants ages 17 to 24 years. The interviews were conducted in quiet rooms, with only the researcher and one participant present (Durkin et al., 2017). Primary information was collected, and standardized tests were performed. Like Wadman et al. (2008) study, all items were read aloud to the participants, and additional clarifications were added when requested (Durkin et al. 2017). Participants in the study with Durkin et al. (2017) could respond verbally or point to visual objects. Results showed that for both 17-year-olds and 24-year-olds, high levels of shyness were associated with low levels of self-esteem (Durkin et al., 2017). The study results suggest that shyness may be a barrier for people to having higher self-esteem and indicates that shyness is also associated with lower levels of self-advocacy. Lower levels of self-advocacy may impact children with hearing loss by reducing the amount of information they understand. When a child does not advocate or request clarification, information may be missed during times of a communication breakdown, resulting in a continuous cycle of the child becoming increasingly shy, having low self-esteem, and experiencing low levels of self-advocating skills. Children with hearing loss should be encouraged to learn self-advocacy skills early in life to reduce shyness and increase self-efficacy during communication breakdowns.

Communication Breakdowns and Repair Strategies

Communication breakdowns are shared experiences between individuals in conversation (MacLachlan & Chapman, 1988). *Communication breakdowns* are lexical errors in speech, missed information by the listener, and miscommunication in speech and understanding by the listener or speaker (MacLachlan & Chapman, 1988). MacLachlan & Chapman (1988) performed a study to code communication breakdowns to understand how many breakdowns occur per utterance and what types of breakdowns occur. The researchers had twenty-one participants divided into three groups of seven (two control groups and one experimental group). Each participant was interviewed individually in a quiet room(MacLachlan & Chapman, 1988). The different communication breakdowns examined in the study were stalls, repairs, abandoned utterances, and “others” (MacLachlan & Chapman, 1988). Stalls were interruptions in the flow of speech, repairs were attempts to make corrections once a breakdown occurred, abandoned utterances were not completed, and “others” were created for instances of communication breakdowns that could not be categorized (MacLachlan & Chapman, 1988). The results showed that stalls and repairs were 50 percent more frequent during narration than in conversation

(MacLachlan & Chapman, 1988). When a child with hearing loss is telling a story, he or she may be more likely to stall or repair a breakdown than when speaking to a peer in everyday conversation.

In contrast, stalls and repairs decreased when a child with hearing loss spoke with one or more individuals. Both conclusions suggest that social cues, such as facial expressions from peers, might be why children show more frequent stalls and repairs while telling a story. The frequencies of stalls, repairs, and abandoned utterances were similar in the experimental and control groups (MacLachlan & Chapman, 1988). Phonological and syntactic repairs were extremely infrequent to analyze (MacLachlan & Chapman, 1988).

Brinton, Fujiki, Loeb, and Winkler's (1986) study of communication breakdowns in children between the ages of 2-years and 9-years showed that most children respond during communication breakdowns with repetition (Most, 2002). Brinton, Fujiki, Loeb, and Winkler's (1986) study used a strategy called "stacked sequence," which involves asking the questions: "huh?", "What?" and "I do not understand?" to activate repair responses (Blaylock, Scudder, & Wynne, 1995). The stacked sequence may enhance clarification from the speaker when inappropriate responses such as repeating statements back to the speaker were uttered (Blaylock, Scudder, & Wynne, 1995).

Nancy Tye-Murray (1991) conducted a study that examined five repair strategies observed by participants with hearing loss. The following is a review of Tye-Murray's (1991) study. The study included eight paid participants whom all had a mild hearing loss or worse in the better ear and showed a desire to improve their communication skills. The mean age of the participants was 61 years old, and one subject had speechreading lessons and was the only participant who did not wear a HAT. The researchers had each participant complete various activities in a specific order that included three components. The first component of the study included participants listening to a speaker on a computer monitor recite an introductory sentence. Once the sentence was recited, four pictures appeared on the screen. Unfortunately, only one of the images on the screen had the appropriate illustration of what was uttered in the sentence. Next, the participants were told to touch the picture that the speaker spoke on the screen; if the participant was incorrect, a choice of five repair strategies appeared. The strategies were (1) to say that again, (2) simplify the sentence, (3) say two sentences, (4) say one crucial word, and (5) rephrase the sentence.

After the participants selected an option, the speaker reappeared and performed the strategy selected. The participants then chose another of the four illustrations. This sequence was repeated until the participants correctly responded. The second component in the study was a subject-clinician interaction where the clinician role-played with the participants to practice the repair strategies, including paraphrasing, repeating sentences, providing keywords, and adding information. The clinician and participants also discussed different situations in which repair strategies might be utilized. The third component was the repair strategy familiarization, which required the participants to see and hear the speaker say an introductory sentence. The participants were then requested to choose two of the five repair strategies for the sentence. Next, the texts of the preceding sentence and the repair strategies were printed on the screen after a speaker produced the sentence. The subject read the texts to ensure the learning of the types of information occurring from the results of the repair strategies. Finally, the clinician encouraged the participants to choose different strategies during the trial to help them better understand what each strategy elicited. The results from the study by Tye-Murray (1991) for the first component showed that, on average, the participants most frequently chose repeat or the two-sentences strategy after an incorrect response. The no-therapy participants never changed their response selections after the first incorrect choice. The repeat strategy was chosen an average of 8.9 times in the no-therapy group in the first session and 8.3 times in the second session (Tye-Murray, 1991). Overall, in the study by Tye-Murray (1991), participants with hearing loss practiced using five repair strategies and learned what type of information each strategy yielded for the preceding sentences. The results from Tye-Murray (1991) 's study showed that training communication repair strategies for individuals with hearing loss increased the participants' abilities to advocate for their needs.

Student Communication Repair Inventory & Practical Training Program

The Student Communication Repair Inventory and Practical Training (SCRIPT) program is a program written by Karen Anderson (2018) and designed to teach repair strategies to children of hearing loss who may experience communication breakdowns in home and school settings (Anderson, 2018). The program was formed from the results of the following studies, including but not limited to Gallagher (1977), Gallagher & Darnton (1978), and Elfenbein (1992). In addition, Anderson (2018) aimed to support the statement by Roth and Spekman (1984) "that in order to be considered an effective communicator, an individual must

demonstrate the ability to function as both a speaker and a listener during communication acts" (Roth & Spekman, 1984).

Gallagher (1977) explored the ability of 18 students between the ages of 21-and 29 months with typically developing language. He wanted to investigate the students' responses when a presenter pretended to misunderstand what the student said and asked, "What?" twenty times throughout a one-hour spontaneous language sample. Each response was categorized as repetition, revision, or no response. The results concluded that three-fourths of the communication repairs were revisions regardless of the language stage (i.e., Brown's Language Stage I, II, or III). About one percent of responses from the students were considered no response.

Hughes and James (1985) repeated the research protocol by Gallagher (1977) with 14 students who were deaf and between the ages of five years and eight years old. The participants were asked (verbally or signed), "What?" twenty times during a one-hour conversation. The responses were also categorized as repetition, revision, and no response, and the revision strategies were categorized into eight subcategories. The results found that deaf school-age students revised their messages when misunderstood and frequently repeated their original statement's linguistic form or communication mode. The difference between the participants in Hughes and James' (1985) study and people with normal or disordered language was that deaf students with greater linguistic abilities were more likely to use revision strategies. At the same time, students with lower linguistic complexity were more likely to not respond during communication breakdowns.

Gallagher and Darnton (1978) replicated Gallagher's (1977) study using 42 to 64-month-old students who had language disorders and who were in Mean Length of Utterances (MLU) stages I, II, and III of language development. The students with language delays responded similarly to typically developing students. Their responses included revision of their original statement—however, the language-delayed students revised portions of their statements randomly and nonspecifically. The results show that the revisions were unrelated to the students' levels of structural knowledge in contrast to students who had normal development of language with a pattern of increasing complex revision strategies as their language continued to grow.

Elfenbein (1992) stated that students with hearing loss are at an increased risk for communication breakdowns than adults with acquired hearing loss. Elfenbein conducted a study

for six weeks that included 25 participants who were deaf or hard-of-hearing. The study consisted of communication strategies such as sign language, writing, drawing, or showing, along with spoken repair strategies. The results showed that the students increased their responsibility for initiating and managing repairs, better-matched repairs strategy usage in situations, utilized various strategies, and improved assessment of their communication partner's viewpoint. The researcher noted that the participants needed to understand that feelings related to communication breakdowns (i.e., frustration, anxiety, sadness) were not unique to them or others who were deaf or hard-of-hearing. The researchers recommended that emphasis on dealing with feelings of communication breakdown and repair was needed in any habilitation program.

O.T. Kenworthy (2002) conducted a study to address assessment procedures that follow conversation-based intervention using acknowledgment scripts and communication repair strategies. He conducted the study to address hearing loss as both an input and output problem. People with hearing loss should develop repair strategies as both a listener and a speaker to improve the quality of their communicative effectiveness (Kenworthy, 2002). Before intervention began, the clinicians completed an assessment plan called Aural Rehabilitation Profile to facilitate the conversational aural rehabilitation plan. The goal of the Aural Rehabilitation Profile was to ensure that the treatment plan would be evident from the outcomes of the assessment. The assessment focused on the conversation sub-domains: speech read, acknowledge, context, environment, repair, and overall. The domains were assessed to ensure the clinician addressed all the functional domains that contribute to effective communication.

The acknowledgment scripts were developed using instructional strategies from Tye-Murray (1998). The clinician and client construct an acknowledgment script that the client experiences during a conversation that he or she may use in facilitating understanding. The list typically consisted of three to five interactional strategies: repetition, rephrasing, confirmation, and specification. The repair strategies discussed by each client were different in the settings each client would utilize them. Some clients were most comfortable using the strategies one-on-one, while others felt comfortable in a group setting. The conversational repair strategies were conducted over four phases, including the observational phase, familiarization phase, discrete-trial phase, and the implementation phase. The observational phase was used to measure the repair strategies each client used in natural conversation before the intervention began. The familiarization phase is where the client is introduced to the repair strategies. The discrete-trial

phase included the client being an observer or direct participant. As direct participants, the clients were asked to converse with the clinician and practice the utilization of the repair strategies in quiet and noisy environments. All clients were asked to identify and evaluate the repair strategies utilized in the conversation between the direct participant and the clinician. The implementation phase was similar to the discrete trials, except that the noisy environment was eliminated, and the clinician only observed the client in natural conversations. After 15 minutes, that conversation was stopped, and the clinician and client reflected on the conversational repair strategies utilized in the conversation. Throughout the study, the conversation environments changed regarding distance, background noise, visualization, lighting, and other factors. The article provides valuable insights into the area of aural rehabilitation, addressing both the input and output issues clients with hearing loss may possess. The recommendations from the researchers were that intervention regarding interactive communication strategies to improve communication and facilitate acknowledgment and adjustment to hearing loss, and amplification devices must be expanded. Thus, the SCRIPT program was developed. However, the SCRIPT included a combination of the acknowledgment scripts assessment from Kenworthy (2002) and communication repair strategies from Tye-Murray (1998) to make a modified program of past research.

The SCRIPT program was intended for ages five to adolescents but can be used for any age (Anderson, 2018). From ages five to fourteen years, the human brain is constantly learning and experiencing new situations. Children with hearing loss at such a young age may not understand that they cannot hear and may become frustrated at others for not understanding what they are trying to request (Anderson, 2018). Due to early frustration and miscommunication in children with hearing loss may be necessary to teach repair strategies using the SCRIPT program early (Anderson, 2018).

SCRIPT Outcome Measures

The SAID teacher checklist was a document that assessed the students' self-advocacy communication style, independent function, and communication repair from the teachers' point of view. The self-advocacy communication styles included passive, aggressive, and assertive. A passive communication style was described as when the student waits for other people to notice that he or she needs help. Passive students typically are timid or meek, and they are susceptible to what other individuals think, according to Anderson (2011). Aggressive communication styles

are typically seen when students become angry or belligerent when he or she does not understand. Students who show an assertive communication style can be insensitive to the feelings of other individuals and may be seen as being bossy during conversations. The last section was about assertive communication styles. Assertive students recognize that they have the ability and right to express their needs, make specific requests using a pleasant tone, and assume that a misunderstanding is a shared responsibility. In the first section of the SAID teacher checklist, each teacher responded to twelve classroom situations and marked the appropriate self-advocacy communication style they observed from the student. The teachers were required to mark if they observed passive, aggressive, or assertive communication styles. The following section on the SAID teacher checklist was the independent function section. This section had six statements that required the teacher to mark if they observed the student doing independent functions consistently, occasionally, rarely, or not applicable. The last section on the SAID required the teachers to mark what type of communication repair they observed the students using and how often they used the different strategies.

