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## Examining the impact of parental self-efficacy on the early intervention process for families with a child who is deaf or hard of hearing

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**EXAMINING THE IMPACT OF PARENTAL SELF-EFFICACY ON THE EARLY  
INTERVENTION PROCESS FOR FAMILIES WITH A CHILD WHO IS DEAF OR HARD  
OF HEARING**

**by**

**Anna Magee Gandy**

**An Independent Study  
submitted in partial fulfillment of the  
requirements for the degree of:**

**Master of Science in Deaf Education**

**Washington University School of Medicine  
Program in Audiology and Communication Sciences**

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**Approved by:**

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*Abstract: This literature review examines the relationship between parental self-efficacy and the family's involvement in the early intervention process of their child who is deaf or hard of hearing as well as the ongoing participation in his or her education. Methods used to improve this self-efficacy and implications for further research in the field of deaf education are discussed.*

## Acknowledgements

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Jenna Voss has been another incredibly inspiring figure throughout my time in the PACS program. My interest in early intervention and parental self-efficacy was sparked through seeing her passion for empowering families through early intervention. I admire her dedication to improving how early intervention services are provided, enthusiasm, wit, and her selflessness. She has been a constant source of encouragement for me, and has provided invaluable guidance to me throughout this journey. Words can't express how much I appreciate you, Jenna.

Above all I would like to praise and offer my heart in gratitude to Jesus Christ. I can say with certainty that I absolutely would not have made it through these two years without His strong and steady hand holding my own. To Him be the honor and glory!

*“But He said to me, “My grace is sufficient for you, for my power is made perfect in weakness.” Therefore I will boast all the more gladly of my weaknesses, so that the power of Christ may rest upon me. For the sake of Christ, then, I am content with weaknesses, insults, hardships, persecutions, and calamities. For when I am weak, then I am strong.”*

2 Corinthians 12:9-11

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## Introduction

Why do some families with a child recently diagnosed with a hearing loss fully invest their lives, resources, and time into the early intervention process and education of their child, while others seem impossibly distant from this level of commitment and investment? Why is parent participation and involvement so high among some, while others never appear to be fully vested in the all-encompassing endeavor of facilitating the early learning and communication development of their child who is deaf or hard of hearing? *Buy-in* is a term often used to describe and label the degree to which parents or caregivers demonstrate involvement in the programs designed to support early development. Parent buy-in may be an exceedingly important component for early interventionists to examine when working with families and their children who are deaf or hard of hearing as they develop listening and spoken language skills and promote early and sustained language growth.

Despite an early interventionist's best efforts to convey the critical importance of parent or caregiver involvement in enhancing their child's ability to develop listening and spoken language skills, not all families *buy-in* to the process during the critical early years of their child's development or do so with the same level of commitment. There are a vast number of external factors that contribute significantly to a parent's level of involvement in the early intervention process. But the necessity of participation leads the educator to ask if there are internal factors present in some parents that promotes higher levels of involvement. Practicality urges the early interventionist to ask what he or she can do to cultivate these illusive qualities in parents. This literature review seeks to determine if parental self-efficacy is a trait that contributes to a parent's level of involvement and commitment to early intervention. If so, how can early interventionists and educators of the deaf strive to cultivate this quality in the parents they serve?

Throughout this paper, parental self-efficacy is defined and discussed in terms of Albert Bandura's self-efficacy theory. Various parental self-efficacy based research studies will be examined in and outside the field of deaf education. The feasibility of gleaning and applying the aforementioned self-efficacy enhancing strategies into the practice of early interventionists serving families with children who are deaf or hard of hearing will be discussed and applied into frequently encountered circumstances. The conclusion presents the need for future research.

### Self-Efficacy Theory

Many variations and topic-specific definitions of self-efficacy can be found in literature from diverse fields of study including psychology, social work, and education (Al-Kandari & Al-Qashan, 2010; Bresó, Schaufeli, & Salanova, 2011; Epel, Bandura, & Zimbardo, 1999). At its core, self-efficacy is simply a belief in one's personal capabilities (Bandura, 1997). *Parental* self-efficacy, the focus of this literature review, is defined as one's belief in his or her competency as a parent. According to Bandura's theory, a parent's belief about his or her ability to parent successfully is a crucial element in the actualization of this goal and duty.

Bandura (1997) suggests self-efficacy regulates three domains of human functioning: cognitive, motivational, and mood or affect. *Cognitively*, people who are highly self-efficacious are more likely to think soundly, see the 'bigger picture', have high aspirations, set difficult challenges for themselves, and are more committed to completing these challenges. (Bandura, 1997). These individuals are able to visualize positive and successful outcomes rather than focusing on the abilities or skills they lack and possible negative outcomes.

