CROSS-GENERATIONAL PERCEPTIONS OF SUGGESTED STRATEGIES FOR CHILDREN WITH COMMUNICATION DISORDERS IN CHINA

by

Riley Malloy

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Project Approved:

Supervising Professor: Jennifer Watson, Ph.D., CCC-SLP

Department of Communication Sciences and Disorders

Laurel Lynch, M.S, CCC-SLP

Department of Communication Sciences and Disorders

Lucy Liu, AuD, CCC-SLP/A

Department of Communication Sciences and Disorders*

ABSTRACT

Purpose

In contrast to the U.S., individuals with communication disorders in China often do not receive professional services due to inadequate or unavailable treatment opportunities (Battle, 2007; Cheng, 2010; Lin et al., 2016). Introducing home intervention strategies to parents and grandparents of children with communication disorders may be an effective and practical way to address the need for speech-language pathology services in China. The purpose of the current study is to examine cross-generational perceptions of parents and grandparents in China of home interventions strategies often used in the United States to treat communication disorders in children.

Method

Parents and grandparents of children with communication disorders in China (N=86) were recruited at caregiver education events provided by the Bethel Hearing and Speech Training Center team to complete an online survey. The survey examined which home intervention strategies may be perceived to be most and least helpful in enhancing their child's speech and language and how likely they would be to implement them with their child or grandchild. Twenty-one strategies with examples of each strategy were included in the survey.

Results

No statistically significant differences between parents' and grandparents' perceptions of the helpfulness of home intervention strategies were observed. Results of this study also indicated that caregivers perceived all strategies to be helpful in improving their child's speech and language and that they would be very likely to implement them with their child. However, statistically significant differences were found in the helpfulness ratings between some of the specific strategy categories. Finally, findings again indicated that caregivers perceived all strategies to be helpful in improving their child's speech and language regardless of the child's specific communication behaviors.

Conclusions

Overall, the findings of this study reveal great potential for working with parents and grandparents of children with communication disorders in China through the implementation of home intervention strategies. Results of this study may be related to several reasons including the response group representing a clinically based cohort, caregivers' reduced understanding of the nature of their child's communication problems, or caregivers' deference to the expert who presented strategies as potentially helpful. Thus, current training models used with caregivers in the United States will need to be adjusted when working with families in China.

Introduction

The assessment and treatment of communication disorders in China differs markedly from practices in the United States. To understand how to best support the development of services for communication disorders in young children in China, it is helpful to understand current practices and how they compare to services in the United States. Of particular interest is the utility of parental involvement in treatment of speech and language disorders in the U.S., including the use of home intervention strategies to enhance speech and language. This information will provide the context for the study's purpose and the research questions and hypotheses.

Speech-Language Pathology in the United States

A communication disorder is defined as an impairment in the ability to receive, send, process, and/or comprehend concepts of verbal, nonverbal, and graphic symbol systems. Communication disorders may be evident in the processes of speech, language, and/or hearing (Prelock, 2008). To treat these disorders, individuals often seek treatment from speech-language pathologists (SLPs) who are qualified to prevent, assess, diagnose, and treat communication disorders in children and adults. In the United States, speech-language pathology is a fully developed discipline with nationally accepted credentials and accreditation standards (Amercican Speech-Languague and Hearing Association [ASHA], 2019). These standards were developed and continue to be overseen be the American Speech-Language-Hearing Association (ASHA). ASHA, which began in 1952, is the United States' leading organization for speech-language pathologists, audiologists, and speech/language/hearing scientists and has over 211,000 members today (*History*, 2020).

As reported by the American Speech-Language Hearing Association (ASHA), there are over 204,000 M.S./Ph.D. certified SLPs in the United States today who are able to serve the estimated 40 million people with a communication disorder in America (*ASHA Quick Facts*, 2019). The speech-language pathology profession in the United States is well-developed and regulated through professional and state credentials. These regulations enable families and clients to identify and understand the qualifications of practicing speech-language pathologists and enhances the quality of services provided for all communication disorders in children and adults. ASHA currently provides national credentialing programs for academic programs' accreditation, clinical certification, continuing education providers, and clinical specialty certifications (ASHA, 2019).

In order to become a certified SLP through the national professional association ASHA, individuals must earn a graduate degree in speech-language pathology from an accredited program, acquire 1,600 hours of supervised clinical experience, receive a passing grade on a national examination, and gain thirty hours of continuing education every three years (*What is ASHA certification*, 2020). In addition, SLPs in the US must adhere to state regulatory standards which may differ across states and from ASHA certification. The Texas Education Agency license in speech-language pathology, for example, requires one to hold a master's degree in speech-language pathology from an ASHA accredited program and pass the national examination in speech-language pathology (*Occupations Code*, 2019). At this time, there are over 300 accredited university programs offering a master's or doctoral degree in speech-language pathology, providing professionals with multiple educational opportunities in the US (*ASHA EdFind*, 2019; Logemann, 2006). Programs earn accreditation through meeting the

standards set by the Council of Academic Accreditation (CAA), an organization established by ASHA to maintain the excellence and ongoing quality of students' education so that "graduates are prepared to meet the challenges they will face when entering the workforce" (Council on Academic Accreditation, 2019).

Speech-Language Pathology in China

Communication disorders are universal. However, in contrast to the U.S., individuals with communication disorders in China often do not receive professional services. Treatment is often inadequate or unavailable for the estimated twenty million people in China who have a communication disorder (Battle, 2007; Cheng, 2010; Lin et al., 2016). Reasons for this are multiple and include lack of trained service providers, limited access to treatment, stigmas surrounding communication disorders, and familial cultural differences (Cheng, 2010; Lin et al., 2016; Weidner et al., 2015; Goh, 2006). These reasons may also contribute to the seemly low estimation of individuals with communication disorders in China. Although the prevalence of communication disorders in China appears to be only half of the reported prevalence in the United States, it is appropriate to assume there are four times as many individuals with a communication disorder in China than the United States because China's total population is four times greater than America's total population. The rate of prevalence should be alike in both countries; therefore, a more accurate estimation of the total number of individuals with communication disorders in China should be approximately 80 million people. This significant underrepresentation is most likely due to a decreased awareness surrounding communication disorders in China, a lack of professionals to diagnose individuals with disorders, and a possible unwillingness to seek treatment in China.

The speech-language pathology profession in China. Unlike the U.S., the field of speech-language pathology is in its infancy in China. There are limited educational programs that focus on communication disorders and speech-language pathology, few assessment and treatment tools available in Chinese, and an insufficient number of qualified service providers (Liu et al., 2016). Although China has a population four times greater than the United States, there are only approximately 10,000 individuals currently working as SLPs in the country today, many of whom are non-degree holding rehabilitation specialists (Tang et al., 2016). The concept of specific health care disciplines such as physical therapy, occupational therapy, and speech therapy has only emerged in China over the last twenty years, and the autonomous practice of these disciplines is not yet authorized by the Central Government (Jones & Skinner, 2013). Instead, rehabilitation therapists in China are trained to work under physicians' supervision to provide similar services (Jones & Skinner, 2013).

The few self-identified speech-language pathologists working in China tend to be new professionals, with little work experience. Therefore, much of the speech-language pathology treatment is provided by other professionals who work with children, including developmental pediatricians, rehabilitation therapists, psychologists, and nurses (Lin et al., 2016). According to Cheng (2010), rehabilitation therapists in China provide services in occupational therapy, physical therapy and some speech therapy. Rehabilitation practices in China also include many traditional Chinese medicine techniques such as acupuncture and tuina, or "pinch and pull" (Moy, 2018). Often these professionals have limited training in assessing and treating the diverse population with communication disorders and are ill-equipped to meet a wide variety of children's needs. Rehabilitation therapists often receive just two weeks to six months

of training in preparation, a stark contrast when compared to the educational requirements of the United States for speech-language pathology (Battle & Aungst, 2007; Cheng, 2010). The lack of trained service providers is largely due to a lack of educational programs and national credentialing systems in China. A 2016 study by Tang et al. reveals that there are only twelve bachelor's programs and one master's program that offer degrees in speech-language pathology (Tang et al., 2016). It is clear that despite the need, the professional resources to support services for children with communication disorders in China are limited.

Disparity in education and health services in China. Additionally, there is a general disparity in education and health services across China (Cheng, 2010). According to Liu and her colleagues' study (Liu et al., 2007) examining the utilization of hospitals among rural and urban populations in China, about half of all respondents to a survey reported that they did not see a physician when they were ill. Results also showed that those residing in rural areas in China visit hospitals and physicians significantly less than urban Chinese residents (Liu et al., 2007). The difference between those who seek health services or not increased further among rural males, seniors, those with low education levels, and those who were uninsured. The study determined three reasons for the disparity between urban and rural areas of China: lack of universal insurance coverage, low education levels, and access issues in remote areas by the rural Chinese population. As a result, individuals in need of treatment, including those with communication disorders, often do not receive appropriate services. To lessen this disparity and increase access to healthcare for all, different service delivery models in China may need to be explored.

Stigma of communication disorders in China. A possible factor that contributes to why individuals may not seek services in China, is that disorders in general, and communication

disorders specifically, are highly stigmatized in China (Ip et al., 2012). In many Chinese cultures, a disability is often believed to be a punishment for the parents' past sins. As a result, Chinese parents experience great amounts of shame related to their child and may withdraw or restrict the child's social contact in an effort to conceal the family's situation (Du, 2017). Because of this belief, Chinese parents are less likely to seek pediatric health care for their child with a disability. Additionally, a 2004 study showed that Chinese and Chinese American parents reported greater use of physical punishment, verbal admonishing, and yelling than European-American parents with their children with disabilities who displayed various behavioral problems (Du, 2017). As a result of the Chinese stigmas surrounding disabilities, including communication disorders, parents of children with communication disorders may be ashamed of or embarrassed about their child's disorder and refuse to seek necessary treatment for their child (Battle, 2012).

Multigenerational households in China. Children in China are commonly raised in multi-generational family contexts. The China Health and Nutrition Survey (CHNS) conducted between 1991-2004 provides insights as to the nature of family households in China (Chen at al., 2011). Approximately 45% of grandparents co-reside, or share residence, with grandchildren ages 0-6 in China, and 5% of Chinese household are skipped-generation households, where parents are not present at all. Co-residence among paternal grandparents in China is nearly three times higher than maternal grandparents. In contrast, the 2000 U.S. Census reported only 11% of children under the age of 18 live in households with grandparents present. The CHNS also examined the role of both co-residing and non-coresidential grandparents in proving childcare for their grandchildren through time spent feeding, bathing, dressing, holding, or watching their grandchildren each week. The results suggested that grandmothers play an extremely important

role in caregiving for in China, as nearly no difference in the time spent on childcare between mothers and grandmothers was found. In fact, grandmothers actually exceeded the mothers in time spent caregiving for children over the age of one year.

Due to the common presence of both parents and grandparents in Chinese households, it is important to consider the benefits and challenges of raising children in multi-generational families. Although there are several advantages of joint parenting, such as relieving women from the full-time childcare role and enhancing single children's social skills, there are also many challenges. Goh (2006) found that in co-residence homes, parents and grandparents often reported ambivalence and contradiction regarding the child rearing practices used by each. Such disparities may impact the consistency of the child's education and development and whether or not families seek services.

Generational differences within multigenerational households may also contribute to contrasting views on parenting and differing child rearing styles between parents and grandparents in China. Parents and grandparents may disagree at times on what is best for their child in a variety of contexts, including how they approach speech-language pathology services. The differing views on parenting may impact, specifically, parents' and grandparents' perceptions of what speech-language pathology services or strategies may or may not be helpful for their child. It is therefore important to examine if generational differences exist between Chinese parents and grandparents to inform future speech pathology practice in China.

Parent Intervention Strategies in the United States

Parent intervention strategies for speech and language. There is extensive empirical evidence in the United States and other English-speaking countries that supports the value of

parental involvement in early intervention for speech, including stuttering, and language. This model of including parents in treatment may be an effective and efficient way to address speech and language problems in China.