Nelson et al.'s (2020) conducted a study to analyze LIFE-R teacher and student surveys. The study included 3,584 deaf or hard-of-hearing participants who fully completed the LIFE-R questionnaire through an electronic survey. The questionnaire includes 15 various classroom listening situations (i.e., noises outside of the classroom, large room or assembly, no microphone) that asked respondents to rank each statement on a scale of 1 (almost always challenged) to 5 (no challenge or very rare). The questions were scored between 0 (always difficult) to 10 (always easy). The results showed that the average student listening appraisal rating for the classroom, school, and social scenarios was 5.7 based on a 0-point Likert scale (0=difficult and 10=easy). The most significant difficulties were reported when trying to listen when other students in the class were making noise and when trying to hear the comments from other classmates. The average listening difficulty was more significant for children in grades three through six than those in grades seven through twelve. The listening difficulty was generally increased relative to each participant's degree of hearing loss. Some students reported that they took proactive steps to improve their listening access when they could not hear, and others reported they did nothing. The researchers stated that students who are deaf or hard-of-hearing could face challenges in hearing and understanding during the school day.

However, a recommendation was made that the LIFE-R can provide information to make necessary and appropriate adjustments to classroom instruction and the listening environment. The LIFE-R teacher appraisal was a questionnaire used to collect feedback from teacher participants about the student's communication repair abilities in different classroom listening situations. According to Anderson & Smaldino (1999), five goals that the LIFE-R was designed to fulfill are:

1. Provide a student self-report measurement tool to identify classroom situations that show a listening challenge for a student.
2. Provide a teacher-report measurement tool to document the effects of interventions to improve the listening environment for a specific student.
3. Provide a valid and reliable tool that can be used in a pre-and post-test format to document the effectiveness of interventions.
4. Provide material that can be used for in-service training of school personnel on the challenges of listening in the classroom.
5. Provide the teacher and students with information to encourage self-advocacy skills in classroom listening environments.

Anderson & Smaldino (1999) completed a single case study that included an eight-year-old participant with mild hearing loss. The researcher in the study met with the student and his family to discuss his audiogram results and how they may affect the students' listening abilities in the classroom. The student was fit with hearing aids, and then the researcher had the student complete the LIFE-R as a baseline. The LIFE-R teacher appraisal was sent in the mail for the students' teachers to complete over three weeks. When the student returned to the clinic, the student brought the teacher LIFE-R and completed the LIFE-R student appraisal. The LIFE-R student and teacher appraisal results showed that the student had much improvement when comparing pre-fitting and post-fitting appointments. The value of the self-and teacher-report measures helped the researchers understand a subjective outlook on the listening environments.

Krijer et al. (2020) conducted a study that included 19 children aged 13 years who received a cochlear implant early in life and were enrolled in mainstream secondary education. The LIFE-R was administered to the children with hearing loss, their peers with normal hearing, and their teachers. The LIFE-R focused on assessing 15 typical listening situations experienced

by students. The study results found that participants with hearing loss reported significantly more listening difficulties than their normal-hearing peers. A regression model estimated that 75% of the participants with hearing loss were at risk of experiencing listening difficulties. The three listening situations that had the most excellent chance of resulting in listening difficulties were listening during group work, listening to multimedia, and listening in large-sized classrooms. However, the teacher's appraisals did not significantly differ in listening difficulties between the students with hearing loss and the typical hearing students.

Conversation Language Samples

Conversational fluency is essential in forming meaningful connections and relationships with others but is understudied in children who are deaf or hard-of-hearing (Fitzpatrick et al., 2020). Fitzpatrick et al. (2020) define a communication breakdown as an interruption of the flow of conversation that requires a request for clarification or confirmation from the listener to repair a misunderstanding. The reviewed literature in the study showed that communication breakdowns occur more often in children who are deaf or hard-of-hearing. In Fitzpatrick et al.'s (2020) study, the researchers included 14 deaf or hard-of-hearing children and 15 normal-hearing children who were age-matched. The researchers' goal for the study was to observe the frequency and duration of communication breakdowns, the frequency and type of requests for clarification or confirmation in a breakdown, and the frequency and type of responses to requests taking place in ten-minute, unstructured conversations with a researcher.

The language samples were collected in the child's home or a private testing room. The dependent variable was the number of communication breakdowns. The conversational sample included common topics such as family, sports, and vacations to allow the conversation to progress naturally and follow the child has expressed interests. The communication breakdowns, requests, and repair strategies were coded from the conversational samples. The results found that the most common request type made by the children in both groups were requests for confirmation, nonspecific requests, and specific requests for clarification. This study provides valuable information on conversational language samples and how to develop a proper language sample protocol to measure the frequency of communication breakdowns and repairs.

Teletherapy

Teletherapy has various aliases, including telehealth, teleradiology, and computer-mediated communication (Grondin, Lomanowska, & Jackson, 2019). Teletherapy

increases opportunities for healthcare professionals to provide remote services (Tenforde et al., 2020). Benefits of telehealth can include improved access to patients, improved quality of treatment, cost efficiency, and safety from harmful illnesses like COVID-19 (Ballachanda, 2017; Tenforde et al., 2020). Over the years, telehealth has increased in clinics and schools, allowing providers to serve patients in rural and urban areas (Grondin, Lomanowska, & Jackson, 2019). Teletherapy can be used in every field of professional practice. Telehealth has had some success (Lancaster, Krumm, & Ribera, 2008; Stith, Brown, Greenway, & Khan, 2012). Lancaster et al. (2008) have had successful experiences using telehealth within the schools to provide hearing screenings remotely. Lancaster et al. (2008) study included 32 children in third grade who underwent hearing screening services once on-site and another through telehealth formats. The purpose of the study was to determine the feasibility of providing hearing screening services using telehealth technology. The researchers compared telehealth results to an in-person screening, indicating no significant differences between the administration methods (Lancaster et al. 2008). The researchers concluded that telehealth technology might be an effective option for providing hearing screenings (Lancaster et al., 2008).

Though teletherapy may be feasible and often preferred over in-person healthcare, teletherapy has limitations. Likewise, telehealth has many limitations: lack of diagnostic studies, inadequate staff training, reduced empathy, and the need to standardize protocols and procedures among service providers to ensure consistency (Howells et al., 2019).

Govender & Mars (2016) formed a meta-analysis of 23 publications that successfully implemented telehealth services, including evaluating the middle ear, measuring tele-audiology brainstem responses, and administering video otoscopy in remote areas. The study's goal was to describe tele-audiology services performed to facilitate audiological management for children. Determining the strengths, challenges, and clinical implications of services was also an aim of the researchers in the study. The researchers found strengths, weaknesses, and conclusions of the services and evaluated the validity of the teletherapy compared to traditional face-to-face services. The teletherapy services provided in the study by Govender & Mars (2016) had successful implementation. However, some challenges ensued, including "a lack of diagnostic studies, inadequate staff training, and the need to standardize protocols and procedures" (Govender & Mars, 2016). The challenges were observed because the audiologists in the study wanted to provide standardized care and manner. Nevertheless, the study results by Govender &

Mars (2016) concluded that teletherapy services are "feasible and can be useful in the identification of auditory pathology for individuals in rural areas."

Angley et al. (2017) provided a hybrid study that combined on-site and teletherapy services. The study included 50 participants in an in-clinic phase. The purpose of the study was "to evaluate the feasibility and perceived benefits of providing remote hearing aid follow-up appointments in a controlled clinical environment and participants' homes" (Angley et al., 2017). The participants completed a follow-up questionnaire remotely and were asked to install distance support (DS) client software on a personal device to participate in follow-up appointments from home. After receiving the follow-up telehealth service, the results from the study suggested that the participants preferred DS appointments over in-person appointments due to DS saved more time (Angley et al., 2017). The researchers recommend that, on average, participants and researchers were satisfied with the remote follow-up visits but suggest that additional support may be needed for older patients who possess little confidence in their ability to interact with technology.

The literature reviewed on hybrid studies provides valuable information on setting up a hybrid protocol. Due to COVID-19, hybrid studies are beginning to be implemented more and more. The studies above show the benefits and detrimental aspects of utilizing teletherapy for research. Overall, the hybrid format has provided valuable techniques that can be used in research to overcome distance, expenses, and outbreaks of diseases such as COVID-19.

The Current Study

The current study was designed to respond to the need that two SLPs who served adolescents with hearing loss in two school districts articulated. The SLPs asked researchers to implement a therapy program that would teach adolescents how to begin acknowledging communication breakdowns and how to begin to advocate for repairs. The implementation of the SCRIPT program met the self-advocacy goals written in each child's IEP (Individualized Education Program) who participated in the study. Therefore, the SCRIPT program was chosen to meet this request from the school SLPs and the study was designed to measure progress. This study is designed to answer the research questions: *(1) Do student appraisal ratings of classroom*

listening situations increase after implementing the SCRIPT program? (2) Do teacher appraisal ratings of classroom listening situations increase after implementing the SCRIPT program? (3) After the delivery of the SCRIPT program, as measured by the Student Advocacy and Independence Development Checklist, does the self-advocacy communication style of the student change? Based on the success of the teletherapy service models like Lancaster et al. (2008), the researchers hypothesize that the hybrid model will be an effective method in this study.

Risks

The following measures were taken to prevent risks related to research. Electronic data was password protected in a secure BOX link. All responses from participants were categorized using numbers with no identifying information attached. All data collection and summary forms will be disposed of appropriately, consistent with the University of Mississippi IRB guidelines.

IRB Approval

Conducting research with human subjects was approved successfully by the Institutional Review Board (IRB) at the University of Mississippi before any testing was conducted.

CHAPTER III
METHODOLOGY

PARTICIPANTS

Two schools already being served by the University of Mississippi's Educational Audiology Lab, Lafayette County Schools in Oxford, Mississippi, and West Union Attendance Center in New Albany, Mississippi, participated in this study. Each school's SLP, the primary communication providers for students with hearing loss within the schools, were contacted by researchers to help determine students who would qualify for the study.

This study included the student participants and Lafayette and West Union School Districts teachers. Each teacher from both schools was willing to be observed within their classrooms, accept suggestions from researchers, and complete data forms.

Students The general qualifications for students to be included in this study consisted of: (1)being between ages 12 and 17 years, (2) having a long-standing hearing loss and fit with appropriate hearing assistive technology, (3)having language commensurate with peers, (4) having either IEP goals written for the child to develop self-advocacy skills or teacher/school professional concerns about the lack of compliance using their HATs.

School #1

School #1 had three hard-of-hearing students participating in this study.

Student #1, W-C-1, was a male in the 8th grade with a profound hearing loss in the right ear and a mild-to-moderate conductive hearing loss in the left ear. He had Pendred syndrome and was first identified with hearing loss in September 2014. He was subsequently fit with the Phonak BTE and CROS unit in 2019 but was non-compliant in wearing them and therefore enrolled in this study. The school SLP stated that if he would not wear his hearing device, he needed to learn how to advocate for communication repairs. Student #1's current IEP goal was to recall details of stories or information read aloud from a multi-paragraph reading with background noise with 80 percent accuracy across ten trials to improve his auditory memory and sound perception in noisy environments.

Student #2, W-C-2, was a male in the 8th grade with a congenital bilateral profound hearing loss due to an enlarged vestibular aqueduct. He had Pendred syndrome and was first identified with hearing loss in August 2014 after a sudden total hearing loss. He was recommended a cochlear implant for his left ear and was compliant in wearing it. He also has personal hearing assistive technology for use in the classroom but is non-compliant in using the device and therefore enrolled in this study. His current IEP goal was to recall details of stories or information read aloud from a multi-paragraph reading with background noise present with 80 percent accuracy across ten trials to improve his auditory memory and speech perception in noisy environments.

Student #3, W-C-4, was a female in the 6th grade with a hearing loss. The SLP reported that she did not have access to her case file but that she wore BTE hearing aids and was compliant with wearing them. In addition, she was partially compliant with using an FM system and enrolled in the study. However, during the study, the FM system broke. The SLP reported that student #3 had language goals that included identifying words in context, reading, picking up words not understood, discussing meaning, expanding vocabulary, and recalling information.

School #2

School #2 had three hard-of-hearing students participating in this study.

Student #4, L-C-5, was a 15-year-old male in ninth grade with normal hearing at 250 to 2,000 Hz and a moderate sensorineural hearing loss at 3,000 to 8,000 Hz bilaterally. The SLP reported that she did not have current access when he was first identified with hearing loss. He was recommended Resound BTE hearing aids but was non-compliant in wearing them. L-C-5's current IEP goal stated that he would discuss, reflect, and practice his self-advocating skills with the SLP and audiology support. He was subsequently enrolled in this study.

Student #5, L-C-6, was a 17-year-old male in eleventh grade with moderate-to-severe sensorineural hearing loss in the right ear and moderate-to-profound sensorineural hearing loss in the left ear. The speech-language pathologist (SLP) reported that he was younger than 5-years old when he was first diagnosed with hearing loss. L-C-6 was fit with Resound ONE 961 receiver-in-the-ear hearing aids with ultra-power encased receiver molds, which he was compliant in wearing. His hearing aids were connected with an assistive device called multi-mic, which his teachers reportedly wore to reduce background noise during instructional times. L-C-6's current IEP communication goals stated that he would improve his ability to self-advocate for his needs. He was subsequently enrolled in this study.