Bandura's theory suggests human *motivation* results from developing ideas and beliefs about what can be done, setting goals, and planning strategies to accomplish these goals (1997). A person who is highly self-efficacious will set higher goals, extend more effort to accomplish these goals, and adjust the goals according to progress made. High levels of self-efficacy generally lead to persistence and resiliency amid failures and setbacks in reaching goals. In other words, if a person has high self-efficacious beliefs, he or she will be more highly motivated to see their goals through to completion.

Additionally, one's *mood* or *affect* hinges largely on their perceived ability to cope with challenges, depression, and stress (Bandura, 1994). The highly self-efficacious person is able to divert his or her attention, self-calm, and seek support during difficult times in life. They are able to 'turn off' feelings of anxiety and other negative thoughts. They can adjust their environments rather than let fear, sadness, or other negative emotions gain control. Depressive thoughts are greatly regulated by the presence or absence of self-efficacy. Low self-efficacy can lead to a defeated mindset and loss of hope, compounded by further depletion of self-efficacy.

People with low self-efficacy tend to have lower aspirations, weaker commitment, more pervasive feelings of self-doubt, and a strong focus on their own ineptitude, leading to the tendency to give up in the face of adversity or challenge. They are more susceptible to stress and

depression, and recover slower from setbacks and failures than those with high self-efficacy. (Bandura, 1994) While general human functioning and psychology were the focus of Bandura's research and theories, it is clear that parents with high levels of self-efficacy may be better suited to handle the stresses, feelings of grief, depression, and anxiety commonly associated with raising a child who is deaf or hard of hearing.

These qualities associated with self-efficacy are what early interventionists hope to see and encourage in the parents they serve. Theoretically, parents with a high sense of parental self-efficacy are more likely to establish commitment, perseverance, and remain committed to reach the goals they set for their child and themselves rather than viewing their child's hearing loss as an insurmountable obstacle. For the parents who have selected listening and spoken language as the modality of communication for their child and family, active and continual participation is essential to the academic, social, and language development of their children (Calderon, 2000; Houston & Bradham, 2011). Thus, it is important for these parents to perceive themselves as highly self-efficacious in light of the potential positive impact associated with high levels of involvement.

**Bandura's self-efficacy theory: specific and general self-efficacy beliefs.**

The level of specific knowledge pertaining to key parenting behaviors and the degree of confidence in one's own ability to accomplish their *specific* parenting role both contribute to parental self-efficacy. In order for the self-efficacious beliefs of a parent to improve his or her ability to carry out tasks necessary for successful parenting, both of the specific knowledge and confidence must be included. For parents of children who are deaf or hard of hearing, this specific knowledge includes but is not limited to language facilitation techniques, child development, and information regarding the child's amplification system. In order for parental self-efficacy to be realized, the parent's knowledge of these specific tasks, as well as their level of confidence in their parenting ability must both be high. A study by Hess and colleagues (2004) supports the notion that both knowledge and confidence are key contributors to self-efficacy, demonstrating that a mother's increased knowledge *alone* did not result in better interactions with their young children. Increased knowledge with the addition of confidence resulted in more effective interactions between parents and children (Hess, Teti, & Hussey-Gardner, 2004).



### Four Tenants of Self-Efficacy

In the mental health domain, it is widely accepted that the most effective psychological treatments do not focus on providing *solutions* to particular problems, but rather supply the *tools* and *techniques* for appropriate management (Stober & Grant, 2006). This equipping or coaching model has become exceedingly popular and successful in the field of early intervention as well. Providing families with the tools needed to gain and maintain control is part of the new paradigm of current early intervention practice. Mental health professionals often look toward the four factors contributing to self-efficacy suggested by Bandura in order to increase self-efficacy and modify behavior. Early interventionists might benefit from implementing these four tenets, experience of mastery, social modeling, social persuasion, and stress management into their practice in an effort to equip parents with the knowledge and confidence they need to set and accomplish goals for themselves and their child who is deaf or hard of hearing.

The first and most influential factor is an experience of success and mastery during a difficult challenge. Experience of easy success does not bolster self-efficacy, but may actually lead to more discouragement by failures or setbacks (Bandura, 1994). Social modeling, or vicarious experience of success, is another source of self-efficacy. When one sees their peers in similar situations succeed, he or she is more likely to gain the confidence necessary for their own success. The observer must see a great deal of similarities between themselves and the person successfully completing the task. The greater the perceived similarity, the more influential the model becomes.