There is extensive literature describing the benefits of parental participation in early intervention. For example, Kaiser and Hancock (2003) indicated that clinicians "teach parents strategies to promote their children's development in ways that also acknowledge and support the unique talents and situations of individual parents" (p. 20). Roberts and Kaiser (2011) explored the effectiveness of parent-implemented language intervention for young children with language impairments. Results showed that parent implemented intervention had significant positive effects on children's expressive and receptive language skills. Baxendale and Hesketh (2003) found no significant differences in outcomes when comparing the effectiveness of the Hanen Parent Program and traditional clinician-based therapy in the clinic. Children's language scores improved across both groups, supporting the value of parent-based treatment. Finally, Mcconachie, et al. (2005) developed a training course for parents of children with Autism Spectrum Disorder and reported that children whose parents received training to use strategies had a larger reported expressive vocabulary when compared to the control group. The effectiveness of parent-based intervention for children with communication disorders through the use of home intervention strategies is evident throughout the literature and clearly suggests that the use of these strategies is at least equally as efficacious as traditional therapy in improving children's language.

Parent intervention strategies for stuttering. In addition to supporting language development, evidence-based treatments for early stuttering also include providing parent

strategies to be implemented at home. Specifically, the Lidcombe Program (e.g., Onslow et. al, 2019), the RESTART -Demands – Capacity Method (DCM) (e.g., Franklen & Putker-de Bruijn, 2007) and the Parent-Child Interaction (PCI) (e.g., Kelman & Nicholas, 2008) focus on parent training and parents delivering the "treatment" at home (e.g., praising smooth speech, asking child if their speech was smooth, reducing the rate of speech during conversation, preventing strong emotional reactions to bumpy speech). In the Lidcombe Program, parents are trained to deliver verbal contingencies to their child such as "good smooth speech" or "was that bumpy or smooth speech?" during structured conversations for 10-15 minutes a day and then later in the natural environment. The child also receives therapy from a speech pathologist once a week (Onslow et al., 2019)

The RESTART DCM treatment focuses on positively influencing or changing the child's environment or functioning in order to minimize communicative pressure and, therefore, reduce stuttering (Franken & Putker-de Bruijn, 2007). To do so, parents are trained to reduce motor, linguistic, emotional, or cognitive demands on their child as well as increase the child's speech motor, emotional, and cognitive capacities through completing home practice for fifteen minutes a day, five days a week (Sonneville-Koedoot et al., 2015). Specific strategies used to reduce demands using this model include inserting pauses between conversational turns, following the child's lead, preventing and reducing strong emotional reactions around the child, and asking one question at a time (Franken & Putker-de Bruijn, 2007). Additionally, stimulating language at home, reinforcing the child's feeling of security, and practicing turn-taking in conversations are recommended to increase the child's capacities among others (Franken & Putker-de Bruijn, 2007).

Finally, the Parent-Child Interaction Therapy (PCIT) approach aims "to establish parent strategies that support the child's fluency and minimize the impact of the stuttering while laying the foundations for future direct therapy" (Millard et al., 2008). PCIT approach to therapy consists of six sessions of clinical-based therapy followed by six weeks of parent-led therapy at home and aims to teach parents both management and interactions strategies to use with their child at home to reduce stuttering. Management strategies suggested in this approach include managing anxiety about stuttering, building confidence, and setting boundaries and routines, and interaction strategies discussed include reducing parent rate of speech, increasing response time for child, following the child's lead in play, and many others (Millard et al., 2008). In a study completed by Millard et al. (2008), four of the six children examined had significantly reduced stuttering after completing the PCIT approach with both their parents.

The effectiveness of the Lidcombe Program, RESTART Demands-Capacity Model, and PCIT to treat early stuttering is widely demonstrated throughout the literature. Jones et al. (2005) found in a randomized controlled trial of the Lidcombe Program that children who received the treatment reduced their stuttering by 77%, 34% more than the natural recovery control group. Children receiving the Lidcombe treatment were also able to maintain the target percent of syllables stuttered at the nine-month follow up point in the study (Jones et al., 2005). Miller and Guitar (2009) examined the long-term outcomes of the Lidcombe Program on children who stutter when administered by an inexperienced speech-language pathologist. Results showed significant long-term positive changes in children's stuttering severity, even when treatment was given by a newly trained SLP. This result specifically may suggest that other untrained individuals, including parents and grandparents, could effectively administer the Lidcombe

Program to children who stutter if given the proper training from an SLP. Sonneville-Koedoot et al. (2015) compared the effectiveness of both the Lidcombe Program and the RESTART-Demands Capacity treatment among children who stutter. Clinical outcomes after 18 months of treatment revealed that both treatment methods were equally effective "in treating developmental stuttering in ways that surpass expectations of natural recovery" (Sonneville-Koedoot et al., 2015). Lastly, Millard et al. (2018) found that children who completed a course of Palin's Parent-Child Interaction therapy showed reduced stuttering frequency and a more positive attitude in speech. This study also reported an increase in parents' confidence in managing the stuttering of their child after completing the training (Millard et al., 2018).

The literature clearly reveals that the use of the Lidcombe Program, RESTART-Demands Capacity model, and Parent-Child Interaction Therapy approach can greatly improve the fluency of speech for children who stutter. These outcomes, therefore, suggest that parental involvement in the therapy process is a viable and efficacious method to providing speech therapy services to children who stutter.

Home Intervention Strategies Used to Improve Children's Speech and Language

Review of the literature revealed a number of recommended home intervention strategies that parents may use to improve their child's language and reduce stuttering. Review of the early childhood programs involving parents suggest that there some strategies that have been found to be particularly effective and are frequently recommended to parents. Frequent home intervention strategies found throughout the literature included expanding the child's utterance, using parallel talk, praising correct speech, taking turns, listening, and following the child's lead. While reviewing the literature on home intervention strategies used to improve children's speech and

language, there appeared to be major themes in the nature of the strategies identified. These themes and the associated strategies are listed in Appendix A. The researchers initially assigned each strategy to one of the following groups based on the observed themes: interaction content (language strategies), interaction structure, lifestyle/family strategies, child specific strategies, stuttering specific strategies, and other strategies. The groups of strategies based on themes were later renamed by the researchers of this study after data collection was complete. All home or parent intervention strategies observed during the review of the literature, as well as those included on the study's survey, can be found in Appendix A.

Research Questions and Hypotheses

Introducing home intervention strategies to parents and grandparents of children with communication disorders may be an effective and practical way to address the need for speech-language pathology services in China. This method of treatment allows parents to learn interaction strategies that are likely to facilitate growth in their child's communication abilities at their own speed and in the comfort of their home (e.g., Kaiser & Roberts, 2013). Such intervention strategies could be introduced to both parents and grandparents of children with communication disorders in China since children in China tend to be raised in multi-generational families where both parents and grandparents serve as primary caregivers (Goh, 2006). In order to determine the likelihood of use, we must understand the perceptions of parents and grandparents regarding these strategies' helpfulness and likelihood that they may use them with their child or grandchild. We also must consider generational differences in the perceived effectiveness of these strategies.

The purpose of the current study is to examine cross-generational perceptions of parents and grandparents in China of home (i.e., parent) interventions strategies often used in the United States to treat communication disorders in children. This study will advance our understanding of the likelihood of adherence to the home intervention strategies among parents and grandparents of children with communication disorders in China. Better understanding these perceptions will inform which strategies would be most feasible in China and influence how strategies would be introduced to families in China.

The following research questions and corresponding hypotheses were addressed:

1. Do generational differences influence the parent and grandparent reported helpfulness of each strategy?

   Hypothesis: There will be differences between Chinese parents' and grandparents' perceptions of the helpfulness of the strategies.

2. Which home intervention strategies do parents and grandparents of children with communication disorders in China perceive to be most helpful and least helpful in enhancing their child's speech and language?

   Hypothesis: Parents and grandparents will identify different strategies that may or may not be helpful.

3. Which intervention strategies do parents and grandparents of children with communication disorders in China report that they are likely to implement with their child or grandchild with a communication disorder?

Hypothesis: Parents and grandparents will identify strategies that they would likely use and those they would not use with their child or grandchild.

4. Is the reported perceived usefulness of each strategy dependent upon the communication disorder of the child?

   Hypothesis: The perceived usefulness of each strategy will vary depending on the communication disorder of the child.

Results of the study will provide a foundation for understanding Chinese caregivers' views of strategies typically used in the U.S. Further, these insights will allow researchers and clinicians to be mindful and intentional when providing rationales and evidence to support the effectiveness of home intervention strategies to parents and grandparents in China.

Methodology

Materials

A two-part survey, found in Addendum B, was given to parents and grandparents of children with communication disorders in China to measure which home intervention strategies they perceive to be most and least helpful in enhancing their child's speech and language and how likely they would be to implement them with their child or grandchild.

The first page of the survey displayed an informed consent statement (see Appendix C). This statement outlined the general purpose of the study, the known associated risks and benefits, the anonymity of responses, and the freedom to stop the survey at any time. The statement informed respondents that their participation in the study will not affect their child's current or future status as a therapy recipient, if they are receiving or will receive therapy. Participants indicated consent by selecting the "->" arrow located at the end of the page.

The first part of the survey collected demographic information to confirm participant eligibility and information about the child with a perceived communication disorder. The second part of the survey presented a list of strategies often used by parents for enhancing communication in the United States. A three-step process was followed to determine which strategies were to be included on the survey. First, an extensive review of the literature was completed to examine strategies used to improve the speech and language of children with communication disorders. Second, researchers identified all strategies caregivers were trained to use within the studies reviewed. When identifying strategies, researchers organized each strategy into logical groupings or themes based on the major communication behavior targeted by the strategy or the nature of the strategy. Finally, strategies from each of the groupings were chosen to be included in the study. To be included in the survey, each strategy had to be reported as a helpful strategy in multiple studies. Researchers also aimed to include a relatively equal amount of strategies from each grouping/theme identified in the literature review. The strategies chosen are widely known and accepted throughout the literature as being helpful and efficacious for improving children's speech and language in the United States.

Twenty-one strategies with examples of each strategy were included in the survey. (See Appendix B.) Parents and grandparents were asked to anticipate how helpful each strategy might be in enhancing their child's speech and language by rating them on a 5-point Likert scale, with "1" indicating "not helpful at all" and "5" indicating "extremely helpful." In addition, parents and grandparents also indicated how likely they believed they would be to implement each strategy with their child or grandchild. Again, this rating was done on a 5-point Likert scale, with "1" indicating "not likely to use" and "5" indicating "very likely to use." Upon opening the survey and providing informed consent, the survey took participants approximately 10-15 minutes to complete. See Appendix B for the complete survey.

The survey tool was translated from English to Mandarin by team members at the Bethel Hearing and Speech Training Center (Bethel) in Shanghai. Bethel is a Chinese organization committed to "improving the lives of millions of Mandarin-speaking individuals with communication disorders and their families" and "working with pioneers in China to advance the professions of speech-language pathology (SLP) and audiology" (Bethel Hearing and Speech, 2020). Bethel has locations in Dallas, Texas and Shanghai, China as well as a future location in China's pilot free trade zone (FTZ) in the province of Hainan (Hui, 2018). Once translated, the survey was reviewed by certified SLPs in China to ensure proper translation and understanding.

Participants

Parents and grandparents of young children with communication disorders in China were eligible to participate in this study. To be included in the study, parents, grandparents, and children must live in mainland China and speak Mandarin Chinese. The child with a communication disorder must meet the following criteria:

1. Suspected by the parent/grandparent as having at least one of the following communication disorders: speech sound disorder, expressive or receptive language disorder/delay, stuttering, or voice disorder.
2. Have had the communication disorder for more than 6 months as per parent report.
3. 7 years of age or younger.

Recruitment

Survey respondents were randomly recruited during a practicum section of DREAM-C Child Language Certification Training or caregiver education event in China provided by the Bethel Hearing and Speech Training Center team. Multiple training sessions were scheduled in hospitals and schools across China through the summer and fall months, and the study's survey was administered through the months of August, September, and October 2019 in Nanjing, Shanghai, Chengdu, Qingdao, and Xiamen, China. See Appendix E for exact training dates and locations of each caregiver education event. These popular events are typically attended by more than 50 parents and grandparents at each event. Each parent/grandparent training event one or two days. The first day of these events served to train and educate parents on how to facilitate speech and language growth in their child, and the second day was a practicum day which allowed the parents, grandparents, or other professionals to bring their child to be assessed by an SLP. All attendees of the events were included in an online group during and following the training course through the WeChat platform, a Chinese multi-purpose app.