Student #6, L-C-3, was a 13-year-old female in the 7th grade with mild hearing loss in the left ear and moderate hearing loss in the right ear. She was first identified with hearing loss in August 2019 and received binaural in-the-canal hearing aids. She was also given an Oticon Connect Clip remote microphone for the teacher to use. Her current IEP goals state that she will demonstrate self-advocacy skills every nine weeks assessed through the SCRIPT program and was subsequently enrolled in this study.

PROGRAM UTILIZED

The SCRIPT program by Anderson (2018) includes thirteen communication repair techniques categorized into four groups: repetition, revision, addition, and nonverbal. Repetition includes the techniques of 'slow repetition,' 'clear repetition,' 'emphasis of keywords, and 'louder repetition.' Revision includes the techniques' use of two sentences,' 'use of alternate words,' and 'alternation of grammatical form.' The addition techniques include 'simple addition,' 'defining terms,' and 'adding background information.' Finally, the nonverbal

techniques include pointing and facial expressions, signs or spelling, and writing or drawing to clarify.

Before teaching the repair strategies, each main section was introduced briefly. Specifically, each of the four categories was taught one at a time. Then, each strategy was introduced, defined, and demonstrated through examples. The first category taught was the repetition category and its four associated strategies. The second category was the revision and its three subsets. The third category taught was the addition category and the three subsets. The last category was the nonverbal category and the three subsets. The strategies were taught in one category a session. Teaching also included defining a communication breakdown and giving examples of communication breakdowns. Due to the examples of communication breakdowns, the children may become aware of when these breakdowns occur and can discuss times when they have noticed a communication breakdown.

Practicing the repair strategies includes familiarizing the strategies by giving examples and demonstrating the strategies, including the researcher or clinician showing the children how the strategies are to be used and the information gained from each strategy. In addition, multiple games can be played with the children to emphasize the strategies further. Some games include the "Hear It Fix It" game, which involves the children listening to a word or phrase spoken incorrectly and correcting it. A second game involves spinning a spinner on a wheel that has a list of the repair strategies the child should use during the game.

Outcome Measures

The outcome measures utilized were a component of the SCRIPT program. The SCRIPT program incorporated the LIFE-R student (Appendix D), teacher appraisals (Appendix C), and the SAID teacher checklist (Appendix B) to track student progress related to the use of appropriate communication repair and self-advocacy activities throughout the school year. In addition, the outcome measures are used to provide insights from the teacher about the student's level of attention, class participation, independence, and challenges with classroom communication. The pre-test included the LIFE-R student appraisal, LIFE-R teacher appraisal, the SAID teacher checklist, and a language sample. The intervention phase consisted of four-language samples and the implementation of the SCRIPT program. The post-test phase included a language sample, LIFE-R student appraisal, LIFE-R teacher appraisal, and SAID teacher checklist.

CLAN is a statistical software program that is a part of the Child Language Data Exchange System (CHILDES) and is utilized to provide tools for studying conversational language samples (MacWhinney, 2000). The recordings were transcribed verbatim using the program CLAN, and researchers scored the usage of the repair strategies to see if students were advocating their needs. In addition, CLAN's frequency function was utilized to assess the number of times each repair strategy was used during each language sample. After coding the language samples, the codes were inputted into a table for each participant. Each of the codes had unique names used during the coding process. The unique code names are included on the Repair Strategies Form (Appendix E). Rater reliability of coding was conducted by having one researcher code all of the samples and a second researcher code 20% of the total samples. In addition, the primary researcher coded all 30 videos, and the second researcher coded a random six videos to ensure reliability in coding and recording results.

OVERALL PROGRAMMATIC PROCEDURE

Table 1.0 Overall Programmatic Procedure Bullet Table

		School #1	School #2
Pre-Intervention Phase	Four-Sessions		
	Session 1: meet participants	In-Person	Teletherapy
	Session 2: Rapport-building & All About Me Questionnaire	In-Person	Teletherapy
	Session 3: Continue Rapport-building	Teletherapy	In-Person
	Session 4: Continue Rapport-building, baseline measures: - LIFE-R Student Appraisal - LIFE-R Teacher Appraisal - SAID Teacher Checklist	Teletherapy	In-Person
Intervention Phase	Eight-Sessions		
	Session 1: Define breakdown, introduce strategies	In-Person	Teletherapy
	Session 2: Language Sample, focus on Repetition and Revision Strategies	In-Person	Teletherapy
	Session 3: Review all strategies, focus on Addition and Nonverbal strategies	Teletherapy	In-Person
	Session 4: Language Sample, review of strategies	Teletherapy	In-Person
	Session 5: Review Strategies, Practice Using Repetition and Revision Strategies	In-Person	Teletherapy

	Session 6: Language Sample, Review Strategies, Practice Using Addition and Nonverbal Strategies	In-Person	Teletherapy
	Session 7: Review Strategies, Role Play Activity	Teletherapy	In-Person
	Session 8: Language Sample, Role Play Activity	Teletherapy	In-Person
Post-Intervention Phase	One-Session		
	Language Sample, Post-Test Measures - LIFE-R Student Appraisal - LIFE-R Teacher Appraisal - SAID Teacher Checklist	In-Person	In-Person

I. Pre-Intervention phase

The first phase of this study was one-month of relationship building with the five student participants. The researchers conducted four 30-minute sessions for one month. Two sessions were in person, and two sessions were conducted remotely utilizing a HIPAA (Health Insurance Portability and Accountability Act) compliant Zoom account. Group 1 participants were on a schedule of the first two-sessions remote and the second two-sessions in-person. Group 2 participants were on a schedule of the first two-sessions of in-person sessions and the second two-sessions of remote sessions. The rapport-building included discussing the student's interests (color, movie, superpowers), playing card games (Uno), and discussing sports. The rapport-building was used to help researchers learn what each student favored and tailor the SCRIPT program material to each participant. During session-two, all participants completed the All About ME Questionnaire (Appendix A) to allow researchers to learn about each participant and tailor the SCRIPT program material to each student to keep them engaged throughout therapy. Before intervention began, the pre-test was performed, which included: LIFE-R teacher appraisal, LIFE-R student appraisal, SAID teacher checklist, and the language sample. The pre-test language sample included ten intentional communication breakdowns built in to obtain a baseline of repair strategy usage. The first language sample had specific topics and questions prepared for collecting the data. The topics were based on Halloween, traveling, and class activities. The language samples were set up in a fashion of five minutes of semi-structured breakdowns and five minutes of structured breakdowns. Semi-structured breakdowns allowed the students to lead the topics during the conversation. In contrast, structured breakdowns were clinician-led conversations that included intentional breakdowns, such as the clinician sucking a lollipop while in conversation. The video recordings were used to track the progress of the repair

strategy usage throughout this study. After compiling the collected data, researchers planned the following steps to teach the student participants how to advocate for themselves, obtain communication strategies, and modify language in sections of the SCRIPT program to make the program exciting and interactive for the students to advance the effectiveness of the program further.

II. Intervention Phase

After all the participants completed the baseline measurements, implementation of the SCRIPT program began promptly. The intervention phase was conducted individually for each participant and was taught for eight sessions. The sequence of teletherapy and in-person therapy was counterbalanced across participants. During sessions one and two, students 1, 2, and 3 were remote through zoom for two sessions, while students 4, 5, and 6 were in-person. Then during sessions three and four, the students switched from in-person to teletherapy and vice versa. Sessions one through four of the intervention included teaching the repair strategies. The strategies were divided into two main categories: (1) repetition and revision and (2) addition, nonverbal, and any strategy that needed to be revisited. Every two sessions, a language sample recording was taken to assess the progress of the student participants over time. At the end of session four, a recording of each of the student participants and the researchers was administered through zoom on a HIPAA compliant account to obtain a language sample and update the participant's progress. At the end of the first four sessions, the LIFE-R student appraisal was given to the students to complete, and a language sample was taken.

Sessions five through eight of implementation included: (1) demonstration of strategies and (2) practicing the use of the strategies. The same counterbalanced format continued throughout sessions five through eight. A language sample was re-recorded during session six through zoom on a HIPAA compliant account. The LIFE-R student and teacher appraisal was completed in session eight, and a language sample was recorded through zoom. After all forms and recordings were complete, a final language sample was recorded for each student. The topic of the final language sample revolved around Valentine'sValentine's Day, favorite months, favorite holiday, and Christmas.

III. Post-Intervention Phase

The post-intervention phase of the project was the final phase. After one month without intervention, the researchers will conduct an on-site follow-up session to collect the LIFE-R student appraisal, LIFE-R teacher appraisal, SAID teacher checklist, and language samples. Researchers will intentionally create breakdowns in conversation, including but not limited to: sucking candy, mispronouncing words, and whispering. The follow-up phase will help researchers determine if the students maintain the progress from the intervention. Challenges will be noted to make changes to improve the program structure.

CHAPTER IV

RESULTS

The pre-test and post-test assessment results were recorded and compared to observe the effectiveness of intervention of the SCRIPT program on five students' self-advocacy skills in classroom listening situations. The outcome measures included the LIFE-R student and teacher appraisals, the SAID teacher checklist, and the language sample analysis. In the following, the pre- to post-test comparisons are present for these measures for five students. The sixth student, L-C-3, abandoned the study due to personal health issues.

LIFE-R Teacher Appraisals

Two researchers reviewed the appraisals from each of the students' teachers completed in October and February of 2021 and 2022, respectively. The first 15 statements evaluated different classroom listening situations that the student may experience and asked the teachers to rate how challenging the situations were for each student. The highest score possible was a 75, meaning there may have been no rare challenges in classroom listening situations, whereas lower scores indicate more occurrences of challenges.

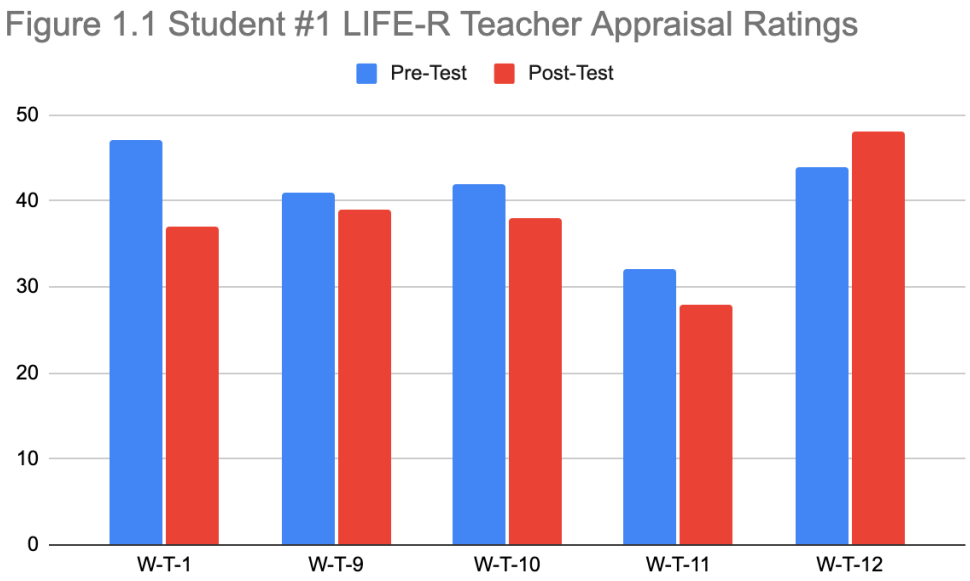


Figure 1.1. Student #1's LIFE-R Teacher Appraisal Ratings by five teachers.
Note. The higher the listening score, the better the listening situation. The figure is a comparison of student #1's teacher LIFE-R appraisal ratings between pre-test and post-test.

Figure 1.1 shows the results for student #1's teachers' appraisals. According to Figure 1.1, the student had a classroom listening score around the low 40s. A score of 40 suggests that the student may sometimes experience challenging classroom listening situations. According to the LIFE-R appraisal, a score of 40 was the midrange of classroom listening scores. The results of the pre-and post-tests are similar, suggesting that the student experienced challenging classroom listening situations at a score of around 40 for the entire study.

When comparing the pre-and post-test scores, only one teacher (W-T-12) reported a higher post-test score than the other teachers. However, the other teachers reported a slight decrease in the classroom listening situations meaning the classroom listening situations became harder over the study.

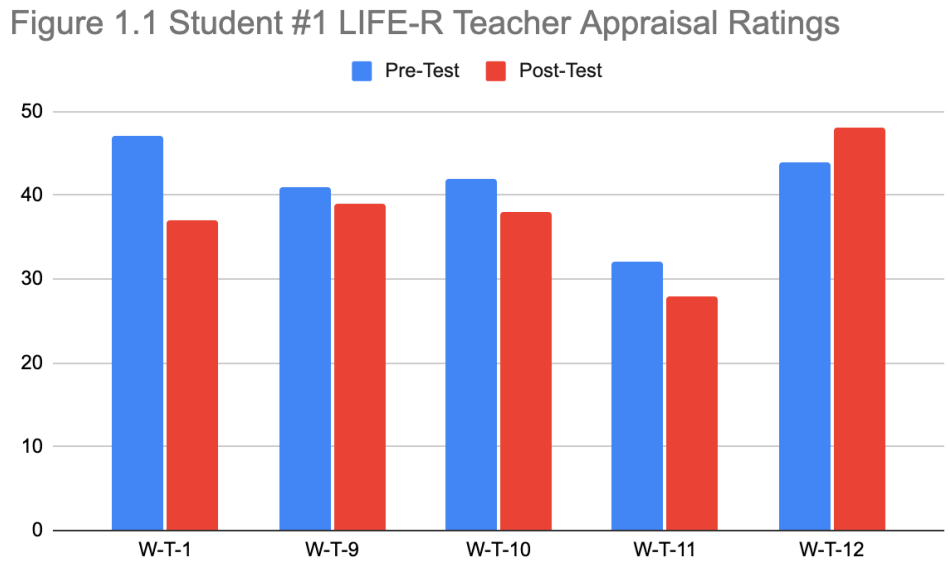


Figure 1.2. Student #2's LIFE-R Teacher Appraisal Ratings by five teachers.
Note. The higher the listening score, the better the listening situation. The figure is a comparison of student #2's teacher LIFE-R appraisal ratings between pre-test and post-test.