Social persuasion is the third manner in which Bandura asserted self-efficacy is increased. People who are given positive affirmations, encouraged in their ability to complete the task, and are verbally persuaded that they are indeed able to master the task show an increased likelihood of sustaining their efforts while attempting the activity or role. It is important to note that praise alone does not bolster self-efficacy. According to this theory, a clinician must formulate situations and conditions that will foster *true* success during initial sessions in order to prevent early and potentially detrimental perceived failure.

The fourth suggestion Bandura presents (1994) as a means to improve perceived self-efficacy is the reduction of stress reactions. One must “alter their negative emotional proclivities and misinterpretations of their physical states” (p. 3). People with a high level of self-efficacy

see their emotions as a means to improve performance. This is in contrast with those with low levels of self-efficacy who see their emotions as barriers to success and performance.

As I intend to establish in the remainder of this paper, these four guiding principles have relevance in the field of deaf education. Specially, what are the ways in which early interventionists can incorporate these principles in their parent education sessions in order to foster parental self-efficacy and potentially increase the likelihood of committed and sustained involvement?

### **Parental Involvement**

Parent involvement is defined as the nature and quality of parent-child interactions. Research investigating parental involvement in families with typically developing children is clear. A parent's involvement has been acknowledged as an important component of their child's education for many years. Benefits include the development of positive parent-teacher relationships, increased school attendance, improved student attitude, increased parent confidence, as well as satisfaction and interest in their child's education (Hornby & Lafaele, 2011). It is reasonable to conclude high levels of parental involvement will benefit children who are deaf or hard of hearing as well.

Societal factors, child factors, parent-teacher factors, and individual parent and family factors are all thought to impact parental involvement in their child's education. A parent's belief in his or her ability to help their children succeed in school (a component of parental self-efficacy which will be discussed in further detail later in this paper) was shown to be critical to their involvement. A low-level belief in their ability to help their children may cause parents to avoid contact with schools because they believe such involvement will not result in positive outcomes for their children. A lack of parental confidence may be a result of thinking they have not developed sufficient academic competence to help their children and may stem from beliefs about their child's innate intelligence and competence. When parents believe that achievement is based as much on effort as it is ability, they are more likely to be positively involved. Parents need to believe that the way they interact with their children *does* make a difference in their child's academic achievement (Hornby & Lafaele, 2011).

Parents also need to feel an invitation of involvement. If parents think their involvement is not valued by their child's teacher, they are less likely to become or stay involved. Teachers

with positive attitudes about parent involvement may increase the likelihood of higher levels of parental involvement (Hornby & Lafaele, 2011).

### **Parental Involvement Among Families with Children Who are Deaf or Hard of Hearing.**

As previously stated, parental self- efficacy can be described as one's beliefs and sense of knowledge and the ability to perform or achieve daily parenting tasks and roles (Bandura, 1997). For a family with a child who is deaf or hard of hearing, this likely includes the facilitation of their child's language development and management of amplification device in addition to typical parenting tasks. The role of these parents melds with that of the teacher, adding more responsibility to the already weighty load they bear. High levels of self-efficacy may enhance their ability to cope with these added challenges, and commit themselves to a high level of involvement in their child's education despite added stress and responsibility. In fact, research has shown that high levels of self-efficacy may also serve as a mediating factor with the potential to ameliorate the negative external factors such as depression and stress that contribute to a lower level of parental involvement (Holland et al., 2011).

### **Parental Self-Efficacy Evidence in Deaf Education**

While many individuals in the field of deaf education may not be able to clearly identify and define the term parental self-efficacy, it's basic principles are core tenets of both the Individuals with Disabilities Education Improvement Act and the Division of Early Childhood Recommended Practices in Early Intervention/Early Childhood Special Education. Both of these important documents state that the desired outcome of early intervention is for parents to perceive themselves as capable of supporting their children's growth and development. (Katsiyannis, Yell, & Bradley, 2001; Sandall, McLean, & Smith, 2000).

As family-centered practice and parental empowerment has become the standard model of early intervention, it is not surprising that enhanced parental self-efficacy has also become a prominent goal of early interventionists, whether they are cognizant of this or not. In addition to the therapy and education provided during early intervention services, a parent's beliefs about their own skills and the role they play as both parent and teacher are essential to their children's successful language learning (DesJardin, 2006).