Prior to the training on the first day of the event, participants were randomly selected to complete the survey based on willingness by Bethel clinicians and employees at the event. Willing participants then completed the survey, which was administered through the WeChat platform, before attending the training event. To recruit parents and grandparents who did not attend the training but brought their child for an assessment during the practicum, the same recruitment procedures and materials were used at the

beginning of the practicum training. All survey respondents were informed when they entered the site that the survey was completely voluntary, and they could discontinue at any point in time without penalties to themselves or their child. Failure to complete the survey would in no way affect the participants' ability to receive training and/or treatment.

Data Analyses

Data collection concluded in October of 2019 with analysis to follow. Survey results were translated from Mandarin to English by employees of the Bethel Hearing and Speech Training Center in Shanghai once data collection was completed.

In addition to descriptive statistics summarizing the demographic characteristics of respondents and respondents' children or grandchildren, analyses were completed to organize responses, confirm strategy groupings, and answer each research question. Using SPSS version 18, nonparametric statistics were used to answer each research question.

1) Do generational differences influence the parent and grandparent reported helpfulness of each strategy? Mann-Whitney tests were completed to determine if there were generational differences present in the perceived helpfulness of each strategy across the four strategy categories identified through the factor analysis (i.e., general child support, language changes, behavioral feedback, conversational manner).

2 & 3) Which home intervention strategies do parents and grandparents of children with communication disorders in China perceive to be most helpful and least helpful in enhancing their child's speech and language, and which strategies are they most likely or least likely to implement with their child or grandchild? Descriptive data, including mean

scores, standard deviations and rank orders, of the strategies for the parents and grandparents were examined to determine which home intervention strategies caregivers perceived to be most helpful and least helpful in enhancing their child's speech and language, and which strategies they were most likely or least likely to implement with their child or grandchild.

4) Is the reported perceived helpfulness of each strategy dependent upon the communication disorder of the child? A principal components analysis (PCA) was completed to verify the four communication disorder behavior groups categorized by the researchers prior to the study. Then, descriptive data, including mean scores, standard deviations and rank orders, of the strategies and reported communication behaviors were were examined in a cross table to determine is there were differences in the perceived helpfulness by caregivers based on their child's communication behaviors.

RESULTS

Demographic Data

A total of 86 caregivers completed the online survey. The final sample included 76 parents and 8 grandparents. One teacher and one other relative also completed the survey; this data was deleted from further analyses. Approxoimately three quarters of survey respondents were female (76%) and one quarter of the respondents were males (23%). The mean age of

parent respondents was 34 years (SD = 4.03; 21-45), and the mean age of grandparent respondents was 58 years (SD = 2.89; 55-63). Fifteen total Chinese cities were represented by the respondents. (See Table 1.)

A total of 86 children or grandchildren were represented in the survey. For simplicity, the remainder of this study will refer to both children and grandchildren as "children" unless further specification is necessary. Approximately two-thirds of the children were males. The mean age of children represented in the survey was 61 months (SD = 21.33; 31-128), or 5 years old. Of the children represented, 82.6% currently attend kindergarten, daycare, or some other form of school. Eight Chinese dialects were represented among the children, the most widely spoken being Mandarin and Northern (N=61). A total of 15 Chinese cities were represented. (See Table 2.)

In order to better understand the amount of contact caregivers had with their children, survey respondents were asked to indicate the percentage of time their child typically spends with various family members (see Table 3). Results revealed that the largest percentage of time was typically spent with the mother, with 71.2% of respondents reporting that 60% or more of the child's time was spent with the mother. Next, it was reported that 60% or more of the child's time was spent with the child's father (30.2%), followed by the paternal grandmother (26.7%), maternal grandmother (25.6%), paternal grandfather (16.3%), maternal grandfather (15.1%), and finally other relatives or teachers (12.8%). These results confirmed that the children in this sample often spent large amounts of time with their parents as well as their grandparents, supporting the researcher's decision to examine cross-generational differences in this study.

Characteristics of Children's Communication. To determine the nature of each child's communication problem, survey respondents were asked to select all communication behaviors listed on the survey that best described their child's speech and language. For example, "does your child repeat parts of words" or "does your child talk at inappropriate times." The communication behaviors listed on the survey were characteristics of four different types of communication disorders: speech sound disorder behaviors, stuttering behaviors, language disorder behaviors, and voice disorder behaviors (see Table 4). Communication behaviors were listed this way because research suggests that parents and grandparents often do not know what each specific communication disorder is or looks like. It was also listed this way for any respondants whose child had not yet received a specific diagnosis.

Children who were reported as exhibiting one or more behaviors in a category were considered to have that disorder in further analyses. If a respondant indicated that their child displayed one or more behaviors in multiple categories, they were considered to have both disorders and were included in all applicable communication behavior categories. Table 4 reports the percentages of children who exhibit various communication behaviors based on survey results. The most prevalent behaviors reported on the survey were speech sound errors (41%), poor or limited vocabulary (37%), not putting words together to form proper sentences (36%), unable to answer questions correctly (35%), repeating parts of words (32%), and not taking turns when having a conversation (32%). Next, respondents rated the severity of their child or grandchild's communication problem on a scale of 0-9, 0 representing no communication problem and 9 representing a severe communication problem. The mean severity of the reported communication problems was 3.86 (SD = 2.81; 0-9).

When asked if respondents had been told by a professional that their child or grandchild had any of the following diagnoses, the respondents reported following diagnoses: communication disorder (39.1%), Autism Spectrum Disorder (31%), cerebral palsy (3.4%), childhood apraxia of speech (1.1%), dysarthria (8.0%), learning disability (2.3%), and other (5.7%). Other diagnoses reported were developmental delay and mental developmental delay. A third of respondents (34.5%) reported that their child had not yet received a diagnosis from a professional. The mean age of diagnosis, if applicable, was 35.7 months (SD=15.28), or approximately 3 years.

Finally, respondents were asked to indicate if their child or grandchild had received treatment for their communication problem. Descriptive statistics revealed 51.7% (N=45) of respondents indicated that their child or grandchild had received treatment for their communication problem prior to completing the survey. To further understand the nature of each child's treatment, respondents who selected yes to this question were then asked to identify the nature of the treatments their child had received from a list. Responses included: oral motor strategies (17.2%, N=15), sensory integration (41.4%, N=36), everyday practice using strategies (23%, N=20), or other treatments (13.8%, N=12). Other treatments reported included language training, reading training, applied behavior analysis (ABA), frenectomy, attention training, and individual training. Respondents were then asked to assess how effective they believed the selected therapy options had been for their child or grandchild's communication on a 5-point Likert scale of 1-5, "1" being "not effective at all" and "5" being "extremely effective." Nearly half of respondents (48.9%) rated their child's treatment as greater than or equal to 3 on the

Likert scale; only 17.8% of respondents rated their child's treatment at greater than or equal to 4 on the Likert scale.

Home Strategy Categories

To confirm the groupings/themes of the home intervention strategy categories, the 21 strategies included on the survey were subjected to a principal components analysis (PCA) using SPSS version 24 and 26. Prior to performing the PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .30 and above. The Kaiser-Meyer-Olkin value was .90, a "marvelous" classification, exceeding the recommended value of .6 (Kaiser, 1974) and Bartlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of four components with eigenvalues greater than 1, explaining 57.0%, 10.0%, 5.6%, and 4.8% of the variance, respectively (Table 6). These four components were retained for further investigation. The four-components explained 77.4% of the total variance. To aid in the interpretation of these components, oblimin rotation was performed and revealed a number of strong loadings. The results of this analysis support the use of the four home intervention strategy categories in additional analyses in this study. The category coefficients for each strategy are reported in Table 7. A summary of the category and related items can be found in Appendix D.

In order to understand whether the questions in the survey all reliably measured the same latent variable, a Cronbach's alpha was run. Cronbach's alpha coefficients for strategy categories were .95 for general child support strategies, .93 for language changes strategies, .87 for behavioral feedback strategies, and .86 for conversational manner strategies (Table 5). These

coefficients verified the internal consistency of each category and revealed that strategies included in each category were highly correlated with Cronbach Alpha coefficients of .85 or greater for all.

Question 1: Are perceptions of the helpfulness of home intervention strategies different for parents and grandparents?

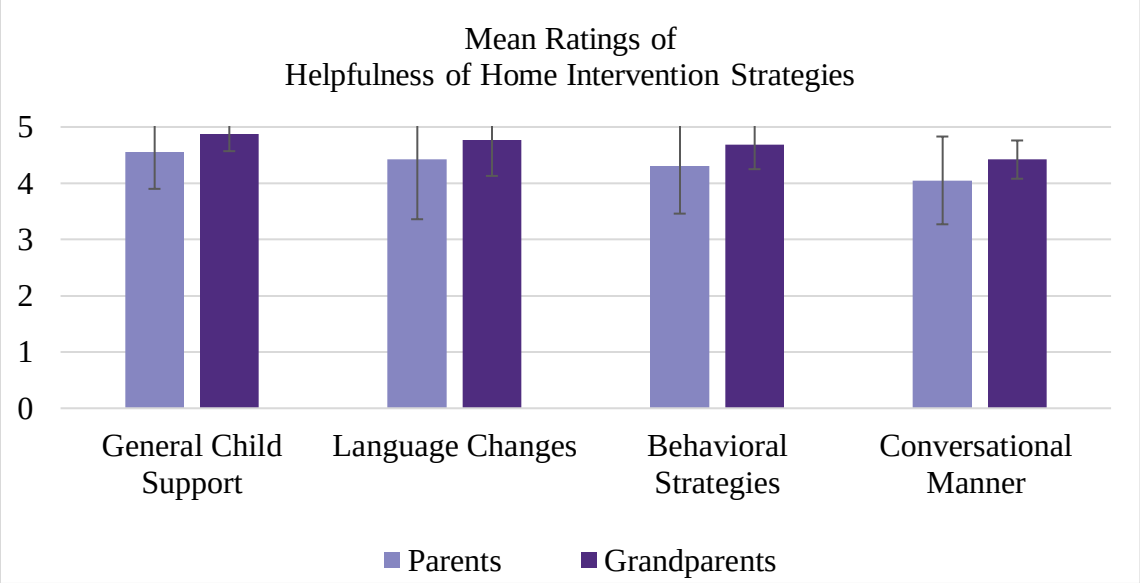
Recognizing that we had comparatively few grandparent responses (N=8), a non-parametric Mann-U Whitney test was used to determine if there were differences in the responses of the grandparent and parent groups. A Mann-Whitney U test was run to determine if there were differences in engagement score between parents and grandparents. Distributions of the engagement scores for parents and grandparents were similar, as assessed by visual inspection. For General Child Support strategies, median engagement score for parents (4.88) and grandparents (5.00) was not statistically significantly different, $U = 410$, $z = 1.704$, $p = .088$, using an exact sampling distribution for U (Dineen & Blakesley, 1973).

For Converstation Manner strategies, median engagement score for parents (4.33) and grandparents (4.50) was not statistically significantly different, $U = 345.5$, $z = .646$, $p = .519$, using an exact sampling distribution for U (Dineen & Blakesley, 1973).

For Behavioral Feedback strategies, median engagement score for parents (4.63) and grandparents (4.88) was not statistically significantly different, $U = 375$, $z = 1.116$, $p = .264$, using an exact sampling distribution for U (Dineen & Blakesley, 1973).

For Language Change strategies, median engagement score for parents (4.67) and grandparents (4.92) was not statistically significantly different, $U = 376$, $z = 1.138$, $p = .255$, using an exact sampling distribution for U (Dineen & Blakesley, 1973).