Figure 1.2 results show that the listening classroom situations were typically around the mid-40 range. The mid-40 score suggests that student #2 may have sometimes experienced challenging classroom listening situations. In the pre-test, teacher 9 reported that the student had a score of 26. He or she suggested that before implementing the SCRIPT program, the student almost always experienced a challenging classroom listening environment. However, the post-test showed an increase in classroom listening scores, suggesting that the student began to advocate in the classroom for his needs. Two of student #2's teachers reported a lower classroom listening score, while two teachers reported an increase in score. The increase in score suggests that student #2 had less difficulty with classroom listening situations. One teacher reported no change from pre-test to post-test.

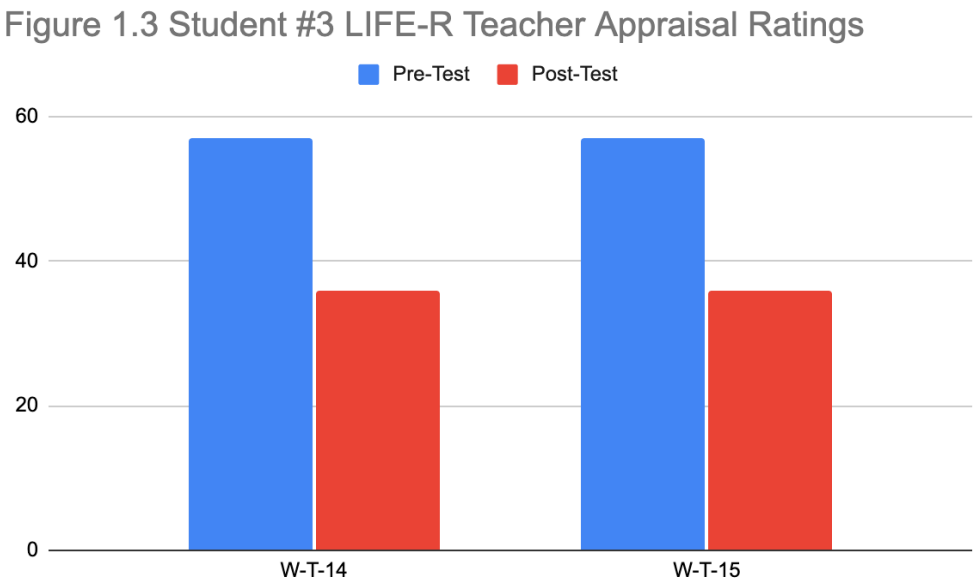


Figure 1.3. Student #3's LIFE-R Teacher Appraisal Ratings by two teachers.
Note. The higher the listening score, the better the listening situation. The figure is a comparison of student #3's teacher LIFE-R appraisal ratings between pre-test and post-test.

Figure 1.3 shows the results of the LIFE-R teacher appraisal for student #3. Only two of her teachers responded to the appraisal, but the results suggest that the student may have experienced occasional challenges in classroom listening environments. The pre-tests show that student #3 had occasional challenges; however, the post-test results decreased to a score of 36, suggesting that the student may have experienced regular challenging classroom listening situations.

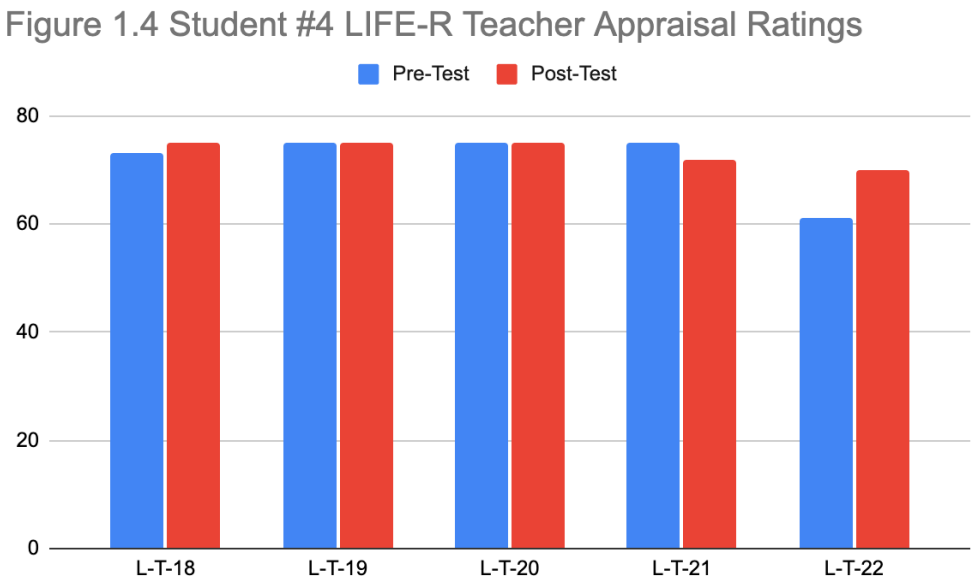


Figure 1.4. Student #4's LIFE-R Teacher Appraisal Ratings by five teachers.
Note. The higher the listening score, the better the listening situation. The figure is a comparison of student #4's teacher LIFE-R appraisal ratings between pre-test and post-test.

Figure 1.4 suggests that student #4 had no or rare instances of challenging classroom listening situations due to the scores ranging from 60 to 75. Two of student #4's teachers reported that he had no change in listening difficulty in the classroom. Two teachers reported a slight increase in the listening scores, suggesting a better classroom listening environment. One teacher reported a minimal decrease from pre-test to post-test.

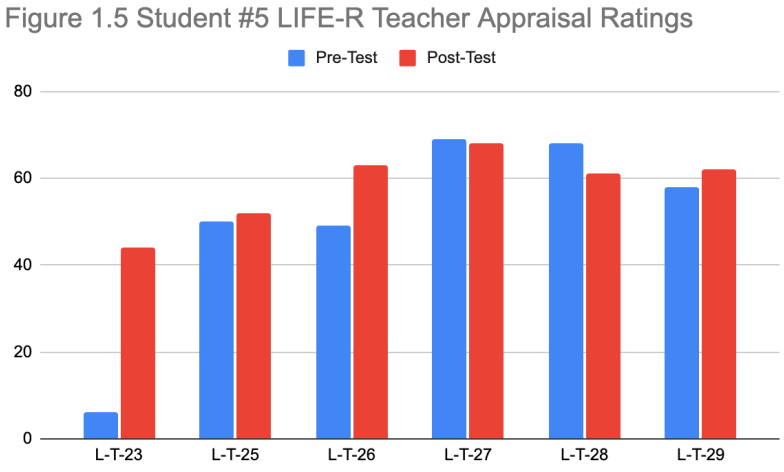


Figure 1.5. Student #5's LIFE-R Teacher Appraisal Ratings by six teachers.

Note. The higher the listening score, the better the listening situation. The figure is a comparison of student #5's teacher LIFE-R appraisal ratings between pre-test and post-test.

According to Figure 1.5, the results suggest that student #5 may have experienced occasional challenges in classroom listening situations. Four teachers reported a higher post-test score than the pre-test score, with a varying increase. Two teachers reported a slight decrease to minimal change in the pre-test to post-test scores, suggesting no or mild change in the classroom listening situations.

SAID Teacher Checklist

The SAID teacher checklist was collected in October and February of 2021 and 2022, respectively, and was reviewed by two researchers. The SAID checklist consisted of three sections that allowed the teachers to assess the self-advocacy communication style, independent functions (Ind. Functions), and communication repairs presented by the student participants. The scores of the SAID teacher checklist can have a combined score of 74. The higher the score, the student may show growth in using more assertive communication styles, an increase in independent function, and an increase in communication repair usage. The SAID checklist was conducted in a pre-and post-test format, similar to the LIFE-R.

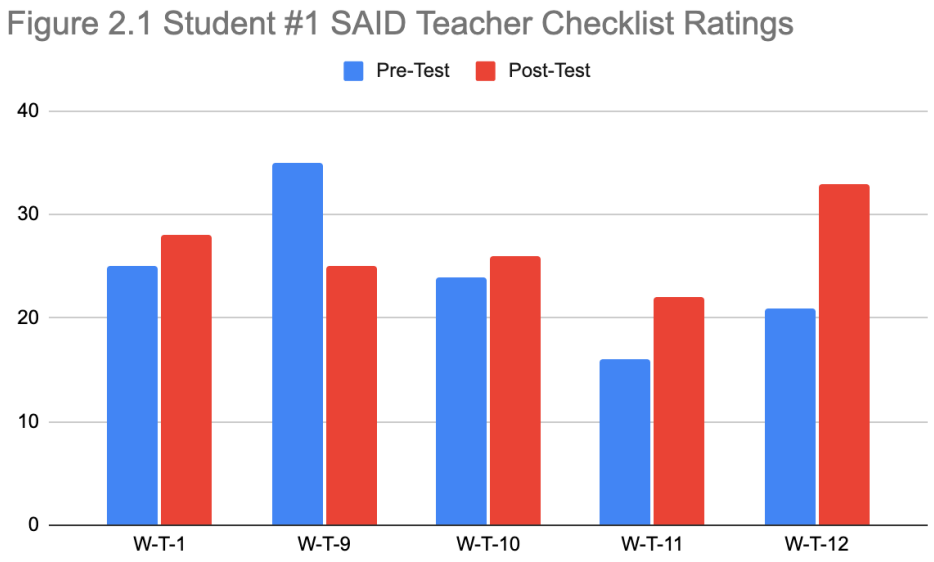


Figure 2.1. Student #1's SAID Teacher Checklist Ratings by five teachers.
Note. The higher the checklist scores, the more assertive communication styles, independent function, and use of communication repairs were observed. The figure is a comparison of student #1's SAID teacher checklist ratings between pre-test and post-test.

In Figure 2.1, the SAID scores for student #1 showed an increase from four of five teachers. Conversely, one teacher reported a significant decrease in the pre-test to post-test scores. Overall, the SAID checklist results for student #1 suggests an increase in assertive communication style, increased independent function, and increased communication repairs in the classroom.

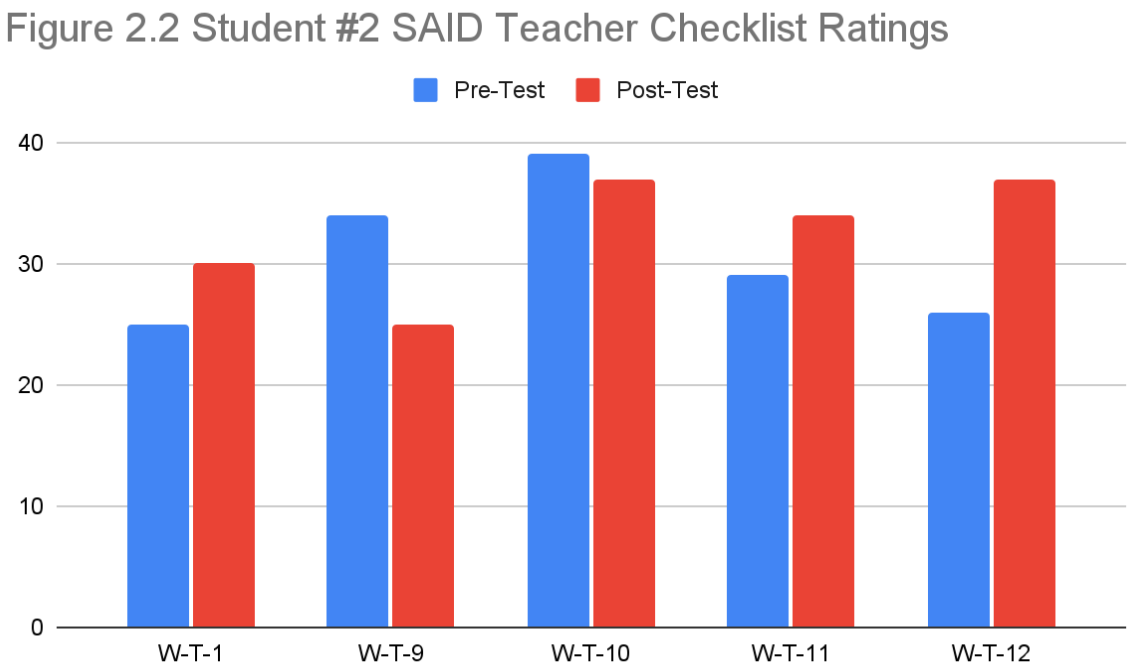


Figure 2.2. Student #2's SAID Teacher Checklist Ratings by five teachers.
Note. The higher the checklist scores, the more assertive communication styles, independent function, and use of communication repairs were observed. The figure is a comparison of student #2's SAID teacher checklist ratings between pre-test and post-test.