As the literature consistently suggests, early and sustained intervention is beneficial for spoken language outcomes for a child who is deaf or hard of hearing (Calderon, 2000; Houston & Bradham, 2011; Moeller, 2000). Early intervention promotes positive outcomes across areas

of a child's development, but particularly in language. Today, many children who are deaf or hard of hearing are identified early through the implementation of Universal Newborn Hearing Screening (UNHS). In 2011, Centers for Disease Control and Prevention (CDC) data showed that over 97% of newborns in the United States were screened for hearing loss ("Hearing Loss in Children: Data and Statistics," 2013). The implementation of UNHS programs has resulted in markedly lowering the age of diagnosis, timeliness of receiving access to sound through appropriate amplification, and the time until families are enrolled in early intervention programs. Despite these advances in technology, early detection, amplification, and the immense body of research expounding upon the benefits of early intervention, many educators of the deaf who provide the earliest services to these newly identified infants and their families all too often see a lack of family involvement in the early intervention process for their child.

Higher levels of parental involvement are related to higher levels of success in children who are deaf or hard of hearing (Moeller, 2000). The most successful children are those who were enrolled in early intervention at young ages, and whose families were highly involved. After reviewing Bandura's self-efficacy theory, the link between parental involvement and self-efficacy seems clear. Work done by Dr. Jean DesJardin is among the limited yet valuable research done that addresses these topics in the specific context of deaf education.

A 2006 investigation focusing on the necessity of supporting families of children with cochlear implants in both their levels of involvement as well as their sense of parental self-efficacy noted that successful language development in children with cochlear implants is dependent on many factors, many of which are child specific (DesJardin, 2006). Variables of interest include age of diagnosis, age of implantation, length of implant use, as well as the children's predisposed inclination and aptitude for language learning. In this study, two additional factors were said to play a large role in the participants' language development: parental involvement and parental self-efficacy.

The advent of cochlear implants has provided children who are profoundly deaf with access to sound previously unavailable through the use of hearing aids alone. But even with the ever-improving technology available, cochlear implantation alone does not guarantee successful spoken language development. While many factors ultimately contribute to a child's successful development, the families of children with cochlear implants play an absolutely essential role in their child's ability to develop spoken and written language commensurate with their hearing

peers. Much responsibility and involvement is required from parents. These families must make frequent trips to the audiologist to ensure proper cochlear implant mapping, and must fully commit to working with and learning from their child's early intervention provider in order to learn how best to facilitate their child's language development (DesJardin, 2006). Work by DesJardin (2006) highlights the increased significance and importance of parent involvement among parents with children who have cochlear implants. One way to increase the quantity and quality of parental involvement may be implementing strategies and techniques to increase parental self-efficacy.

DesJardin's study revealed that the mothers of children with cochlear implants who felt more self-efficacious or competent in their knowledge and ability to bolster their child's spoken language reported feeling more involved in the speech and language improvement strategies at home. The mothers who felt less competent and less involved exhibited lower level language improvement strategies than the mothers who felt more competent and more involved (DesJardin, 2006). This work revealed that parental sense of competence or parental self-efficacy were positively associated with the use and implementation of specific language learning strategies often used to increase language learning among preschool aged children with cochlear implants. So not only was the parental level of involvement positively correlated with a sense of parental self-efficacy, but the mothers and fathers in this study were also implementing appropriate language learning strategies thereby providing an environment which fostered language development in their children.

The first step towards improving parental self-efficacy may be determining current levels of parental self-efficacy. Because self-efficacy should be viewed and assessed in regard to a *specific* set of skills (Bandura, 1994), it may be beneficial for early interventionists and educators of the deaf to use a rating scale measuring parental skills specific and unique to raising a child who is deaf or hard of hearing as a means to assess parental self-efficacy.

In 2003, DesJardin developed the *Scale of Parental Involvement and Self-Efficacy* (SPISE). She has since used this rating scale to measure feelings of self-efficacy in parents of children who are deaf or hard of hearing in a variety of studies. This scale was created to measure a parent's perceived level of competence in using their child's amplification device as well their ability to implement language development techniques. The scale is divided into three sections, background information, self-efficacy, and level of involvement.

Results from a 2005 study utilizing the SPISE revealed that mothers of children with cochlear implants who rated themselves highly in their ability to develop their child's language development were the mothers of children who scored higher on measures of expressive and receptive language one year later (DesJardin, 2005).