Findings revealed no statistically significant differences for any of the four strategies categories between parents and grandparents based on helpfulness scores. The average mean rating of helpfulness of all home intervention strategies combined was 4.34 for parents respondents and 4.69 for grandparent respondents (Table 8). Although mean ratings of helpfulness for the home intervention strategies tended to be slightly higher among grandparent respondents, no significant differences were found between the two respondent groups. These results suggest that age does not seem to influence caregiver's perceptions of the strategies. Since no difference was found, parent and grandparent survey data was combined for the rest of the analyses.



Question 2: What are caregivers' perceptions of the helpfulness of home intervention strategies?

To determine which intervention strategies were perceived most helpful for improving their child's speech and language, the mean ratings of the strategy categories were examined. Home intervention strategies ratings were based on a Likert scale of 1 to 5, with 1 being "not

helpful at all" and 5 being "extremely helpful." Mean helpfulness ratings were as follows: 4.60 (SD=.64) for general child support, 4.47 (SD=.74) for language changes, 4.25 (SD=.82) for behavioral feedback, and 4.08 (SD=1.03) for conversational manner (Table 9). Ranges for each strategy category were as follows: 3.14 for general child support (1.88-5.0), 4.00 for converstational manner (1.0-5.0), 4.00 for behavioral feedback (1.0-5.0), and 3.33 for language changes (1.67-5.0).

A Friedman two-way analysis of variance test was run to determine if there were differences in the perceived helpfulness across all strategy categories. Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons. Post hoc analysis revealed statistically significant differences in the mean helpfulness ratings of conversational manner strategies (*Mdn* = 4.33) and language change strategies (*Mdn* = 4.67) ($p \leq .01$), conversational manner strategies (*Mdn* = 4.33) and general child support strategies (*Mdn* = 4.88) ($p \leq .01$), and behavioral feedback strategies (*Mdn* = 4.75) and general child support strategies (*Mdn* = 4.88) ($p \leq .01$). No statistically significant differences were found in the helpfulness ratings between conversational manner and behavioral feedback strategies, behavioral feedback and language change strategies, or language change and general child support strategies (Table 10).

General child support strategies received the highest mean ratings for perceived helpfulness as well as the smallest standard deviation score, followed next by language changes strategies, behavioral feedback strategies, then conversational manner strategies. Conversational manner strategies received the lowest mean ratings of helpfulness and showed the largest amount of rating variance with a standard deviation score of 1.03 (Table 9).

Question 3: What is the reported likelihood of using these strategies with their child or grandchild?

Survey respondents were also asked to report their likelihood of using each specific home intervention strategy with their child or grandchild. Respondents, again, rated each strategy included on the survey on a Likert scale of 1 to 5, 1 being not likely to use and 5 being very likely to use. Mean likelihood of implementation ratings for each strategy category were as follows: 4.53 (SD=.62) for general child support, 4.40 (SD=.75) for language changes, 4.36 (SD=.90) for behavioral feedback, and 4.13 (SD=.98) for conversational manner (Table 9). The mean likelihood of implementation ratings for each strategy category reveal that caregiver's typically believed they were likely or very likely to implement these home intervention strategies with their child or grandchild. General child support strategies again received the highest mean ratings of likelihood of implementation among the four strategy categories and had the lowest standard deviation score of .62. The next highest rated strategy based on likelihood of implementation was language changes, followed by behavioral changes, then conversational manner. However, all strategies had means greater than 4 and standard deviations less than 1. Ranges for each strategy category were as follows: 2.75 for general child support (2.25-5.0), 4.00 for converstational manner (1.0-5.0), 4.00 for behavioral feedback (1.0-5.0), and 3.83 for language changes (1.17-5.0).

A Friedman two-way analysis of variance test was run to determine if there were differences in the reported likelihood of implementation across all strategy categories. Pairwise comparisons were performed with a Bonferroni correction for multiple comparisons. Post hoc analysis revealed statistically significant differences in the mean helpfulness ratings of

converstation manner strategies (*Mdn* = 4.33) and behavioral feedback strategies (*Mdn* = 4.58) ($p \leq .01$), as well as conversational manner strategies (*Mdn* = 4.33) and general child support strategies (*Mdn* = 4.88). No statistically significant differences were found in the helpfulness ratings between conversational manner and behavioral feedback strategies ($p = .017$) or behavioral feedback and general child support strategies ($p = .249$).

For likelihood ratings less than or equal to 2, respondents were asked to select from a provided list the reason(s) for not using the strategy. When prompted to indicate why they would not implement a strategy rated as a 0, 1, or 2, the most common response indicated by 41.5% of respondents was that the child can't do it. The next most common reasons why a caregiver was not likely to implement a strategy was that they didn't know how to do it (13.8%), the child won't cooperate (12.8%), and it won't work (11.7%). The child does not need it, it will create conflict, they are not with the child enough, or other reasons, including the child's language is not complex enough, each were selected in less than 10% of responses (Table 9).

Question 4: Is the reported helpfulness of strategies dependent upon child's communication disorder?

Finally, the percentages of respondents with mean strategy ratings of greater than or equal to 4 based on the child's communication behaviors were examined to determine if the reported helpfulness of the strategies was dependent upon the child's communication disorder (Table 12). Findings indicated again that caregivers perceived all strategies to be helpful in improving the child's speech and language regardless of the child's specific communication behaviors.

The data revealed 70.8% or more of caregivers rated the helpfulness of all strategies within each category as greater than or equal to 4 regardless of the child's perceived communication disorder (i.e. speech sound disorder behaviors, stuttering behaviors, language disorder behaviors, and voice disorder behaviors). General child support and language changes strategies received the highest percent of respondent ratings of greater than or equal to 4 across all communication behaviors, while fewer respondents rated the helpfulness of behavioral feedback and conversational manner strategies with a rating greater than or equal to 4.

DISCUSSION

The purpose of the current study was to examine cross-generational perceptions of parents and grandparents in China of home intervention strategies often used in the United States to treat communication disorders in children.

Generational Differences Observed (Question 1)

Results of the current study yielded no statistically significant differences in mean ratings of strategies based on helpfulness between parent and grandparent respondents. Therefore, the study's hypothesis that there would be differences between parents' and grandparents' perceptions of the home strategies in China was not supported.

Based on limited grandparent responses, no differences between parents' and grandparents' perceptions of the helpfulness of home intervention strategies were observed. This

result may also have been found since respondents as a whole tended to rate all strategies as helpful and that they were very likely to implement them; however, it is important to consider why there was a reduced number of grandparent respondents. The reduced grandparent response rate may be due to multiple factors. One factor may be the online response mode of the survey. Clinicians administering the survey reported that grandparents often needed assistance to complete the survey either because they were not familiar with the online response mode or they had reduced literacy skills. The online response mode of the survey limits respondents to those who have access to the online platform and are able to navigate it while completing the survey. Therefore, additional grandparents may have been present at the training sessions but were unable to complete the survey due to these limitations. Low grandparent response rates may also be due to the random recruitment process of participants. It is possible that grandparents opted to not take take the survey or were not asked as frequently as other caregivers at the training events. Future research and clinical practice should consider the levels of literacy and appropriateness of online or electronic communication when working with older generations in China. Clinicians should be sensitive to this finding and not assume that older generations in China will use online methods of communications for research, online training sessions, or for supporting treatment at home.

Perceived Helpfulness and Likeliness to Implement Strategies (Questions 2 &3)

Results of this study indicated that caregivers perceived all strategies to be helpful in improving the child's speech and language and that they would be very likely to implement them with their child or grandchild. Therefore, the study's hypotheses that caregivers would identify different strategies that may or may not be helpful and that they would identify strategies that

they would likely use and those they would not use with their child or grandchild were not supported.

Reported means and standard deviations revealed a high percentage of respondents rating home strategies as helpful or very helpful and that they were likely or very likely to implement them with their child or grandchild. Results also suggested very little variability between the perceived helpfulness and likeliness of implementation for each strategy. Additionally, results showed a very high correlation between the perceived helpfulness and the likelihood of implementation for all strategies (all $\leq .01$ except one), meaning respondents were likely to implement a strategy with their child if they perceived it to be helpful. Because of this, the discussion only discusses conclusions based on helpfulness ratings in the study. When prompted to indicate why they would not implement a strategy rated as a 0, 1, or 2, the most common response by far was that *the child can't do it,* followed by *I don't know how* and *the child won't cooperate*.

However, statistically significant differences were found in the helpfulness ratings between some of the specific strategy categories, even though there were no statistically significant differences between categories when looking at the mean ratings of ≥ 4. Results suggested that caregivers perceived language change strategies to be more helpful than conversational manner strategies, general child support strategies to be more helpful than conversational manner strategies, and general child support strategies to be more helpful than behavioral feedback strategies. In other words, caregives' results showed that they perceived a language change strategy, such as asking simple questions or following the child's lead, to be more helpful than conversational manner strategies, such as taking turns while speaking or

giving the child enough time to speak. Results also show that caregivers perceived general child support strategies, such as adding daily one-on-one time with their child or slowing down their daily pace, to be more helpful than behavioral feedback strategies, such as using more pauses or managing the child's behavior, and conversational manner strategies as listed above.

These results suggest that caregivers in China may have some sort of gut feeling gauge that some types of strategies will be more helpful for their children than others. Perhaps caregivers in China have do have idea of what their child would benefit from. There are many possible explanations for why caregivers' perceived each specific strategy category as more help than others. As general child support strategies and language changes received the highest mean ratings of helpfulness, it is possible that more children, despite their specific communication behaviors, could benefit from the use of these strategies at home. For example, most children would benefit from their caregiver building up their confidence or asking fewer and simpler questions. On the other hand, behavioral feedback was rated the lowest. It is possible that caregivers believe their children would not benefit if their caregiver corrects their speech.

Overall, findings that caregivers perceive most strategies to be helpful for their child or grandchild may be related to multiple factors. First, the response group represented a clinically based cohort of individuals seeking help for their child at the caregiver training events. These individuals, therefore, may inherently be more willing to implement strategies suggested by professionals since they are already seeking help and education. The survey respondents may also represent a group of individuals with a willingness or openness to try different strategies with the hopes of improvement in their child. Hence, respondent's may suggest that they are very likely to implement all strategies with their child simply because they are willing to try anything

in order to help their child. If a caregiver is desperate to help their child or grandchild, they may even be willing to implement strategies with them they may not typically perceive to be helpful or useful. The inability to study a community-based cohort is a common limitation in the field of speech-language pathology. Due to the nature of the speech-languague pathology profession, it is often challenging to find a control group to compare experimental group results to. Therefore, it is important to acknowledge that the results of this study may not generalize to all parents and grandparents of China.

These results may also be due to caregivers' deference to the expert who presented the strategies as potentially helpful. Traditional Chinese values have largely shaped and influenced the Chinese' high regard for authority (Zhai, 2017). Zhai (2017) identified three main components of traditional values of Chinese hierarchical social structures: obedience in family and school, preference for harmony in the community and the workplace, and prioritization of family and collective interests over personal interests. These values often contribute to a deference to those in higher statuses in order to avoid conflict and maintain a group's best interest (Zhai, 2017). The cultural desire to adhere to and respect authority among the Chinese people must be considered when evaluating the results of this study. Caregivers who display an attitude of amenability must feel comfortable expressing their opinions or asking questions to experts. Therefore, there may be a need to implement a system of checks and balances to create a psychologically safe environment for parents to raise concerns about a prescribed strategy when working with professionals with expertise. Researchers must help Chinese caregivers to realize that caregivers are the experts on their child and are a valuable team member of the intervention process.

Finally, the findings that caregivers generally indicated that all strategies would be helpful in improving their child's speech and language may be due to respondants' levels of literacy. Although survey respondants were not asked to report their sociaoeconmic status or level of education on the survey, the survey was distributed at the Bethel training events which took place in large, generally wealthy cities in China. According to Zimmer et al. (2010), those who live in urban communities in China have significantly more household wealth, higher levels of education, and are more likely to have health insurance than those who live in rural communities (Zimmer, 2010). Bethel employees who worked at the training events and recruited participates reported that most attendees are local in each city and rarely travel from long distances to attend the events. Therefore, it is appropriate to assume that the survey respondants in general could have higher levels of literacy and socioeconomic statuses when compared to the total population of China because of where the training sessions took place. Higher socioeconomic statuses and increased literacy levels would most likely increase respondant's knowlesge on which strategies may be helpful for improving their child's speech and language skills. However, researchers cannot confirm respondants' socioeconmicstatues to confirm this belief. Therefore, it is important for future researchers to collect socioeconomic and education related demographic information to examine if various levels of education impact the perceived helpfulness or likelihood of implementation of home strategies.