In figure 2.2, three teachers report a significant increase in the total SAID score. Conversely, two teachers report a decrease in improvement according to the SAID. The increase in SAID checklist ratings suggests that student #2 began to have assertive communications styles, increased independent function, and increased communication repair usage in the classroom.

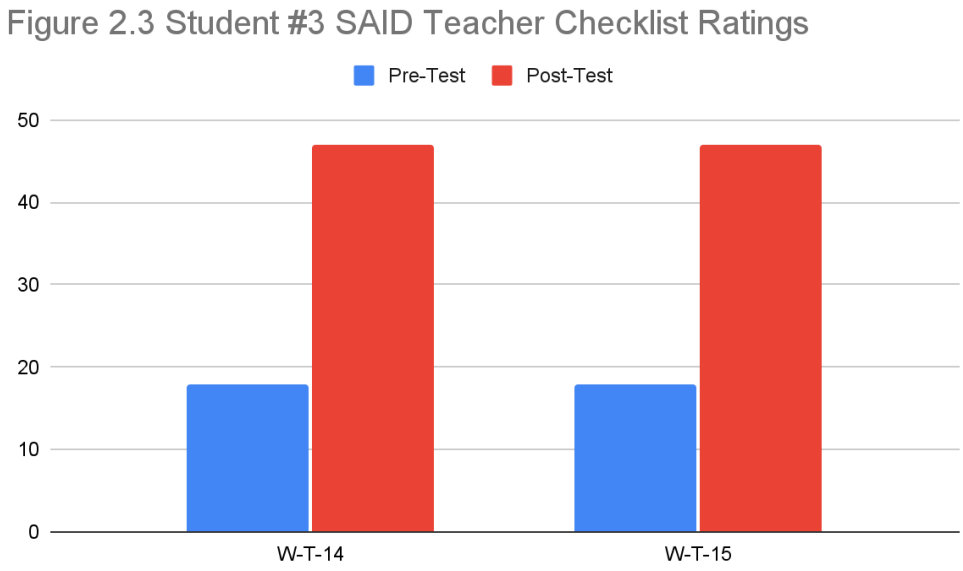


Figure 2.3. Student #3's SAID Teacher Checklist Ratings by two teachers.
Note. The higher the checklist scores, the more assertive communication styles, independent function, and use of communication repairs were observed. The figure is a comparison of student #3's SAID teacher checklist ratings between pre-test and post-test.

Figure 2.3 shows the results of student #3's teachers' responses on the SAID checklist. Two teachers responded to the SAID, and each teacher's scores were the same. In addition, both teachers reported increased assertive communication, independent function, and communication repair usage in the classroom.

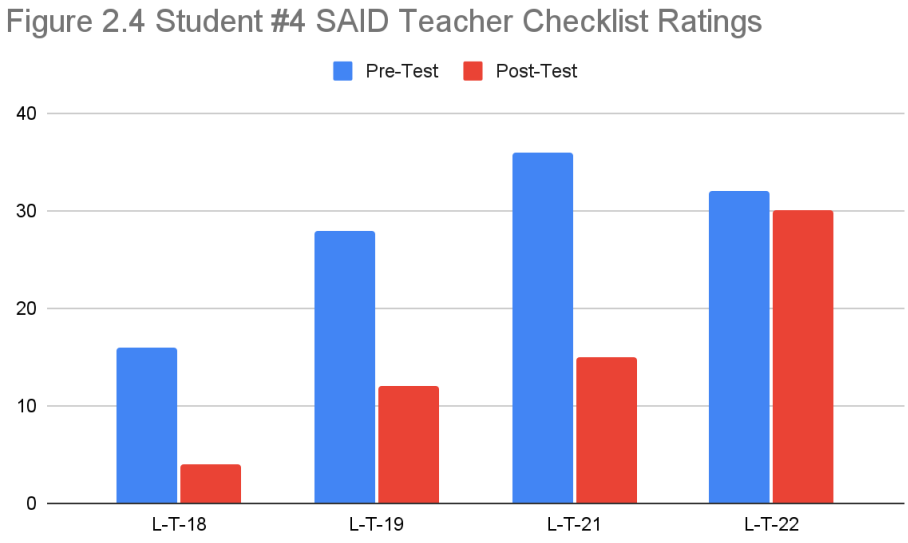


Figure 2.4. Student #4's SAID Teacher Checklist Ratings by four teachers.

Note. The higher the checklist scores, the more assertive communication styles, independent function, and use of communication repairs were observed. The figure is a comparison of student #4's SAID teacher checklist ratings between pre-test and post-test.

Figure 2.4 shows the results of student #4's teachers' assessment scores of the SAID checklist. According to Figure 2.4, the teachers all rated lower on the post-test. Only one teacher rated near the same score on pre-and post-test. The ratings from the teachers for student #4 suggest that the student did not increase in communication style, independent function, or communication repair usage. The specific scores for the section communication style suggest that the student may have been observed using more assertive or passive communication styles, depending on the situation.

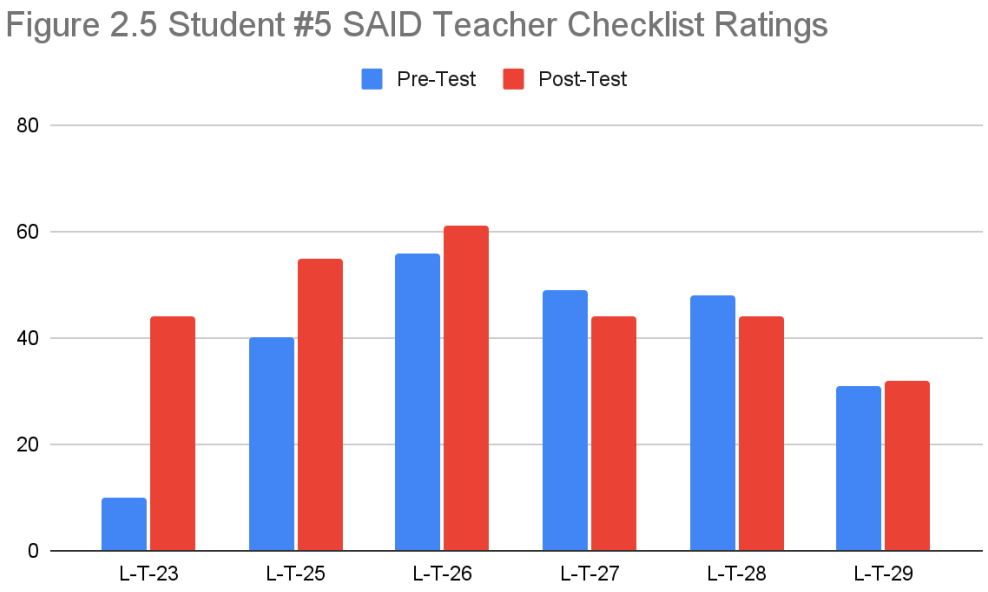


Figure 2.5. Student #5's SAID Teacher Checklist Ratings by six teachers.
Note. The higher the checklist scores, the more assertive communication styles, independent function, and use of communication repairs were observed. The figure is a comparison of student #5's SAID teacher checklist ratings between pre-test and post-test.

Figure 2.5 shows the results of the SAID teacher checklist of student #5's teachers. Three teachers reported a significant increase in SAID scores within the classroom. At the same time, two teachers reported a slight decrease in scores. One teacher reported about the same from pre-test to post-test; however, the last teacher reported a minimal increase.

LIFE-R Student Appraisals

Each student completed a LIFE-R appraisal before and after implementing the SCRIPT program. The score ranged from zero to 150. The higher the score, the results will suggest a decrease in challenging classroom listening situations as observed by the student. For example, figure 3.1 shows the results of each student participant.

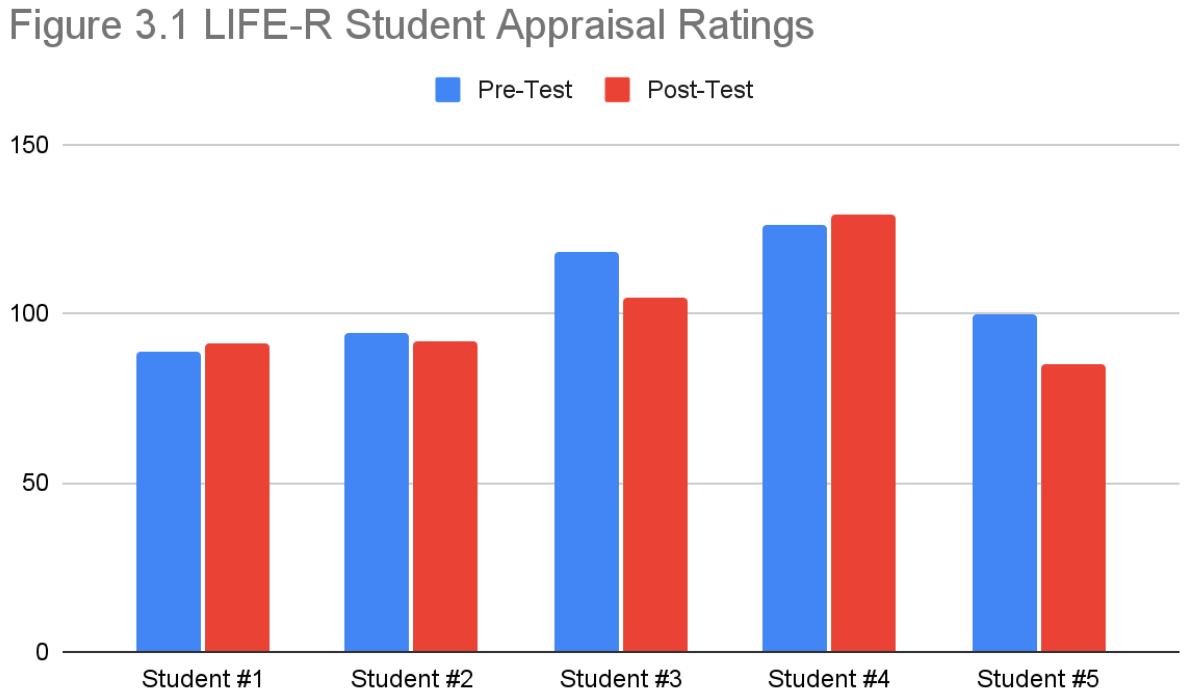


Figure 3.1. LIFE-R Student Appraisals by five participants.
Note. The higher the listening scores, the better the listening situation. The figure is a comparison of the scores of five participants pre-test and post-test

Figure 3.1 shows the results of all the student participants. Only two students reported a significant decrease in LIFE-R scores. The other three students reported little to no change after implementing the SCRIPT program. However, student #3 and student #5 both report a lower score on the post-test, suggesting that each of their classroom listening situations had more challenges than before the intervention.

Video Recorded Language Samples

The video recorded language samples were taken to calculate the number of instances a communication breakdown repair strategy was utilized. The samples included a range of

strategies and several inappropriate responses that do not count as repair strategies. Researchers transcribed and coded each of the video samples, totaling 30 videos. The rater reliability was calculated by one of the researchers coding 20% of the samples, resulting in six videos included in the rater reliability score. The rater reliability score for the coding of the videos was 0.895.

Table 1.1 Repair Scores from Student #1's Language Sample

Student #1	Date	Repetition	Revision	Addition	Nonverbal	Inappropriate
Pre-Test	10/20/2021	8	0	0	7	5
Intervention	11/5/2021	1	0	0	3	6
Intervention	11/17/2021	4	0	0	15	7
Intervention	12/9/2021	12	0	1	9	6
Intervention	1/27/2022	3	2	1	15	12
Post-Test	2/3/2022	5	3	4	16	2

Note. The number in each cell shows the frequency of strategies used for each language sample during different phases. A higher number indicates more usage of that type of strategy.

According to Table 1.1, student #1 showed slight growth in the revision and addition strategies. He never used the revision or addition strategies during the pre-test, but during the post-test, he used three and four strategies, respectively. He increased in nonverbal usage, mainly using showing or expressing strategies. Repetition strategies were used inconsistently throughout the study. During the pre-test, he used many strategies and then decreased to one repetition strategy for the following language sample. Over the subsequent two samples, student #1 had a continuous increase reaching twelve by the fourth sample. He then began to show a decrease in repetition usage. This pattern shows that he uses a range of strategies and does not stay to one strategy for long.

Table 1.2 Repair Scores from Student #2's Language Sample

Student #2	Date	Repetition	Revision	Addition	Nonverbal	Inappropriate
Pre-Test	10/20/2021	7	2	2	21	11
Intervention	11/5/2021	3	0	0	13	0
Intervention	11/17/2021	9	0	0	10	6
Intervention	12/9/2021	8	2	0	5	6
Intervention	1/21/2022	8	3	0	5	6
Post-Test	2/3/2022	6	1	0	21	4

Note. The number in each cell shows the frequency of strategies used for each language sample during different phases. A higher number indicates more usage of that type of strategy.