DesJardin (2006) proposed that high levels of maternal self-efficacy and parental involvement could ameliorate the negative effects of hearing loss on their child's language development. To explore this hypothesis, 32 mothers and their children with hearing loss were recruited for another study. The majority of participating families were middle class, Caucasian, spoke English, and had some college experience. The children in the study were all diagnosed with bilateral sensorineural hearing loss prelingually. None of these children presented with additional disabilities. The mean age of the children was 3.0 years. On average, the children were identified with hearing loss and subsequently enrolled in their early intervention programs at 12 months of age. The average age of amplification was 18 months. Auditory/oral communication was the mode of therapy and intervention used by 25 out of the 32 of participants. The remaining seven used sign language as a supplemental communication modality. *The Reynell Developmental Language Scale* was used to determine the children's expressive and receptive language skills at 25 and 29 months. As a part of the study, each mother-child dyad participated in a family-centered early intervention program for at least three months.

Similar to her previous research, the results from this study revealed a positive relationship between parents' ratings of perceived self-efficacy in the areas of language facilitation, their child's device use, and the parent's use of high-level facilitative language techniques. These results suggest that when parents feel confident in their ability to implement facilitative language techniques, more involvement is reported, and their children's language learning is likely to increase (DesJardin, 2006). The link between parental self-efficacy and child language development suggests that enhancing a parent's confidence in their ability to facilitate their child's language should be a central goal for early intervention programs serving this population, not only as a means to increase involvement, but also overall language level achievement.

DesJardin's work (2005 & 2006) suggests several key implications for early intervention in the field of deaf education and identifies strategies to bolster parental self-efficacy in this

specific population. One of the suggested methods for increasing parental self-efficacy is a mentorship model of intervention. In a mentorship model, the parent is provided with hands-on practice using the facilitative language techniques provided by early interventionists. The early interventionist also provides a great deal of constructive feedback, and encourages the parents in their efforts to enhance their child's language development. Strengths are highlighted, and needs addressed in a positive and constructive manner (DesJardin, 2006). A mentorship model encompasses the social persuasion, experience of mastery, and social modeling components Bandura's self-efficacy theory.

### **Breastfeeding Self-Efficacy Research and Applications**

Unfortunately, parental self-efficacy research done in the field of deaf education is limited. Because of the narrow scope of research, self-efficacy studies in other domains must be examined in order to glean information and apply it in efforts to bolster self-efficacy. The remainder of this paper focuses on the potential applications for early interventionists serving families with a child who is deaf or hard of hearing. The first group of studies discussed provides insight into the research done in the area of breastfeeding self-efficacy. The strategies and research-based interventions used to increase breast-feeding duration will be discussed and their implications in the field of deaf education will be presented.

Despite extensive research and clear indications that breast milk is highly advantageous to the infant in the first year of life across nearly all areas of development, breastfeeding duration remains well below the prescribed length of time, especially among low-income mothers (Brecht, Richard Shaw, Nicholas St. John, & Horwitz, 2012; Hatamlch, 2012). Among the many factors and variables that contribute to the length of breastfeeding duration, maternal self-efficacy plays a significant role (Hatamlch, 2012). In his 2012 study, Hatamlch examined the effects intervention targeting breast-feeding self-efficacy had on breastfeeding duration among low-income mothers.

Previous breastfeeding research states that women with high levels of breastfeeding self-efficacy (BFSE) tend to initiate breastfeeding, and persist through challenges they may face throughout their time breastfeeding (Blyth, Creedy, & Dennis, 2002). It may be beneficial for early interventionists to examine this population of mothers and their response to breastfeeding self-efficacy intervention because of the possible implications the results may hold for their clients who are come from low-income homes. If this intervention increases self-efficacy and

the mother's ability to persist through the challenges she faces, it is plausible that early interventionists who work with families who have children who are deaf or hard of hearing can implement similar strategies in order to yield similar outcomes of sustained commitment among the low-income families they serve.

Consistent with Bandura's self-efficacy theory, participants were provided with exposure to successful breastfeeding mothers (social modeling or vicarious experience), were provided with expert guidance in order to experience mastery in their breastfeeding ability (experience of mastery), were often encouraged in their efforts by lactation coaches (social persuasion), and special attention was paid to the mother's mental health and emotions (psychological well-being) (Hatamlch, 2012).