Perceived helpfulness based on child's communication behaviors (Question 4)

Findings again indicated that caregivers perceived all strategies to be helpful in improving the child's speech and language regardless of the child's specific communication

behaviors. Therefore, the study's hypothesis that the perceived helpfulness of each strategy would vary depending on the communication disorder of the child was not supported.

This result may be an implication of parents' and grandparents' reduced understanding of the nature of their child's communication problems or the home strategies described on the survey. We know that not all home intervention strategies will actually be helpful in improving a child's communication, and that specific communication behaviors often require specific intervention strategies. For example, we would not teach caregivers of children who stutter the same strategies as caregivers of children with voice disorders. Therefore, an important finding of this study is that caregivers of children in China may not fully understand the nature of their child's communication problems or the types of strategies that will be helpful for them in particular. Understanding the nature of a child's communication difficulties is essential to communicating with professionals about their child's problems and for selecting specific strategies that will be effective in meeting the specific needs of the child. It will be important in the future to educate parents and grandparents to help them understand their child's communication disorder and teach them home strategies that will be most helpful in improving their child's specific communication behaviors.

Conclusions and Future Research

Overall, the findings of this study reveal great potential for working with parents and grandparents of children with communication disorders in China through the implementation of home intervention strategies. Despite limited grandparent responses, no differences between parents' and grandparents' perceptions of the helpfulness of home intervention strategies were observed. Findings indicated that caregivers as a whole perceived all strategies to be helpful in

improving the child's speech and language regardless of the reported communication behaviors. These results may be related to the response group representing a clinically based cohort of individuals seeking help for their child, a willingness to try different strategies with the hopes of improvement in their child, a reduced understanding of the nature of their child's communication problems and/or the communication strategies described, a deference to the expert who presented strategies as potentially helpful, and respondants' potentially high socioeconomic statuses. Due to all these reasons, it is important to remember that the reults of this study may not generalize to the general population of China.

Future research, therefore, should focus on educating and supporting caregivers of children in China on the nature of communication disorders and what strategies would be helpful in improving the child's speech and language through a partnership between the clinician and caregiver. Developing caregiver-clinician partnerships may allow caregivers of children with communication disorders in China to better understand their role in the therapeutic process and build confidence in them to best work with their child. If Chinese caregivers are to partner with clinicians in meeting their child's needs, families will require education, support, and a possible suspension of current beliefs regarding their roles as caregivers. Thus, current training models used with caregivers in the United States will need to be adjusted when working with families in China.

Future research may also include administering additional surveys to caregivers of children with communication disorders in China to further understand the nature of children's communication behaviors in China and caregivers' perceptions of speech therapy methods and procedures used in the United States. Future surveys should prioritize collecting data from a

larger sample of grandparents of children with communication disorders in China to confirm or deny the results found in this study. In doing so, various modes of administration should be used to collect data from older generations in China, including both online and off-line response modes. It will also be helpful in future research to collect demographic information related to caregiver education levels in China to examine if various levels of education impact the perceived helpfulness or likelihood of implementation of home strategies.

Finally, future research may consider examining caregiver perceptions of the helpfulness of home intervention strategies through including strategies on a survey not commonly used in United States. Including "foil" type of questions on a survey may inform researchers on the extent of Chinese caregiver's deference to authority or willingness to try anything in order to help their child. If caregivers are willing to implement strategies that would typically be considered extreme or dangerous, such as "hit child after speech mistakes" or "say bad job after speech mistakes," clinicians must be especially mindful with how they educate and work alongside caregivers of children with communication disorders in China.

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References

About the American Speech-Language-Hearing Association (ASHA). (2019). Retrieved from https://www.asha.org/about/

Battle, D. E., & Aungst, R. (2007, August 1). Communication Disorders in China: Audiology and Speech-Language Pathology. https://leader.pubs.asha.org/article.aspx?articleid=2291985

Battle, D. E. (2012). *Communication disorders in multicultural and international populations* (4th ed.) [eBook]. St. Louis, MO: Elsevier Mosby.

Baxendale, J., & Hesketh, A. (2003). Comparison of the effectiveness of the Hanen Parent Programme and traditional clinic therapy. *International Journal of Language & Communication Disorders*, *38*(4), 397-415. doi:10.1080/1368282031000121651

Bethel Hearing and Speaking Training Center. (2020). Retrieved March 19, 2020, from https://www.linkedin.com/company/bethel-hearing-and-speaking-training-center

Chen, F., Liu, G., & Mair, C. A. (2011, December 1). Intergenerational Ties in Context: Grandparents Caring for Grandchildren in China. Retrieved February 3, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3337769/

Cheng, L. L. (2010). Emerging Issues in Health and Education in Asia-Pacific: A Focus on Speech-Language Pathology. *Folia Phoniatrica Et Logopaedica, 62*(5), 238-245. doi:10.1159/00031478

Council on Academic Accreditation in Audiology and Speech-Language Pathology. (2019). Standards for accreditation of graduate education programs in audiology and speech-language pathology (2017). Retrieved [date] from http://caa.asha.org/wpcontent/uploads/Accreditation-Standards-for-Graduate-Programs.pdf

Du, W. (2017, May). Chinese Cultural Perspectives and Interventions on Disabilities. Retrieved February 3, 2020, from https://lendblog.ahslabs.uic.edu/2017/05/29/chinese-cultural/

Franken, M.C. & Putker-de Bruijn, D. (2007). Restart-DCM Method. Treatment protocol developed within the scope of the ZonMW project Cost-effectiveness of the Demands and Capacities Model based treatment compared to the Lidcombe program of early stuttering intervention: Randomized trial. http://www.nedverstottertherapie.nl

Goh, E. C. (2006). Raising the Precious Single Child in Urban China-An Intergenerational Joint Mission Between Parents and Grandparents. *Journal of Intergenerational Relationships,4*(3), 6-28. doi:10.1300/j194v04n03_02

History of ASHA. (2020). Retrieved March 18, 2020, from https://www.asha.org/about/history/

Hui, L. (2018, October 16). China publishes plan for Hainan free trade zone. Retrieved February 3, 2020, from http://www.xinhuanet.com/english/2018-10/16/c_137536565.htm

Ip, M. L., Louis, K. O., Myers, F. L., & Xue, S. A. (2012). Stuttering attitudes in Hong Kong and adjacent Mainland China. *International Journal of Speech-Language Pathology, 14*(6), 543-556. doi:10.3109/17549507.2012.712158

Jones, M., Onslow, M., Packman, A., Williams, S., Ormond, T., Schwarz, I., & Gebski, V. (2005). Randomized controlled trial of the Lidcombe program of early stuttering intervention. Bmj, 331(7518), 659. doi: 10.1136/bmj.38520.451840.e0

Kaiser, A. P., & Hancock, T. B. (2003). Teaching Parents New Skills to Support Their Young Children's Development. *Infants & Young Children, 16*(1), 9-21. doi:10.1097/00001163-200301000-00003

Kaiser, A. P., & Roberts, M. Y. (2013). Parent-Implemented Enhanced Milieu Teaching with Preschool Children Who Have Intellectual Disabilities. *Journal of Speech, Language, and Hearing Research*, 56(1), 295-309. doi:10.1044/1092-4388(2012/11-0231)

Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrika, 39, 32-36.

Kelman, E., & Nicholas, A. (2008). Practical Intervention for Early Childhood Stammering: Palin PCI Approach. Retrieved from https://www.taylorfrancis.com/books/9781315169200

Lin, Q., Lu, J., Chen, Z., Yan, J., Wang, H., Ouyang, H., . . . Oyoung, B. (2016). A Survey of Speech-Language-Hearing Therapists Career Situation and Challenges in Mainland China. *Folia Phoniatrica Et Logopaedica,68*(1), 10-15. doi:10.1159/000442284

Liu, M., Zhang, Q., Lu, M., Kwon, C.-S., & Quan, H. (2007). Rural and Urban Disparity in Health Services Utilization in China. Medical Care, 45(8), 767–774. doi: 10.1097/mlr.0b013e3180618b9a

Logemann, J. A. (2005). Preparation of Speech-Language Pathologists in the United States: The Master's Degree. *Folia Phoniatrica Et Logopaedica*, 58(1), 55-58. doi:10.1159/000089000

Mcconachie, H., Randle, V., Hammal, D., & Couteur, A. L. (2005). A Controlled Trial of a Training Course for Parents of Children with Suspected Autism Spectrum Disorder. *The Journal of Pediatrics, 147*(3), 335-340. doi:10.1016/j.jpeds.2005.03.056

Millard, S. K., Nicholas, A., & Cook, F. M. (2008). Is Parent–Child Interaction Therapy Effective in Reducing Stuttering? *Journal of Speech, Language, and Hearing Research*, 51(3), 636–650. doi: 10.1044/1092-4388(2008/046)

Millard, S. K., Zebrowski, P., & Kelman, E. (2018). Palin Parent–Child Interaction Therapy: The Bigger Picture. American Journal of Speech-Language Pathology, 27(3S), 1211–1223. doi: 10.1044/2018_ajslp-odc11-17-0199

Miller, B., & Guitar, B. (2009). Long-Term Outcome of the Lidcombe Program for Early Stuttering Intervention. *American Journal of Speech-Language Pathology*, 18(1), 42-49. doi:10.1044/1058-0360(2008/06-0069)

Occupations Code. (2019, September). Retrieved from https://www.tdlr.texas.gov/slpa/slpalaw.htm

Onslow, M., Webber, M., Harrison, E., Arnott, S., Bridgeman, K., Carey, B., Sheedy, S., O'Brian, S., MacMillian, V., Lloyd, W. (2019). The Lidcombe Program Treatment Guide. Lidcombe Program Trainers Consortium.

Prelock, P. A., Hutchins, T., & Glascoe, F. P. (2008). Speech-Language Impairment: How to Identify the Most Common and Least Diagnosed Disability of Childhood. *The Medscape Journal of Medicine* .

Roberts, M. Y., & Kaiser, A. P. (2011). The Effectiveness of Parent-Implemented Language Interventions: A Meta-Analysis. *American Journal of Speech-Language Pathology, 20*(3), 180-199. doi:10.1044/1058-0360(2011/10-0055)

Sonneville-Koedoot, C. D., Stolk, E., Rietveld, T., & Franken, M.-C. (2015). Direct versus Indirect Treatment for Preschool Children who Stutter: The RESTART Randomized Trial. *Plos One*, *10*(7). doi: 10.1371/journal.pone.0133758

Tang, Jie; Wang, Rumi; Zhang, Manchun et. al. (2016). Survey and Analysis of China's current status of Speech therapists through internet. The Journal of Chinese Physical Medicine and Rehabilitation, 38 (8).