Table 1.2 shows the results for student #2. In the table, addition strategies were used in the pre-test, then decreased to zero for the remaining samples of the study. The most effectively utilized strategies were repetition and nonverbal strategies. The repetition strategies remained highly utilized throughout the study, as did nonverbal strategies. Within the nonverbal strategies, showing or expressing were used the most. Revision strategies were rarely used during the samples. Student #2 started to show an increase in usage of revision strategies, but during the post-test, he only used one revision strategy. Inappropriate remarks such as "I don't know" or attempts to change the subject were made often throughout the study by student #2. However, it is essential to note that as the study continued, student #2 decreased in the usage of inappropriate remarks.

Table 1.3 Repair Scores from Student #3's Language Sample

Student #3	Date	Repetition	Revision	Addition	Nonverbal	Inappropriate
Pre-Test	10/20/2021	11	0	2	1	1
Intervention	11/5/2021	4	0	1	0	6
Intervention	11/17/2021	5	0	0	7	2
Intervention	12/9/2021	14	0	0	7	1
Intervention	1/27/2022	3	0	0	2	3
Post-Test	2/3/2022	3	0	0	5	0

Note. The number in each cell shows the frequency of strategies used for each language sample during different phases. A higher number indicates more usage of that type of strategy.

Table 1.3 shows the results of student #3's language sample recordings. Student #3 did not use revision strategies throughout the study, but she did utilize repetition and nonverbal strategies the most in this study. During the pre-test, student #3 used 11 strategies and increased to 14 by the middle of the intervention. However, by the post-test, the student decreased her usage of repetition strategies. Student #3 used two addition strategies during the post-test but decreased to zero as the study continued. Nonverbal strategies were hardly used during the pre-test, but as the study progressed, student #3 began to use more showing and expressing strategies in the nonverbal group. She rarely made inappropriate comments during the study.

Table 1.4 Repair Scores from Student #4's Language Sample

Student #4	Date	Repetition	Revision	Addition	Nonverbal	Inappropriate
Pre-Test	10/28/2021	7	3	5	3	1
Intervention	11/9/2021	0	0	1	7	2
Intervention	11/30/2021	3	0	1	17	4
Intervention	12/14/2021	5	2	1	4	1
Intervention	2/9/2021	4	1	2	8	0
Post-Test	2/15/2022	-	-	-	-	-

Note. The number in each cell shows the frequency of strategies used for each language sample during different phases. A higher number indicates more usage of that type of strategy.

Table 1.4 shows the results of student #4's use of repair strategies over the study. The student showed an increase in usage of nonverbal strategies, and he utilized all of the repair strategies throughout the study. Student #4 began using some repetition and addition strategies during the pre-test but slowly decreased as the study continued. He mainly used repetition strategies in the study, but sometimes student #4 would use nonverbal strategies like showing and expressing to communicate. Revision strategies dropped from three to one throughout the study. It is important to note that the student completed a post-test; however, the sample did not record correctly due to unforeseen circumstances with unstable internet connections while using technology. Therefore, the researchers could not transcribe or code the post-test language sample.

Table 1.5 Repair Scores from Student #5's Language Sample

Student #5	Date	Repetition	Revision	Addition	Nonverbal	Inappropriate
Pre-Test	10/28/2021	7	2	14	11	2
Intervention	11/9/2021	4	1	5	2	1
Intervention	11/30/2021	3	1	0	1	0
Intervention	12/14/2021	9	5	4	3	0
Intervention	1/25/2022	6	3	3	4	0
Post-Test	2/9/2022	10	2	10	9	0

Note. The number in each cell shows the frequency of strategies used for each language sample during different phases. A higher number indicates more usage of that type of strategy.

Table 1.5 represents the number of instances that each repair strategy was utilized over the intervention course for student #5. The student frequently used repetition, addition, and nonverbal strategies throughout the study. Student #5 utilized revision strategies sometimes at the beginning of the study but showed an increase as intervention continued. The student then returned to using only two revision strategies during the post-test. Repetition strategies increased throughout the study. Addition strategies were used frequently; however, during the middle of

the study, the use of addition strategies decreased to zero. The addition strategies then increased to ten, but not as high as the pre-test. Finally, nonverbal strategies were used often throughout the study, but during the post-test, student #5 used less than he did in the pre-test.

The follow-up testing was not recorded for the students due to the timeline of the study and thesis deadlines not aligning with each other. However, follow-up testing will be completed a month after the post-test and will assess how many repair strategies the students continued to utilize.

CHAPTER V
DISCUSSION

This research study aimed to determine if self-advocacy skills using thirteen communication repair strategies from the SCRIPT program would increase as measured by the LIFE-R teacher and student appraisals, SAID checklists, and natural language sampling analysis. Researchers predicted that each client's LIFE-R teacher appraisal, student appraisal, SAID checklist, and language sampling scores would increase with the implemented program measures. The methodology used by researchers was designed to assess self-advocacy skills during communication breakdowns before and after implementation of the SCRIPT program and compare the pre-and post-test scores. The results show inconsistent improvement between the LIFE-R teacher and student appraisals. However, the language sample results generally indicate some improvement in self-advocacy skills.

Interpretations of LIFE-R Teacher Appraisal Results

Adolescents with hearing loss often experience challenging classroom listening situations such as distance from sound, lack of visual aid, and reverberations (Krijer et al., 2020). To analyze each student participant's self-advocacy skills, researchers selected fifteen statements that represented a variety of classroom listening situations—the scores of the LIFE-R teacher appraisal scores ranged from zero to 75. Two students showed improvement in the LIFE-R teacher appraisals. Students #2 and #5 showed the most significant improvement in the LIFE-R teacher appraisal. Overall, three of the students showed improvement, while one student had decreased improvement and the other student remained the same. Student #3 and student #1 had the lowest scores suggesting that both students started having an increase in challenging classroom listening situations. There are various reasons a decrease occurred; some reasons

include but are not limited to home-life issues, the tension between the client and their teachers, and discipline issues. Student #4 stayed the same in LIFE-R teacher appraisal ratings. According to his teachers, he had the same challenging classroom situations in both the pre-and post-test. Overall, the LIFE-R teacher appraisals were inconsistent in improvement throughout the study. Reasons for lack of improvement could be lowered classroom motivation by the students, external factors such as COVID-19, and no change in the classroom listening environment.

Interpretations of the SAID Teacher Checklist

The SAID teacher checklist was also utilized in assessing the self-advocacy development of each of the clients. As stated on the SAID checklist, assertive communication styles are the highest level and most appropriate way to communicate one's needs (Anderson, 2011). The higher the score, the more assertive and consistent, and often the clients utilize proper communication styles and repair strategies.

According to the SAID teacher checklist, students #1, #2, #3, and #5 improved communication styles, independent function, and communication repair strategies. These four students showed a more assertive communication style, had more independent function with their HAT, and utilized communication repair strategies during communication breakdowns. Student #5 did not show any improvement on the SAID checklist. Some reasons for lack of improvement may be due to some teachers not appropriately filling out the SAID checklist form and circled not observed with one large circle for all of the questions.

The LIFE-R teacher appraisals and SAID checklist scores are inconsistent due to the differences in what each form measures. The LIFE-R focuses on listening environments, while the SAID focuses on communication style, independent functions, and communication repairs utilized in the classroom. The discrepancies in improvement may indicate that while the classroom listening environment did not change, the communication behavior of four students did.

Interpretations of the LIFE-R Student Appraisal Results

The observations of the teachers show inconsistent improvement in the clients. However, the client's report is more relevant, subjectively. Overall, the reports from the student's results suggest that the listening situations in the classroom rarely improved over the study. The results

may be due to tension with teachers for some student participants. Also, student #2 had an adjustment with his HAT that resulted in a change in how he could hear. Two students reported a decrease in their scores, which means more challenging situations were present in the classroom. Students #1 and #4 reported little to no improvement in classroom listening situations. Student #2 reported that the classroom listening situations remained the same from pre-test to post-test. These results indicate that the classroom listening environment was equally challenging throughout the school year and that improvement in communication repairs is not reflected in the LIFE-R.

Interpretations of the Language Sample Results

The language samples were conducted to assess each student's progress throughout the SCRIPT program implementation. The language samples were imputed into an excel spreadsheet and calculated the amount of use of each repair strategy. Overall, each student showed an improvement in using the repair strategies. They mainly showed an increase in the repetition and nonverbal strategies the most. In addition, student #1 also improved the revision and addition strategies.

The results of student #1's language samples suggest that he can communicate his needs and will self-advocate if he is interested in the topics. Likewise, student #2 also has results suggesting that he can communicate his needs during a conversation. He frequently used repetition strategies and showing/expressing strategies; however, he failed to respond throughout the samples. The failure to respond may have been due to the client wanting to be funny and trying to stall during conversations. Student #3's language samples suggest that she too was capable of self-advocating and that she will self-advocate for her needs; however, the final recording shows that she rarely used any repair strategies. The primary reason for the post-test sample showing few strategy usages may be due to the client's tension with the teachers and discipline problems.

Overall, she showed appropriate usage of the strategies throughout the study. The results of student #4's language samples show that he utilized both showing/ expressing strategies and keyword strategies. He varied his use of repair strategies considerably; however, he did not stick to one strategy more than any others. The ability to use multiple strategies with ease suggests that, similar to student #4, he too is capable of communicating his needs during one-on-one conversations. Student #5's results show that he frequently used repetition strategies. Overall, he

was flexible in the strategy he utilized in conversation. He rarely spoke off-topic and rarely had failed responses. His versatility in utilizing the repair strategies suggests that the student can communicate his needs and self-advocate during conversation one-on-one.

Overall, the results from the conversational language samples indicate slight improvement in self-advocacy throughout the study after the implementation of the SCRIPT program throughout eight sessions.

Impact of COVID-19

The findings of this research study present valuable insight into the effects of the COVID-19 pandemic on the intervention of adolescents with hearing loss. For example, many people with hearing loss rely on the ability to read lips while communicating, so using masks in schools increased communication breakdowns for individuals with hearing loss. In addition, with new variants frequently outbreaking throughout the study, adaptations had to be made, which may have impacted each student's development of self-advocacy skills.

Limitations

Along with the limitations posed by the COVID-19 pandemic, several other limitations occurred throughout this research study. The first limitation was the motivation of each student. We observed a lack of motivation among some participants. This study focused on teaching and practicing communication repair strategies. However, the results for some students show no growth from pre-test to post-test, which may be related to the low motivation among some students to learn and develop those skills. The second limitation was the lack of involvement from the students' teachers. The teachers are individuals who are seen every day by the students, and if the teachers show minimal care for the study, it may directly affect how the students feel towards the study.

The third limitation was the non-compliant nature of some students. This study was completed during a time in life when individuals tend to rebel against everything. Some participants demonstrated non-compliance during the language samples when they failed to respond or talk off-topic. The fourth limitation was the technical issues that frequently occurred throughout this study. Some language samples were conducted during school-wide testing, which directly affected the internet connection. A fifth limitation was the lack of identical conversations

across all clients. Overall, the conversations between the clients were similar. Although the clients would veer the conversation in different directions at times, even though the conversations differed, the clients continued talking while practicing repair strategies. A sixth limitation was implementing the SCRIPT program over a more extended period, rather than only eight sessions. The program was intended to be conducted over the school year so each strategy could be taught, practiced, and follow-up accordingly. However, due to time constraints with completing this thesis and factors with multiple variants of COVID-19, the program was implemented over eight sessions.

Future Directions

This research study provides meaningful information on five clients' development of self-advocacy skills. However, in future research, several factors could improve the research design and validity of the results. For example, a larger sample size, assessment of motivation levels, and more support from the teachers could greatly benefit this research.

Though six clients on a single case study design allow for greater depth for analysis, adding more participants could allow for greater generalization of results. Along with adding more participants with hearing loss who are adolescents, the addition of parents and clinicians could add valuable insight to the research. Children with hearing loss require a team of parents, teachers, and clinicians to aid in the development of self-advocacy. Including the addition of participants, future implications could also add motivation testing for these individuals. The motivation levels of these individuals could expose barriers that may slow and prevent self-advocacy growth. Motivation testing may also address underlying issues such as lack of support, time, or effort.