What is ASHA certification? (2020). Retrieved March 19, 2020, from https://ashacertified.org/about/

Wu, P., Robinson, C. C., Yang, C., Hart, C. H., Olsen, S. F., Porter, C. L., . . . Wu, X. (2002). Similarities and differences in mothers' parenting of preschoolers in China and the United States. *International Journal of Behavioral Development, 26*(6), 481-491. doi:10.1080/01650250143000436

Zhai, Y. (2017). Values of deference to authority in Japan and China. *International Journal of Comparative Sociology*, 58(2), 120–139. doi: 10.1177/0020715217694078

Zimmer, Z., Wen, M., & Kaneda, T. (2010). A multi-level analysis of urban/rural and socioeconomic differences in functional health status transition among older Chinese. *Social Science & Medicine, 71*(3), 559-567. doi:10.1016/j.socscimed.2010.03.048

Table 1

Characteristics of Respondents

	Parents (N=76)	Grandparents (N=8)	Total Parents & Grandparents (N=86)
Age *Mean* (SD; range)	33.97 yrs. (4.03; 21-45)	58.00 yrs. (2.89; 55-63)	36.19 yrs. (7.80; 21-63)
Gender			
Males	18 (23.7%)	2 (25%)	20 (23.0%)
Females	58 (76.3%)	6 (75%)	66 (75.9%)
Cities Represented	11	6	15

Table 2

Characteristics of Children (N=86)

Age *Mean* (SD; range)	61 mos. (21.33; 31-128)
Gender	
Males	58 (66.7%)
Females	28 (32.2%)
Cities Represented	15
Attends Kindergarten/ daycare/school	82.6%
Dialect Spoken	
Mandarin & Northern	61 (70.1%)
Cantonese	1 (1.1%)
Hokkien	7 (8.0%)
JAC	7 (8.0%)
Other**	3 (3.4%)
Southwest	20 (23.0%)
Wu	4 (4.6%)

*Total includes 1 teacher and 1 relative who serves as the daily caregiver
**Other: English, Hakka

Table 3

Percent of Time Child Spent with Family Members

	Mother	Father	Paternal Grandmother	Paternal Grandfather	Maternal Grandmother	Maternal Grandfather	Other
0%	1.1	4.6	33.3	43.7	35.6	40.7	45.3
20%	5.7	32.2	29.9	32.2	21.8	30.2	31.4
40%	20.7	32.2	9.2	6.9	16.1	14	10.5
60%	21.8	19.5	12.6	11.5	12.6	9.3	5.8
80%	35.6	6.9	11.5	4.6	10.3	5.8	4.7
100%	13.8	3.4	2.3	0	2.2	0	2.3

Table 4

Characteristics of Children's Communication

Communication Behaviors	% of Children Exhibiting Behavior
Speech Sound Disorder Behaviors (N=45)	
Speech sound errors	41.4%
Hard for others to understand child	26.4%
Stuttering Behaviors (N=44)	
Has difficulty starting speech	13.8%
Blocks on sounds/words	24.1%
Stretches out the beginnings of words	3.4%
Repeats parts of words	32.2%
Makes faces or has tension in his/her face when trying to say something	13.8%
Language Disorder Behaviors (N=65)	
Doesn't understand what is said to him/her	29.9%
Unable to follow directions	11.5%
Does not put words together to form proper sentences	35.6%
Poor or limited vocabulary	36.8%
Has trouble reading and writing	19.5%
Talks at inappropriate times	27.6%

Has trouble starting and ending conversations	13.8%
Cannot answer questions correctly	34.5%
Does not take turns when having a conversation	32.2%
Voice Disorder Behaviors (N=34)	
Speaks too softly	24.1%
Has a hoarse/rough voice	1.1%
Pitch is too high	14.9%
Sounds too nasal or as if nose is closed off	5.7%
Non-Specific Communication Concerns	
Gets upset about his/her speech difficulties and/or is afraid to talk	13.8%
Speaks too quickly	23.0%
Speaks too slowly	5.7%
Does not speak very much	23.0%

Table 5

Reliability Estimates for Strategy Categories Based on Helpfulness

Category/Factor	Cronbach's Alpha
General Child Support (e.g., build child's confidence)	.95
Language Changes (e.g., use parallel talk)	.93
Behavioral Feedback (e.g., ask child to correct his speech)	.87
Conversational Manner (e.g., take turns while speaking)	.86

Table 6

Principal Component Analysis Total Variance Explained for Strategy Categories

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	11.96	56.97	56.97
2	2.09	9.95	66.92
3	1.19	5.65	72.565
4	1.00	4.78	77.35
5	.79	3.74	81.09
6	.60	2.88	83.97
7	.46	2.17	86.14
8	.39	1.84	87.98
9	.36	1.70	89.68
10	.33	1.58	91.26
11	.29	1.39	92.65
12	.28	1.22	93.87
13	.23	1.10	94.97
14	.21	1.01	95.98
15	.19	.88	96.87

16	.16	.77	97.63
17	.13	.63	98.26
18	.12	.59	98.85
19	.11	.53	99.37
20	.08	.36	99.73
21	.06	.27	100.00

Table 7

Princical Component Analysis Pattern Matrix for Strategy Categories

	Component			
	1	2	3	4
Add daily one-on-one time	**.912**			
Address your child's emotional reactions	**.878**			
Have fun with your child	**.861**			
Ensure adequate sleep	**.859**			
Accept mistakes in your child's speech	**.835**			.351
Slow down your daily pace	**.746**			
Match your rate of speech to your child's rate of speech	**.728**			
Build your child's self confidence	**.715**			
Signal that you are listening		**.851**		
Give your child sufficient time to speak		**.848**		
Take turns while speaking		**.782**		

Ask your child to correct his/her own speech			**.816**	
Use more pauses in your speech			**.801**	
Praise your child for correct speech			**.726**	-.371
Manage your child's behavior	.401		**.417**	
Expand your child's utterances				**-.687**
Use parallel talk				**-.604**
Decrease your negative reactions to speaking difficulties	.455			**-.501**
Talk using your child's language level		.400		**-.464**
Follow your child's lead	.361			**-.446**
Ask fewer and simpler questions	.331	.307		**-.434**

Extraction Method: Principal Componenet Analysis.

Rotaion Method: Oblimin with Kaiser Normalization.

Rotation converged in 13 iterations.

*Component 1: General Child Support Strategies

Component 2: Conversational Manner Strategies

Component 3: Behavioral Feedback Strategies

Component 4: Langauge Change Strategies

Table 8

Parent Versus Grandparent Mean Ratings of Helpfulness of Home Intervention Strategies

	Parents (N=76)	Grandparents (N=8)
General Child Support	4.56	4.88
Language Changes	4.33	4.77
Behavioral Feedback	4.31	4.69
Conversational Manner	4.05	4.42

Table 9

Means (SDs) of Strategies Based on Helpfulness and Likelihood of Use

Strategy Categories	Helpfulness	Likelihood
General Child Support	4.60 (.64)	4.53 (.62)
Language Changes	4.47 (.74)	4.40 (.75)
Behavioral Feedback	4.35 (.82)	4.36 (.90)
Conversational Manner	4.08 (1.03)	4.13 (.98)

Table 10

Pairwise Comparisons Between Strategy Categories

Sample 1 – Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig
Mean Conversational Manner Strategies – Mean Behavioral Feedback Strategies	-.390	.197	-1.979	.048	.287
Mean Conversational Manner Strategies – Mean Language Change Strategies	-.698	.197	-3.544	.000	.002
Mean Conversational Manner Strategies – Mean General Child Support Strategies	.983	.197	4.991	.000	.000
Mean Behavioral Feedback Strategies – Mean Language Change Strategies	-.308	.197	-1.565	.118	.705
Mean Behavioral Feedback Strategies – Mean General Child Support Strategies	.593	.197	3.012	.003	.016

Mean Language Change Strategies – Mean General Child Support Strategies	.285	.197	1.447	.148	.887

Table 11

Reasons Reported for Reduced Likelihood of Using the Strategies

Reason Caregiver Not Likely to Implement	Frequency of Selection
Child Can't Do It	41.5%
I Don't Know How	13.8%
Child Won't Cooperate	12.8%
It Won't Work	11.7%
Child Does Not Need It	8.6%
It Will Create Conflict	4.3%
Not with Child Enough	4.3%
Other	3.2%

Table 12

Percentage of Respondents' Mean Strategy Ratings ≥ 4 Based on Child's Communication Behavior

Strategy Category	Speech Sound Disorder Behaviors	Stuttering Behaviors	Language Disorder Behaviors	Voice Disorder Behaviors
General Child Support	88.9	90.0	90.8	91.2
Language Changes	82.2	90.9	89.2	91.2
Behavioral Feedback	77.8	79.5	80.0	79.4
Conversational Manner	73.3	75	70.8	73.5

Appendix A

Comprehensive List of Home Intervention Strategies Commonly Used in the United States

Home/Parent Intervention Strategies											
	Include in Survey	1 RESTART	10 Palin PCI	2/4 Roberts & Kaiser	3 Kaiser & Hancock	11 Lidcombe Program	5 Baxendale & Hesketh	6 Mcconachie et al.	7 Te Kaat-van den Os	8 Cologon Wicks & Salvador	9 Pennington & Noble
Interaction Content / Language											
Follow child's lead in play / Be responsive to child's verbal behavior / Regard all communicative efforts as meaningful ○ Watching what the child is doing, commenting on and responding to what the child is interested in ○ Allowing child to solve problems himself ○ Joining the child in his chosen activity and copying what the child is doing	YES	X	X		X				X	X	
Letting child solve problems			X								

More comments than questions			X						X		
Nature of questions – closed or forced choice		X									
One question at a time & wait for an answer		X			X						
Complexity of questions at child's level	YES		X		X						
Language is appropriate to child's level / Converse at child's level / Parent language level consistency / Simplified language	YES	X	X		X						X
Do not ask child to repeat a mis-pronounced word if he is not yet able to pronounce all of the sounds (still learning)		X									
Decrease information density by saying the same word/sentence structure in different contexts		X									
Provide age appropriate knowledge		X									
Language is semantically contingent on child's focus			X								
Repetition, expansion, rephrasing / Emphasizing	YES x2	X	X	XX	X			X		X	X

key words / Use parallel/reflexive talk / Recasting child's utterance / Mirroring & mapping											
Model how to describe word if child can't think of it		X									
Praise & encouragement ○ Build confidence by praising specific attributes the child showed in an action ○ Praise the child for good speech	YES		X			X		X			
Avoid demand speech (e.g., recite rhymes, tell stories)		X									
Offer choices				X							
Focus on content of child's speech – what rather than how he speaks		X									
Give clear, simple instructions					X						
Give limited amount of instructions / More responsive, less directive					X				X		
Model specific child language targets				X							
"Say" Prompt				X							

Ask the child to correct his speech	YES					X					
Interaction Structure / Form											
Time to initiate, respond, finish / Sufficient talking time / WAIT & give the child time to respond o Listen to the child and ensure that he has finished speaking before the parent speaks again	YES	X	X	X	X				X	X	X
Rate of input when compared with child's rate / Speak at a slow-to-normal rate o Try to match your rate to the child's rate o Maintain naturalness and normal intonation	YES	X	X								X
Use of pausing / Add more pauses o Allow silences to happen	YES	X	X								

○ Use loner pauses before speaking and between utterances											
Use normal eye contact, position, touch, humor and/or surprise / Fun physical contact / Smiles and laughter	YESx2	X	X					X			X
Speak with a calm, easy, relaxed speech		X									
Model normal disfluencies in calm, relaxed way		X									
Balance of child / parent utterances		X									
Balance of turn taking / Turn taking as a family strategy	YES	X	X	X	X		X	X	x		
Avoid interrupting		X									
Musicality of speech								X			
Improve Parent Responsiveness				XX							
Regard all communicative efforts as meaningful										X	
Lifestyle / Family Strategies											
Special times / Interacting one-on-one with child for 5-15 minutes a day	YES	X	X			X					
Managing two languages			X								

Building Confidence / Self-confidence / Self-esteem	YES	X	X								
Address child's emotional reactions / Dealing with feelings / Prevent/reduce emotional reactions around the child/ Neutralize negative emotions ○ Accept child's feelings ○ Put feelings into words ○ Find ways to help child vent feelings	YESx2	X	X		X						
High standards ○ Help child become less sensitive to speech, more tolerant of stumbles, and able to accept "good-enough" rather than "perfect" speech			X								
Ensure the child gets enough sleep	YES	X	X								
Behavior management / Provide limits/discipline	YES	X	X								

○ Manage child's behavior when he misbehaves ○ Encourage cooperation ○ Noticing what is going well											
Routines / Maintain consistent routines (e.g., specific bedtime sequence) / Offer structure		X	X								
Slow down the pace of life / Daily pace ○ Reduce the number of commitments and activities ○ Avoid last-minute rushing ○ Add extra help to meet all of the responsibilities	YES	X	X								
Provide support for child during periods of transition or disruption (holidays, moving, etc.)			X								
Recognize need for less talking (e.g., when stuttering is worse)		X									