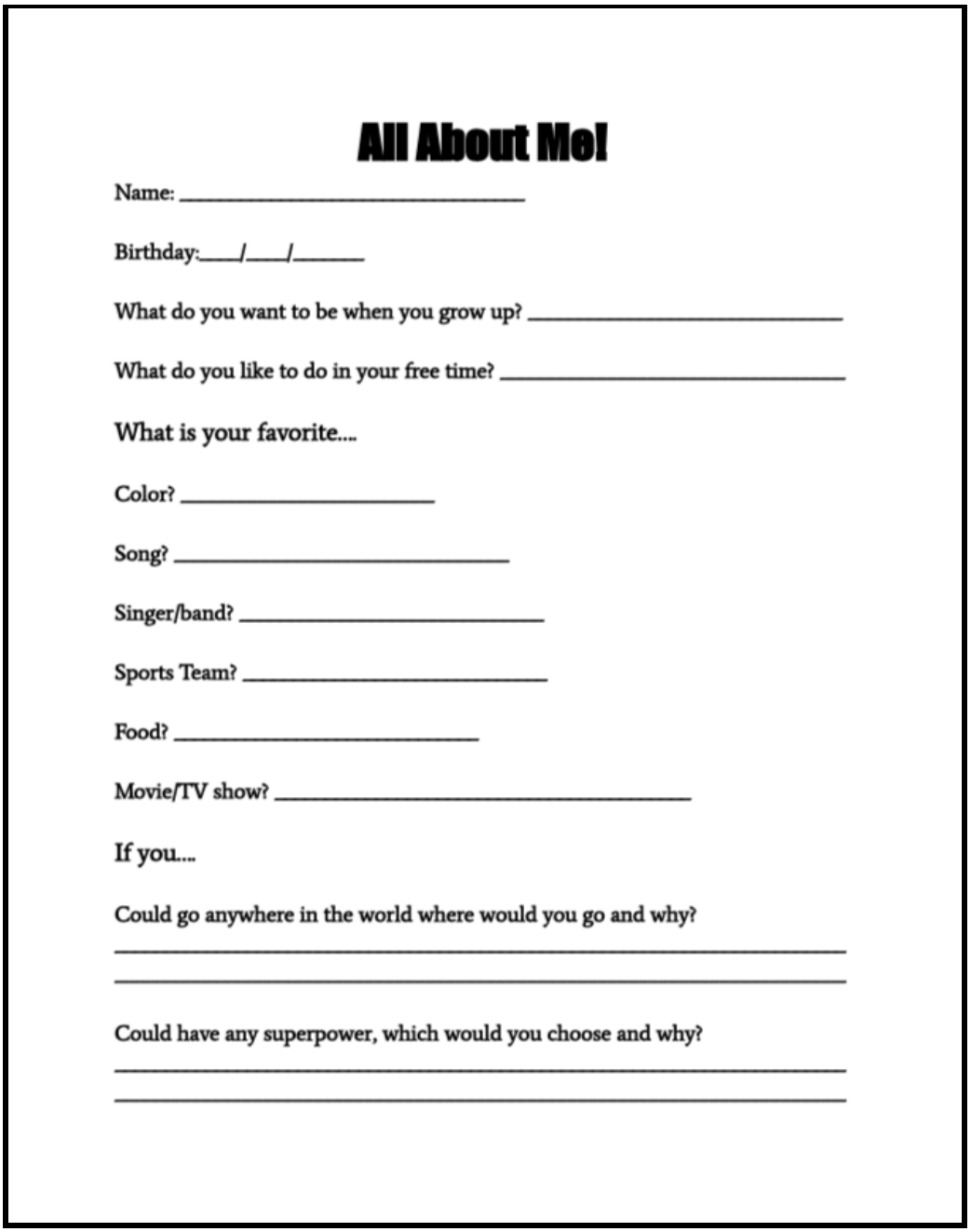
Conclusion

This research study aimed to assess the self-advocacy development of five adolescents with hearing loss before and after implementing the SCRIPT program. The researchers predicted that each student's self-advocacy development would improve with the implemented treatment, and the results indicated some improvements in self-advocacy skills among the participants. Researchers also predicted that the student's use of communication repair strategies would increase. Each of the clients improved their use of communication repair strategies. However, only one or two strategies were utilized by each participant. The results show that the students could use most of the strategies. However, each client gravitated towards a specific strategy that

they often utilized. The results of this study provide insight into the outcome of SCRIPT intervention in adolescents. In continuing research, data on the motivation levels of participants, additional participants, and more support from teachers would improve the quality of the study.

APPENDIX A

ALL ABOUT ME QUESTIONNAIRE



All About Me!

Name: _____

Birthday:____/____/_____

What do you want to be when you grow up? _____

What do you like to do in your free time? _____

What is your favorite....

Color? _____

Song? _____

Singer/band? _____

Sports Team? _____

Food? _____

Movie/TV show? _____

If you....

Could go anywhere in the world where would you go and why?

_____

_____

Could have any superpower, which would you choose and why?

_____

_____

APPENDIX B

SAID TEACHER CHECKLIST

Student Name: _____ Date: _____ Teacher/Therapist: _____

STUDENT ADVOCACY & INDEPENDENCE DEVELOPMENT

(SAID) Teacher Checklist

Use this checklist to monitor how well the student integrates important self-advocacy, independence activities, and communication repair into their daily school life. Select the type of responses you have observed the student to use or you think that the student is most likely to use.

SELF-ADVOCACY COMMUNICATION STYLE

PASSIVE (P): waits for others to notice that he needs help; tends to nod and smile even if he does not understand; meek or timid; oversensitive to what others think; may offer little during conversations; too concerned with being liked by others; accepts fault for misunderstanding and may then feel bad about himself.

AGGRESSIVE (G): can become sullen, angry or belligerent when does not understand, blaming others for his misunderstanding; can be insensitive to the feelings of others including being bossy during conversations with peers; may be demanding or very outgoing in an attempt to control the situation.

ASSERTIVE (S): recognizes that he has the right to express needs; raises hand or otherwise lets teacher know when he has not understood; presents reasonable and specific requests in a pleasant tone of voice; assumes that a misunderstanding is a shared or mutual responsibility; takes turns and holds up own end of a conversation.

Student response when he… (you may choose more than one response) **Passive (P), Aggressive (G), Assertive (S)**	**Observed or strongly suspected**	**NA* or Not Observed**
1. Does not hear all of a homework assignment	(P) (G) (S)	(NA) (NO)
2. Is working in a small group with others when it is noisy and difficult for him to understand	(P) (G) (S)	(NA) (NO)
3. Has 'gotten lost' due to new vocabulary during verbal instruction or in written materials	(P) (G) (S)	(NA) (NO)
4. Is experiencing problems with his hearing technology not functioning	(P) (G) (S)	(NA) (NO)
5. Is conversing with a friend in a quiet environment (typical communication style)	(P) (G) (S)	(NA) (NO)
6. Is conversing with another student when it is noisy, such as during class transition times	(P) (G) (S)	(NA) (NO)
7. Is not understood and he is asked to repeat or clarify	(P) (G) (S)	(NA) (NO)
8. Does not understand single or multistep directions when class starts begins working independently	(P) (G) (S)	(NA) (NO)
9. Has difficulty understanding the presenter in the auditorium or over the intercom	(P) (G) (S)	(NA) (NO)
10. Does not understand the need to bring an important paper/money from home (due to mishearing)	(P) (G) (S)	(NA) (NO)
11. Does not hear information provided by another student during class discussion	(P) (G) (S)	(NA) (NO)
12. Is caught off guard after called upon to answer a question and it is clear that he is 'lost'	(P) (G) (S)	(NA) (NO)

INDEPENDENT FUNCTION

Indicators of Independent Function	**NA/ Not Observed**	**Rare**	**Occasional**	**Consistent**
1. Using amplification daily (personal device, FM)	(0)	(1)	(2)	(3)
2. Charging FM, monitoring hearing aid function	(0)	(1)	(2)	(3)
3. Promptly reporting issues with hearing technology	(0)	(1)	(2)	(3)
4. Selecting own seating (classroom, gym, auditorium) for best hearing	(0)	(1)	(2)	(3)
5. Independently closing door or asking that a noise source be stopped	(0)	(1)	(2)	(3)
6. Asking for clarification of assignments if needed	(0)	(1)	(2)	(3)

COMMUNICATION REPAIR

Category	**Examples**	**Never**	**Rare**	**Occasionally**	**Sometimes**	**Often**
Asks for repetition	Can you say that again more slowly please?	(0)	(1)	(2)	(3)	(4)
Asks for clarification by using key words in the request	Can you say the page again please? Where are we in the math book? Is it the odd problems on page 38?	(0)	(1)	(2)	(3)	(4)
Seeks help nonverbally	Uses some sort of signal that he didn't understand that you two have agreed on	(0)	(1)	(2)	(3)	(4)
	Looks confused and hopes you notice	(0)	(1)	(2)	(3)	(4)
	Writes you a note	(0)	(1)	(2)	(3)	(4)

Age Range: All Grades

***NA= non-applicable, the situation does not happen in class for you to possibly observe.**

APPENDIX C

LIFE-R TEACHER APPRAISAL

Listening Inventory For Education-Revised (L.I.F.E.-R.)

Teacher Appraisal of Listening Difficulty

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name_____ Grade _____ School _____

Teacher_____ ☐ hearing Aid ☐ CI User Date LIFE Completed_____

Type of Classroom Hearing Technology _____

L.I.F.E Classroom Listening Situations **Instructions:** Based on your observations, please mark the response that best describes the student's level of challenge when listening and learning in each of the situations described below. If you have no idea how to answer an item, leave the item blank. *Thank you for your assistance.*	No challenge or very rare	Occasionally challenged	Sometimes challenged	Often/regularly challenged	Almost always challenged
1. Student's ability to focus on/follow large group verbal instruction (i.e., teacher front of room):	5	4	3	2	1
2. Student's ability to focus on/follow verbal instruction when you are moving about the room:	5	4	3	2	1
3. Student's ability to focus on/understand verbal responses by other students seated across the classroom from him/her: Check one: ☐ With FM mic used by student ☐ Without FM mic	5	4	3	2	1
4. Ability to attend when listening to directions presented to the whole class (focus):	5	4	3	2	1
5. Ease of following directions provided to large group (hesitation before beginning work):	5	4	3	2	1
6. Ability to attend to class activities (distractibility, fidgety, typical level of attention):	5	4	3	2	1
7. Ability to stay on task (re: need for individual redirection):	5	4	3	2	1
8. Level of hesitation when volunteering to answer class questions in relation to peers:	5	4	3	2	1
9. Ability to answer questions appropriately (shows understanding of question and reasonable response):	5	4	3	2	1
10. Ability to understand information presented via instructional media (videos, computer, etc.):	5	4	3	2	1
11. Ability to focus on and understand morning announcements or large group assemblies:	5	4	3	2	1
12. Ability to attend to verbal instruction and understand when noise is present (i.e., transitions):	5	4	3	2	1
13. Ability to focus on/understand peer comments during small group work:	5	4	3	2	1
14. Comfort during social involvement/informal peer conversations in comparison to peers:	5	4	3	2	1
15. Overall rate of listening/learning in comparison to class peers (rate of comprehension):	5	4	3	2	1

Comments: (absences, equipment use problems, etc.)

CLASSROOM LISTENING SCORE
Sum of Items 1-15 (75 possible) Pretest _____ Post-test _____

No listening challenges or very rare	Occasional listening challenges	Sometimes experiences listening challenges	Often or regularly has listening challenges	Almost always has listening challenges
75.....60.....45.....30.....15				

Listening Inventory For Education-Revised (L.I.F.E.-R.)

Teacher Checklist: Self-Advocacy and Instructional Access

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name_____ Grade _____ School _____

Teacher(s) completing form_____ Date Started_____ Date Ended_____

Self-advocacy for listening and technological needs for students with hearing loss is fundamental for their success in the classroom and beyond. The purpose of this LIFE-R tool is to help the teacher to identify when the student with hearing loss uses self-advocacy strategies in the classroom. Self-advocacy may also be a goal/objective on the student's IEP, as indicated below by the student's teacher of the deaf/hard of hearing, educational audiologist or other specialist.

Student's IEP goals related to self-advocacy:	Most opportunities	Often	Sometimes	Rarely	NA/Not observed
1. The student asks for repetition immediately during lecture or meets with you at a later time for clarification of directions, student discussion, lecture material, etc.	5	4	3	2	1
2. The student utilizes strategic seating (changes seats depending on the activity to ensure he has the best acoustic and visual access to information) during classroom instruction.	5	4	3	2	1
3. The student uses the "signal system" that you and s/he developed to let you know if s/he does not understand, needs noise reduction (close door/windows), or to remind you of another hearing accommodation (i.e., turn the FM on; repeat information).	5	4	3	2	1
4. The student takes responsibility for his/her personal hearing aid/CI (wears every day, changes batteries when needed, is directly involved in daily monitoring, etc.).	5	4	3	2	1
5. Ease of following directions provided to large group (hesitation before beginning work):	5	4	3	2	1
6. The student self-advocates for his/her listening needs in relation to media and announcements. This may include asking for closed captioning, asking for a script of the announcements, asking for a summary of information from an assembly or lecture.	5	4	3	2	1
7. During cooperative learning groups, the student positions himself for good auditory/visual access, asks his/her peers for repetition, asks group to sit in a circle, asks to move to a less noisy place in the classroom, etc.	5	4	3	2	1
8. When asked about the student's hearing loss needs and accommodations relative to an activity, the student is able to describe two or more communication or technology accommodations (i.e., ask: When there is noise, what will help you?).	5	4	3	2	1
Comments on this student's ability to advocate for his/her own listening and learning needs:		**Total** of 40 possible			
		Percent			

APPENDIX D

LIFE-R STUDENT APPRAISAL

Listening Inventory For Education - Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty:
Before-LIFE Questions for Students

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade ____ Date(s) completed _____

Teacher _____ School _____

☐ Hearing Aid ☐ CI user Type of Classroom Hearing Technology _____

Trial period ☐ No ☐ Yes Length _____ Responses consider performance ☐ with ☐ without FM system in use

Before-LIFE Questions for Students:

Answer these questions PRIOR to administration of the L.I.F.E.-Revised materials.