Structure conflict situation		X									
Reinforce child's feeling of security / ensure child feels seen and heard		X									
Quiet times		X									
Help child cope with high degrees of arousal / excitement / tension		X									
Use turn-taking and rules for conversation		X	X								
In final phase, desensitize to communication pressures		X									
Postpone speech when little time to talk		X									
Track and report speech difficulties to clinician		X	X			X					
Child Strategies											
Rate reduction			X								
Pausing to think			X								
Easy onset			X								
Being more concise			X								
Eye contact/focus of attention	YES		X								
Speech Motor Training (i.e., accurate, fluent smooth, sufficiently rapid)		X									
Promote the idea of easy, carefree communication		X									

Slow vs. fast		X									
Trying too hard – goes more smoothly if don't try so hard		X									
Use more normal disfluencies (i.e., modify child's stuttering)		X									
Stuttering Specific Strategies											
Openness about stuttering / Discuss stuttering in neutral, nonjudgmental way ○ Learning what to say when child is struggling with speech or other things (e.g., oh that was hard to say, wasn't it?)		X	X								
No speech advice		X									
Minimize own perfectionism		X									
Model how to make mistakes ○ Help child see that we all make mistakes	YES	X	X								
Modify unhelpful non-verbal reactions to stuttering		X									
Use a calm, acknowledging attitude toward stuttering		X									

Stuttering is allowed (you are learning to talk)		X									
Model easy disfluencies to help child become less sensitive to stuttering		X									
Stuttering is allowed (not great at doing everything)		X									
Use stories to help child's deal with strong negative feelings about talking & stuttering		X									
Produce disfluencies in speech and show how to react and not be afraid of stuttering		X									
Other Strategies											
Language & phonology therapy		X	X								
School or preschool liaison			X								
Onward referral (referral to other professionals as needed)			X								
Provide language stimulation to eliminate imbalance		X									
Improve word retrieval		X									
Improve/automatize sentence production		X									

Improve pragmatic skills		X									

1. Franken, M.C. & Putker-de Bruijn, D. (2007) (RESTART)
2. Roberts and Kaiser, 2011
3. Kaiser and Hancock, 2003
4. Roberts and Kaiser, 2012
5. Baxendale and Hesketh, 2003
6. Mcconachie et al, 2005
7. Te Kaat-van den Os, 2017
8. Cologon Wicks and Salvador, 2017
9. Pennington and Noble, 2009
10. Kelman & Nicholas, 2017 (PCI)
11. Lidcombe Manual

Appendix B

Parent and Grandparent Survey

PART 1: DEMOGRAPHIC INFORMATION
第一部分：基本信息

1. Your Gender
   您的性别
2. Your Date of Birth
   您的生日
3. City You Live In
   您居住的城市

The following questions are about your child or grandchild:
以下信息是关于您的孩子/孙子：

4. Child's Date of Birth
   孩子的生日
5. Child's Gender
   孩子的性别
6. City Child Live In
   孩子居住的城市
7. What's your relationship with child? Select one.
   您和孩子的关系是什么？请选一个。
   a. Mother 妈妈
   b. Father 爸爸
   c. Paternal Grandmother 奶奶

d. Paternal Grandfather 爷爷
e. Maternal Grandmother 外婆/姥姥
f. Maternal Grandfather 外公/姥爷
g. Other 其他

8. What language(s) does the child speak? Check all that apply.Checkboxes for language choices.
孩子会说哪些语言？请选择所有适用的答案。
   a. Mandarin dialect and Northern dialect (Beijing and Tianjin, Hebei, Henan, Shandong, and Inner Mongolia section)
普通话及华北方言（京津两市、河北、河南、山东，及内蒙古一部分
   b. Wu dialect (including the southern part of Jiangsu, Zhejiang, Shanghai, and southern Anhui)
吴语（包括江苏南部、浙江、上海和安徽南部）
   c. Jin dialect (most of Shanxi, the northern part of Shaanxi, western and southern Hebei, northern Henan, central and western Inner Mongolia)
晋话（山西大部分以及陕西北部、河北西部及南部、河南北部、内蒙古中西）
   d. JAC dialect (Anhui, Jiangsu, north of the Yangtze along the river, south of the Yangtze along the river)
江淮方言（安徽，江苏长江以北，长江南岸沿江一带）
   e. Xiang dialect (Hunan)
湘话（湖南）
   f. Northwest dialect (Shaanxi, Gansu, Qinghai, Ningxia, part of Inner Mongolia, Xinjiang Han)
西北方言（陕西、甘肃、青海、宁夏、内蒙古一部分、新疆汉族人）
   g. Sourthwest dialect (Sichuan, Yunnan, Guizhou, most of Hubei, northwestern Guangxi, northwest Hunan)
西南方言（四川、云南、贵州、湖北大部分、广西西北部、湖南西北部）
   h. Cantonese (Guangdong, part of Guangxi, Hong Kong, and Macao)
粤语（广东、广西一部分、香港和澳门）
   i. Hokkien dialect (Fujian, Taiwan, and Hainan)
闽南话（福建、台湾和海南）

9. Indicate the amount of time the child spends with the following persons.
填写孩子与以下人相处的时间比例。
   a. Mother 妈妈 (percentage dropdowns: 20%, 40%, 60%, 80%, 100%)
   b. Father 爸爸

c. Paternal Grandmother 奶奶
d. Paternal Grandfather 爷爷
e. Maternal Grandmother 外婆/姥姥
f. Maternal Grandfather 外公/姥爷
g. Other 其他

10. Is your child/grandchild attending kindergarten/daycare/school?
您的孩子/孙子在上幼儿园或者上学吗？
    a. Yes 在
    b. No 还没有
11. Does your child/grandchild have any of the following behaviors? Select all that apply:您的孩子/孙子有出现以下行为吗？选择所有适用的答案：
    - ☐ Doesn't pronounce speech sounds properly (se se instead of xiexie)/substitutes an incorrect sound for a correct sound (dede instead of gege)/adds or leaves out sounds in words (o instead of wo, yao*upsidedown-e* instead of yao)
      孩子不能准确发音/孩子说话时会把一个音发成另一个错误的音（比如将"gege"发成"dede"）/孩子在字词里加入或删去一些音（比如将"wo"发成"o"，或将"yao"发成"yə"）
    - ☐ Hard for others to understand child
      其他人很难理解孩子说的话
    - ☐ Has difficulty starting speech 孩子要开始说话时有困难
    - ☐ Blocks on sounds/words (i.e., gets stuck on sounds/words and sound cannot come out)
      孩子在某些音或词上出现卡顿现象（比如，在音/词上卡住，声音说出不来）
    - ☐ Repeats parts of words
      孩子重复部分字词
    - ☐ Stretches out the beginnings of words (e.g.. "m --> ommy")
      孩子延长字词开始的音（比如，m---妈妈）
    - ☐ Makes faces or has tension in his/her face when trying to say something
      当尝试说什么的时候，孩子会有表情变化或者面部肌肉会紧张

- ☐ Gets upset about his/her speech difficulties and/or is afraid to talk
  孩子对自己的言语困难感到沮丧，及/或者害怕说话
- ☐ Speaks too softly
  孩子说话太轻
- ☐ Speaks too quickly
  孩子说话太快
- ☐ Speaks too slowly
  孩子说话太慢
- ☐ Has a hoarse/rough voice
  孩子嗓音嘶哑
- ☐ Pitch is too high
  孩子说话音调很高
- ☐ Sounds too nasal or as if nose is closed off (i.e., talking through his/her nose; sounds like nose is blocked or has a cold)
  孩子鼻音比较重或者好像鼻子堵住了（比如，通过鼻腔说话或者听上去好像感冒鼻子堵住了）
- ☐ Doesn't understand what is said to him/her
  孩子不理解别人跟他/她说的话
- ☐ Unable to follow directions
  孩子不能听从指令
- ☐ Does not put words together to form proper sentences
  孩子不能把词放一起组成合适的句子
- ☐ Poor or limited vocabulary
  孩子词汇量少或有限
- ☐ Does not speak very much
  孩子不怎么说话
- ☐ Has trouble reading and writing
  孩子有阅读和写作困难

- ☐ Talks at inappropriate times
  孩子会在不恰当的时候说话
- ☐ Has trouble starting and ending conversations
  孩子在开始以及结束对话方面有困难
- ☐ Cannot answer questions correctly
  孩子不能准确回答问题
- ☐ Does not take turns when having a conversation (interrupts others, dominates conversation, etc.)
- ☐ 孩子在对话中不能进行轮流（比如会打断别人或者总是主导对话等等）

12. How severe is your child's communication problem/difficulty? (Likert scale 0-9 – label 0, 1 and 9 only)
    您的孩子的沟通困难有多严重？
    a. 0 – no communication problem 没有沟通困难
    b. 1 – extremely mild problem 困难非常轻微
    c. 9 – extremely severe problem 困难非常严重
13. Have you been told by a professional (e.g., a pediatrician, a therapist, a teacher, a psychologist) that your child has any of the following? Select all that apply:
    有没有专业人士（比如，儿科医生、治疗师、老师、心理医生）告诉您孩子有以下情况？选择所有适用的答案：
    a. Communication disorder (e.g., articulation disorder, language delay/disorder, stuttering, voice disorder)
       沟通障碍（比如，语音障碍，语言迟缓/障碍，口吃，嗓音障碍）
    b. Autism Spectrum Disorder 自闭症谱系障碍
    c. Cerebral Palsy 脑瘫
    d. Hearing loss 听力损失
    e. Childhood apraxia of speech 儿童言语失语症
    f. Dysarthria 构音障碍
    g. Learning Disability (reading, writing, spelling/character structure) 学习障碍（阅读，写作，拼写）
    h. Down Syndrome 唐氏综合征
    i. Cleft lip and palate 唇腭裂

j. None 无
k. Other 其他: _____

14. When was the child diagnosed with this disorder? (check list)
孩子是什么时候被诊断的？
    a. Date of diagnosis 诊断日期
15. Has your child received any treatment for his/her communication problem?
孩子有因为他/她的沟通困难接受过任何治疗吗？
    a. Yes 有
    b. No 没有
16. If yes – Which treatment has he/she received? Select all that apply:
如果有，孩子接受了哪些治疗？选择所有适用的答案：
    a. Oral motor treatment 口肌治疗
    b. Everyday practice using strategies 使用策略每天练习
    c. Sensory integration 感统
    d. Other 其他: _____
17. How effective has this therapy been? -5 -point scale with only 1 and 5 labeled
孩子接受的治疗有效吗？
    a. 1 - Not at all effective 完全无效
    b. 5 - Extremely effective 非常有效

PART 2: COMMUNICATION STRATEGIES
第二部分：沟通策略

Please rate the following communication strategies on two scales.
First, on a scale of 1-5, rate how helpful you think the strategy would be for your child/grandchild, 1 = not at all helpful and 5 = extremely helpful.
Second, on a scale of 1-5, rate how likely it would be that you would implement these strategies with your child/grandchild, 1 = Not at all likely and 5 = extremely likely.
请对以下沟通策略从两方面进行评分。
首先，在 1-5 的范围内，评价您觉得这个策略对您的孩子有没有帮助，1 是没有帮助，5 是非常有帮助。
其次，在 1-5 的范围内，评价您来和孩子实施这个策略的可能性多大，1 是没有可能，5 是非常有可能。

#	**Strategy** 策略	**Description** 描述	**Example** 例子	**How helpful do you think this suggestion would be for your child/ grandchild?** 您觉得这条建议对您的孩子有没有帮助?	***How likely would it be that you would implement this strategy with your child/ grandchild?*** *您来和孩子实施这条建议的可能性多大?*
				Not At All Helpful = 1 **Extremely Helpful =5** **没有帮助 = 1** **非常有帮助 = 5**	**Not At All Likely = 1** **Extremely Likely = 5** **没有可能 = 1** **非常有可能 = 5**