Check all the answers that apply. If you have an answer that is not provided please add it under "other."

1. **Mark the items that best describe your classroom listening location. My location:**
   - O is in the first or second row of the classroom
   - O is in the middle row of the classroom
   - O is in the back row of the classroom
   - O puts my good ear toward the teacher when teaching
   - O puts my bad ear toward the teacher when teaching
   - O near a source of noise in the classroom
   - O is near a source of noise from outside the classroom
   - O is close to where the teacher stands to talk to the class

   Other _____

2. **What sounds (noises) do you hear when you are in the classroom?** (sounds may happen only some of the time)
   - O Fan noise inside classroom
   - O Noise from heating/cooling system inside the classroom
   - O Noise from a fish tank inside the classroom
   - O Noise from computers inside the classroom
   - O Noise from other students inside the classroom
   - O Sounds from students outside your classroom but inside or outside of the school building
   - O Sounds from the florescent lights

   Other _____

3. **When you are sitting in your usual location in the classroom, how well do you hear the teacher when teaching?**
   - O Pretty well, the teacher is easy to hear
   - O Well, I can hear almost everything
   - O Not well, I miss some stuff
   - O Not well at all, I miss a lot of what the teacher says

4. **What is the best description of your teacher's location in the classroom when teaching?**
   - O Teaches from the same place almost all the time
   - O Walks around for a short time maybe once or twice a day
   - O Teaches from different locations about half of the time
   - O Teaches from different locations more than half of the time

5. **How do you know when you did not hear or understand the teacher completely?**
   - O I have a hard time getting started on my work because I do not understand what the teacher wants me to do.
   - O I know I should ask the teacher to repeat what was said.
   - O I look around to see what other students are doing.
   - O I follow the teacher's instruction incorrectly.
   - O I watch the teacher's lips to understand what was said
   - O I answer questions inappropriately or do not answer
   - O I ask another student what the teacher said
   - O I do not know when I did not hear or understand the teacher

   Other _____

6. **How do you feel about listening with _____ in your class(es)** (technology device(s)?
   - O I am excited to hear and understand better in the classroom
   - O I am nervous
   - O I feel shy
   - O Happy
   - O I don't have any feelings about it

   Other _____

Listening Inventory For Education-Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade ____ Date(s) completed _____

Teacher _____ School _____

☐ Hearing Aid ☐ CI user Type of Classroom Hearing Technology _____

Trial period ☐ No ☐ Yes Length _____ Responses consider performance ☐ with ☐ without FM system in use

Instructions: Circle the response that best describes your level of listening difficulty in each of the situations.

L.I.F.E Classroom Listening Situations							
Questions	**Brief description**	Always Easy	Mostly Easy	Sometimes Difficult	Mostly Difficult	Always Difficult
1. The teacher is talking in front of the class. The kids are quiet. Everyone is watching and listening to the teacher. How well can you hear and understand the words the teacher is saying?	1. Teacher talking in front of room	10	7	5	2	0
2. The teacher is talking, but has his back to you as s/he writes on the board or faces another student. You cannot see the teacher's face. How well can you hear and understand the words the teacher is saying when you can't see his face?	2. Teacher talking with back turned	10	7	5	2	0
3. The teacher is talking. She is also walking and moving around the room. How well can you hear and understand the words the teacher is saying if you can't see her face and she is across the room?	3. Teacher talking while moving	10	7	5	2	0
4. Sometimes teachers ask questions during a lesson. One kid in class who sits across the room from you is answering a question. How well can you hear and understand the words the student is saying? √ Typical condition: ☐ With FM mic used by student ☐ Without FM mic	4. Student answering during discussion	10	7	5	2	0
5. The teacher is explaining how you are supposed to do an assignment. She gives directions only one or two times. How well can you hear the words and understand what the teacher wants you to do?	5. Understanding directions	10	7	5	2	0
6. The teacher is talking. Some kids are making noise at their seats. They may be trying to find papers, dropping pencils, whispering or moving their feet. How well can you hear and understand the words the teacher is saying as the kids make noise?	6. Other students making noise	10	7	5	2	0
7. The teacher is talking. You hear noise outside of the class. It could be kids in the hallway, the playground outside, voices next door, cars or airplanes. How well can you hear and understand words the teacher is saying?	7. Noise outside of the classroom	10	7	5	2	0
8. Everyone is looking at the computer, TV or video screen. The teacher is showing a video or you are listening to something shown on the computer screen. How well can you hear and understand the words said while you are watching the screen?	8. Multimedia (video, computer)	10	7	5	2	0
9. The teacher is talking to the class. The teacher is using a projector that is making noise OR air is blowing from the heater/cooler in your classroom. How well can you hear and understand the words the teacher is saying when there is a fan-type of noise at the same time?	9. Listening with fan noise on	10	7	5	2	0
10. One teacher is talking in front of the class. Another teacher is talking to a small group of students at the same time. How well can you hear and understand the words the teacher in the front is saying?	10. Simultaneous large and small group	10	7	5	2	0
Sum of Items 1-10 (100 Possible)	**CLASSROOM SITUATION LISTENING SCORE**					

Pretest ____ Date: Post-test ____ Date:

Listening Inventory For Education-Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty

L.I.F.E Additional/Social Listening Situations in School						
Questions	Brief description	Always Easy	Mostly Easy	Sometimes Difficult	Mostly Difficult	Always Difficult
11. The kids are all working in small groups. Each group is talking and moving papers. How well can you hear and understand the words the students in your group are saying?	11. Cooperative small group learning	10	7	5	2	0
12. Your class stops to listen to school announcements. Sometimes kids are making noise during the announcements. How well can you hear and understand all of the announcements when there is some noise?	12. Announcements	10	7	5	2	0
13. There is a school meeting or assembly. Many classes of kids are sitting together. The kids are listening to a teacher. The teacher is talking without a microphone. How well can you hear the words the teacher is saying?	13. Listening in a large room.	10	7	5	2	0
14. You are outside with other kids you know. Maybe it is an outside gym class or you are together on the playground, bus stop or field trip. Someone is talking while some kids are making noise. How well can you hear and understand when people are talking outside?	14. Listening to others when outside	10	7	5	2	0
15. You are in school, hanging out with some kids you know. It may be lunch time, putting away coats, or walking to the classroom. It is noisy. How clearly can you hear and understand what the other kids say?	15. Listening to students during informal social times	10	7	5	2	0
Sum of Items 11-15 (50 Possible)	ADDITIONAL SITUATIONS LISTENING SCORE	Pretest Date:		Post-test Date:		

Of the 15 Listening Inventory For Education questions, the following situations were rated as Always Difficult (★★★), Mostly Difficult (★★), or Sometimes Difficult (★):

★	_____'s most challenging listening situations
	1. Teacher talking in front of room
	2. Teacher talking with back turned
	3. Teacher talking while moving
	4. Student answering during discussion
	5. Hearing and understanding directions
	6. Other students making noise
	7. Noise outside of the classroom
	8. Multimedia (video, computer)
	9. Listening with fan noise on
	10. Simultaneous large and small group
	11. Cooperative small group learning
	12. Announcements
	13. Listening in a large room (assembly).
	14. Listening to others when outside
	15. Listening to students during informal social times
The more ★'s the more difficult. No ★ = no problem.	

For:

Date:

From

Listening Inventory For Education - Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty:
After-LIFE Questions for Students

By Karen L. Anderson, PhD, Joseph J. Smaldino, PhD, & Carrie Spangler, AuD

Name _____ Grade ____ Date(s) completed _____

Answer these questions FOLLOWING the administration of the L.I.F.E.-Revised materials. **Choose all of the answers that sound most like you.** If you have an answer that is not provided please add it under "other".

1. **What do you do to let your teacher know that you didn't hear or understand what s/he said?**
   a) Use a facial expression to let her know that I have missed some information (like looking puzzled).
   b) Use some kind of signal that my teacher and I have agreed on (like putting my finger on my chin).
   c) Do nothing and hope that I will figure it out later on.
   d) Raise my hand and ask for more information (like "Page 300 and what?"; "Do we do the odd AND the even problems?").
   e) Look around to see what the other students are doing (hoping the teacher will notice me looking around).
   f) Raise your hand and ask your teacher to repeat what she said.
   g) Ask the teacher after class.
   Other _____

2. **What do you do if it is too noisy in your classroom, making it hard for you to understand what your teacher says?**
   a) Raise my hand and let my teacher know that I am having a hard time understanding because of the noise.
   b) Look around the class and glare (make a mean face) at the people who are making noise (hoping the teacher will notice).
   c) Get up and close the door (if the noise is in the hallway) or move to a seat in the classroom that is away from the noise.
   d) Do nothing, put more effort into listening and hope that I hear enough to figure out what is going on.
   e) Get out of my seat and quietly ask the person making noise to stop (my teacher knows this is one of my listening strategies).
   f) Start to do something else because it is too hard to listen and understand (hoping the teacher will notice I'm not attending).
   g) Talk to the teacher after class.
   Other _____

3. **What do you do when a student's voice is too quiet for you to understand during a class discussion?**
   a) Do nothing and hope that what the student is saying isn't very important.
   b) Raise my hand and remind the teacher to pass the FM microphone to the student before s/he says something to the class.
   c) Look at something that is nowhere near the student who is talking (hoping my teacher will notice and it will remind her that it is hard to hear quiet voices from across the room).
   d) Turn around in my seat or move so that I can see the student's face more easily as s/he talks.
   e) Do nothing and hope that what the student is saying will be repeated by the teacher.
   f) Raise my hand and say something like "Marie has a quiet voice and I didn't hear everything she said."
   Other _____

Listening Inventory For Education - Revised (L.I.F.E.-R.)

Student Appraisal of Listening Difficulty:
After-LIFE Questions for Students

4. **What do you do when you can't hear or understand what your friends are saying when you're hanging out?**
   a) We move to a quieter place or I stand close to the person who is talking so I can hear my best and see his or her face.
   b) I do nothing. I just hope they don't ask me anything because sometimes my answers are way off and they laugh at me.
   c) I usually miss only part, so I say something like, "What was the name of the movie?" or "Who got in trouble?"
   d) Sometimes I just start talking about something else, that way I'll know what we're talking about.
   e) My friends know I sometimes have a hard time hearing everything. When I miss something I tap the person on the arm and make a puzzled face and they remember to face me when they talk.
   f) I start looking around. Sometimes when I do this it reminds them to face me when they talk.
   g) Sometimes I walk away because it's just too hard to follow the conversation.
   Other _____

5. **What are the things you do when you are trying to communicate and it's noisy?**
   a) I try to avoid places where it is noisy and I'm expected to listen and talk.
   b) The teacher uses the FM system and passes the microphone to students when they talk.
   c) I stop paying attention – if people want me to know something they will tell me again.
   d) I try to get the noise to stop or to move away from the noise and closer to the person talking.
   e) Do nothing and hope that no one will ask me anything.
   f) I switch the program on my hearing device to the 'noisy environment' setting.
   Other _____

6. **What would you do if your listening technology is not working?**
   a) Let my teacher know right away by raising my hand or using my signal.
   b) Sit at my desk and hope that it will start working again.
   c) Tell my teacher at the end of the day or class period.
   d) Change the batteries and do basic troubleshooting to see if I can figure out what is wrong with it.
   e) Let my teacher know there is a problem and then leave the class to show the device to someone at school who helps me when there are problems with my hearing aids or other listening devices.
   Other _____

APPENDIX E

REPAIR STRATEGY LIST

Repetition	Special Code	
Slow repetition	SR	Repeats or requests speaker to repeat at a slower rate
Clear repetition	CR	repeats or requests speaker repeat with clearer enunciation
Louder repetition	LR	repeats or requests speaker to repeat more loudly
Key words	KW	Emphasizes a key word or words during response or request
Revision		Revision strategies are mostly used when a speaker is asked to clarify what he/she said.
2 Sentences	2S	when asked to clarify, expands sentence into 2 sentences
Different Words	DW	when clarifying, uses fewer or more commonplace (simpler) words or both
Different Forms	DF	when clarifying retains meaning but alters grammatical form
Addition		
Simple Addition	SA	adds a little information to response or request
Define terms	DT	describes or uses more detail to define terms used in the original utterance or as part of clarification request
Background info	BI	describes additional details that were not mentioned originally or requests additional details for clarification
Nonverbal		
Sign/ spell	SL	signs or spells to add clarification
Show/ express	SE	acts out thoughts or needs, points, shows, uses facial expressions
write/ draw	WD	draws picture or writes to clarify
Inappropriate		
fails to response	FR	fails to respond, or attempts to discontinue (gives up)
off topic utterances	OT	provides unrelated utterances or just repeats questions

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