				NOTE: Only label 1 and 5 on the 5-point scale	NOTE: Only label 1 and 5 on the 5-point scale
	Strategies to use when talking to and/or playing with your child: **和孩子对话和/或玩耍时可实施的策略：**				
	Strategy	**Description**	**Example**		
1	Give your child sufficient time to speak 给孩子足够时间说话	Allow your child enough time to start and finish speaking before you speak. 在您开始说话前，让孩子有足够的时间开始和结束想说的话。	When child begins to tell a story, wait patiently until he/she finishes. 当孩子开始说一个故事，耐心等待孩子说完。	1-5	1-5
2	Signal that you are listening 表示您在听	Let your child know you are listening to him/her by using gestures and maintaining eye contact. 用手势以及保持目光注视让孩子知道您在听他/她说话。	While child is speaking, put your hand to your ear to demonstrate you are listening; look at your child when he is speaking to signal listening. 当孩子说话时，您把手放到耳边表示您在听；孩子说话时看着孩子表示您在听。	1-5	1-5
3	Take turns while speaking 轮流对话	Evenly alternate child speaking and parent speaking and avoid interruptions. 孩子和家长轮流说话，并避免打断。	Allow child to speak after you speak. The number of utterances spoken by you and your child should be relatively equal. 让孩子在您说完之后说话。您说的句子数量和孩子说的句子数量应该差不多相等。	1-5	1-5

4	Talk using your child's language level 用孩子的语言水平和孩子对话	Speak in sentences that are also appropriate for child and use vocabulary that is age and developmentally appropriate for your child. 说符合孩子水平的句子，并使用从孩子年龄和发育角度来说适合孩子的词汇。	Avoid using advanced vocabulary or long sentences with children who are just beginning to speak. 当孩子刚开始说话时，避免使用深奥的词汇或者长句子。	1-5	1-5
5	Use parallel talk 使用平行说话	Describe what you and the child are doing while you are playing. 在玩的时候描述您和孩子在做什么。	Child is playing with a car. Caregiver: "You are driving your red car." 孩子在玩车。照顾者说"你在开你的红色的车。"	1-5	1-5
6	Follow your child's lead 跟随孩子的主导	Follow child's initiative and attend to child's interests, rather than suggesting new subjects the child must attend to. 跟随孩子的发起，并关注孩子的兴趣，而不是建议一些新的事物让孩子必须关注和参与。	Watch what the child is doing and talk about what the child wants to talk about; Play with toys the child wants to play with. 观察孩子在做什么，且和孩子聊孩子想要聊的内容；和孩子玩孩子想要玩的玩具。	1-5	1-5
7	Ask fewer and simpler questions 问问题少一些，且简单一些	Comment on what the child is doing rather than asking questions. When asking questions, focus on things happening in the current moment. Ask only one question at a time and patiently wait for an answer. 评价孩子在做什么而不是问问题。	Child is drawing. Caregiver: "I am wondering what you are drawing." Child does not have to respond. 孩子在画画。照顾者： "我在想你在画什么。"孩子不需要回答这个问题。	1-5	1-5

		问问题时，关注当下正在发生的事情。每次只问一个问题，且耐心等待孩子回答。			
8	Expand your child's utterance 扩展孩子说的句子	Repeat child's sentence back to child and add more complex language or vocabulary to it. 重复孩子说过的话给孩子听，同时加入更复杂的语言或词汇。	Child: "Dog." Caregiver: "Yes, that is a brown dog." 孩子说："狗。" 照顾者说："对，那是棕色的狗。"	1-5	1-5
9	Ask your child to correct his/her own speech 让孩子修正自己说的话	Tell the child to say a sentence again when his/her utterance has speech errors. 当孩子说的话里有言语错误时，告诉孩子把句子重说一遍。	Child: "W-w-where is dad?" Caregiver: "Can you say that again?" 孩子说："爸爸在哪哪哪里？" 照顾者说："你可以再说一遍吗？"	1-5	1-5
10	Praise your child for correct speech 夸奖孩子的正确的言语	Praise your child for good talking when the child's utterance is correctly produced. 当孩子说话时表达正确，夸奖孩子说得好。	Child: "Where is dad?" Caregiver: "Good talking!" 孩子说："爸爸在哪？" 照顾者说："说得好！"	1-5	1-5
11	Decrease your negative reactions to speaking difficulties 减少孩子对于说话困难的负面反应	Avoid giving negative responses when child has speech difficulties. 当孩子出现言语困难时，避免给予负面反应	Avoid reacting strongly with facial expressions, body language, or words when child incorrectly produces a sound or word. Keep a calm, pleasant face whenever the child is speaking.	1-5	1-5

			当孩子不正确发出音或词时，避免通过面部表情、肢体语言或者字词出现强烈反应。 在孩子说话时，保持平静愉快的表情。		
12	Match your rate of speech to your child's rate of speech 让您的语速和孩子的语速匹配	Speak at the same rate as your child. Talk in a slow, relaxed, and natural manner. 和孩子使用一样的语速。说话时保持慢的、放松的、以及自然的状态。	If your child is speaking more slowly, then you should speak more slowly. 如果孩子说得慢一些，那么您也要说得慢一些。	1-5	1-5
13	Use more pauses in your speech 说话时多停顿	Use longer pauses before speaking and between utterances; allow silences to happen. 在开始说话以及句与句之间使用长一些的停顿；允许沉默发生。	Child: "That's my car." Caregiver: [pause] "Yes, that's your car." 孩子说："那是我的车。" 照顾者停顿，再说："是的，那是你的车。"	1-5	1-5
14	Accept mistakes in your child's speech 接受孩子的言语中有错误	Let your child know it is acceptable to make mistakes when he is learning how to talk. 在孩子学习说话时，让孩子知道出错是可以接受的。	Caregiver: [models a mistake in speech] says "Oops, that one was hard for me to say. That's okay, we all make mistakes sometimes." 照顾者自己先示范一个言语错误，然后说："噢，我觉得刚刚那个好难说。不过没关系，我们都会有时候出现错误的。"	1-5	1-5

15	Have fun with your child 和孩子玩得开心	Make sure your interaction is enjoyable for you and your child. 确保您和孩子的互动对您和孩子都是愉快的。	Use humor, surprise, physical contact, smiles, and laughter while interacting with your child. 和孩子互动时，使用幽默、惊奇、肢体接触、微笑以及大笑。	1-5	1-5
	Strategies to use at home: 在家可实施的策略：				
16	Manage your child's behavior 管理孩子的行为	Address your child's misbehavior and encourage cooperation. 处理孩子的不当行为，并鼓励合作。	Child misbehaves. Caregiver: "You did not follow the rule. Make sure you follow the rules to stay safe and have fun." 孩子出现不当行为。照顾者说："你没有遵守规则。你要确保你遵守规则才能保持安全而且玩得开心。"	1-5	1-5
17	Ensure adequate sleep 保证孩子有足够的睡眠	Make sure your child gets enough sleep each night. 确保孩子每天晚上都有充足的睡眠。	Establish routine bed times. 建立规律的作息时间。	1-5	1-5
18	Add daily one-on-one time 加入每天的一对一时间	Interact one-on-one with your child for 5-15 minutes each day. Get down to the child's physical level to be in a position where you can communicate while making eye contact. 每天和孩子进行 5-15 分钟的一对一互动。和孩子处于同	While playing with toys, sit on the ground with your child. 玩玩具时，和孩子一起坐在地上。	1-5	1-5

		等的高度，这样您和孩子沟通时可以有眼神交流。			
19	Build your child's self confidence 建立孩子的自信心	Praise your child for things he does well including talking and other activities. 在孩子做得好的时候夸奖孩子，可以是说话及其他活动。	Child picks up all of his toys. Caregiver: "You picked up all of your toys, you are such a good helper!" 孩子捡起了所有的玩具。 照顾者说："你把自己的玩具都捡起来了，你真是个好帮手！"	1-5	1-5
20	Slow down your daily pace 放缓您的日常节奏	Reduce the pace of a busy lifestyle. 放慢忙碌的生活节奏。	Reduce the number of commitments and activities. Avoid last minutes decisions. Add calm transition time between activities. 减少承诺和活动的数量。 避免在最后一刻做决定。 在活动之间增加平静的过渡时间。	1-5	1-5
21	Address your child's emotional reactions 处理孩子的情绪反应	Help your child manage emotional reactions by accepting the child's feelings, naming the feeling, and finding ways to help the child vent. 通过接受孩子的情绪，辨别孩子的情绪，以及帮助孩子找到发泄情绪的方法，帮助孩子管理自己的情绪反应。	Child cries after making a mistake. Caregiver: "I can see you are frustrated. That's OK, sometimes we make mistakes and that upsets us." 孩子犯错后哭了。 照顾者说："我知道你很沮丧。没关系，我们有时	1-5	1-5

候会犯错，这会让我们沮丧。”

CONDITION: Respondent selects 1 or 2 for questions 1-21 when answering “*How likely would it be that you would implement this strategy with your child grandchild?”*

1. Please select the reason why you would not implement this strategy. Select all the apply:
   请选择您不会实施这个策略的原因。请选择所有适用的答案：
   - ☐ I am not with the child enough 我和孩子相处的时间不够多
   - ☐ I don’t know how to do this 我不知道怎么实施这个策略
   - ☐ I don’t think it will work 我觉得这个不会有效
   - ☐ I think this will create conflict 我觉得这个会带来冲突
   - ☐ I don’t think the child needs it 我不觉得孩子需要这个策略
   - ☐ The child will not cooperate 孩子不会合作
   - ☐ The child can’t do this 孩子做不到

Other 其他: _____

Appendix C

Informed Consent

"You are invited to participate in a survey. The survey is being conducted by Riley Malloy under the supervision of Dr. Jennifer Watson (Davies School of Communication Sciences and Disorders at Texas Christian University, Texas, U.S.) and Dr. Xueman "Lucy" Liu and Wendy K. Lee (Bethel Hearing and Speaking Training Center, Shanghai, China).

The purpose of this study is to collect information about how helpful you think teaching strategies would be with your child/grandchild who has a communication disorder. We estimate that it will take about 10-15 minutes of your time to complete the survey. Benefits of participating in this survey may include giving you some ideas about how you may interact with your child/grandchild. Also, your responses will help us develop future training and treatment for children with communication disorders.

As with any survey, your participation may affect your feelings. You will not be asked to describe specific experiences or events in great detail. You are allowed to exit the survey at any time. Only the authors of this study will have access to your responses. Data will be stored on a password-protected hard drive. You may contact the researcher if you wish to learn the study's results.

Your participation in this survey is entirely voluntary. You may decline to answer any question and you may withdraw from the survey at any time without penalty. If your child is currently receiving therapy, your withdrawal will not affect your child's current or future status as a therapy recipient.

If you have any questions, please contact Riley Malloy at +1 (720) 785-0091 or riley.malloy@tcu.edu, Dr. Jennifer Watson at j.watson@tcu.edu or +1 (817) 257-6876, Dr. Lucy Liu at lucy.liu@ourbethel.com or 159-2155-8824, or Ms. Wendy Lee at wendy.lee@ourbethel.com or 135-6421-4227.

You are free to contact the investigator by phone or email to discuss the survey. If you have any questions about your rights or are dissatisfied with any part of this survey, you may anonymously contact the Office of Research at +1 (817) 257-7104.

To complete the survey, click on the "->" arrow below."

Appendix D

Home Intervention Strategy Categories

Strategy Category	Home Intervention Strategy
General Child Support	Build your child's self confidence Slow down your daily pace Add daily one-on-one time Match your rate of speech to your child's rate of speech Have fun with your child Ensure adequate sleep Address your child's emotional reactions Accept mistakes in your child's speech
Language Changes	Ask fewer and simpler questions Follow your child's lead Expand your child's utterance Decrease your negative reactions to speaking difficulties Use parallel talk
Behavioral Feedback	Use more pauses in your speech Praise your child for correct speech Ask your child to correct his/her own speech Manage your child's behavior
Conversational Manner	Signal that you are listening Take turns while speaking Give your child sufficient time to speak

Appendix E

Dates and Locations of Caregiver Education Events Provided by the Bethel Hearing and Speech Training Team

Training Dates	**Training Location**
August 24-25, 2019	Nanjing, China
September 17, 2019	Shanghai, China
September 20-21, 2019	Chengdu, China
October 13-14, 2019	Qingdao, China
October 19-20, 2019	Xiamen, China