The mothers in the intervention group were provided with prenatal breastfeeding informational classes, as well as consultations from lactation experts at one and two weeks postpartum to discuss successes, difficulties, breastfeeding strategies, and the mother's feelings of stress or anxiety. During the prenatal class, mothers were given the opportunity to practice specific breastfeeding tasks (positioning, evaluating successful sucking, offering the breast, etc) with a doll under the supervision of her lactation coach. The practitioner provided the mothers with vicarious experience through the use of videos of new mothers breastfeeding successfully, as well as phone consultations about typical physical and emotional effects breastfeeding mothers may experience. Because perception and interpretation of one's own physical arousal in terms of stress and anxiety have been shown to affect lactation output (Perez-Blasco, Viguer, & Rodrigo, 2013), addressing the psychological status of the mothers was another key component of intervention.

Mothers in the intervention group had higher BFSE postpartum, and breastfed significantly longer than the women in the control group. This suggests integrating self-efficacy enhancing strategies prenatally and postpartum may increase new mothers' confidence in their ability to breastfeed and persevere if she does encounter difficulties. The results from the study suggest the effectiveness of applying Bandura's self-efficacy theory into interventions targeting task specific self-efficacy and the potential for parental self-efficacy to be a factor which overrides low socio-economic status' impact on decreased commitment, and perseverance through challenges.



### **Mindfulness-Based Intervention**

In 2013, Perez-Blasco, Viguer, and Rodrigo conducted another study regarding the impact of maternal self-efficacy on breastfeeding duration, specifically focused on the mother's psychological wellbeing. The purpose of this study was to investigate the benefits and effectiveness of mindfulness-based intervention among breastfeeding mothers (Perez-Blasco et al., 2013). Mindfulness can be defined as the awareness that emerges through paying attention, on purpose, in the present moment, and non-judgmentally, to the unfolding of experience moment by moment (Kabat-Zinn, 2003). A mindful parent has an attitude of unconditional love and acceptance towards their child, themselves as the parent, as well as the experiences and interactions between themselves and their child.

The intervention in this study was based upon key mindfulness programs documented in the literature (eg, Mindfulness-Based Stress Reduction (MBSR) developed by Kabat-Zinn in 1990, Mindfulness-Based Cognitive Therapy (MBCT) developed by Segal et al. in 2002, and Mindful Self-Compassion developed by Germer in 2009). Each mother received intervention for one 2-hour session each week for 8 weeks. The sessions were conducted in a comfortable, well-lit room where the mothers sat with their babies on mats and pillows on the floor. The children were able to move around freely during each session. The presence of the babies in the room generally did not cause distractions in the sessions. Actually, the presence of infants was quite beneficial because the aim of the intervention was to develop calm and mindful attitudes in everyday situations (Perez-Blasco et al., 2013)

A typical session began by reviewing the previous week's tasks, identifying and discussion of difficulties that arose during their mindfulness meditation exercises, and collecting the mother's data logs. The next portion of the session included two to three, brief, ten minute, guided meditations. These meditations consisted of various strategies from the MBSR, MBCT, and MSC including Deep Breathing, the Now, Letting Go, Body Scan, the Mountain, the Lake, Compassion, Goals, and Forgiveness (Perez-Blasco et al., 2013). (Further descriptions of these meditation techniques can be found in work of Kabat-Zinn (Kabat-Zinn, 2003). Table 1 (p. 26) provides a summary of the basic concepts and central themes in mindfulness practice which were discussed in relation to the mother's experience during each session.

Tasks were then assigned for each mother to complete during the upcoming week. Assignments included formal meditations (of the same format practiced in the group session) and

two mindfulness-based activities per day (one independently and one with their baby). Each participant was given written material explaining each assignment, and a log to record completed tasks. The Parental Evaluation Scale was used to measure the parents' feelings of parental self-efficacy. Mindfulness was assessed using the Five Facet Mindfulness Questionnaire (Perez-Blasco et al., 2013). This questionnaire focused on observing, describing, acting with awareness, non-judging of one's inner experience, and non-reactivity to inner experience.

As compared to the control group, the treatment group received statistically higher scores in several dimensions of mindfulness, self-compassion, and exhibited significantly less stress, anxiety, and overall psychological distress (Perez-Blasco et al., 2013). Lower levels of stress and other negative affective emotions were also present in the intervention group.

In discussing the results of this study, authors address the emotional strain many new mothers face. A new parent may experience levels of stress that have the potential of negatively affecting her health, strain important relationships and may hinder the mother-infant bond. It is likely that parents of newborns recently diagnosed with a hearing loss feel and experience all of these emotions in addition to the specific stress and anxiety of making communication and educational decisions for their children. In fact, research indicates that one quarter of mothers and fathers of children with cochlear implants suffer from high stress up to a point where therapy would be advisable (Spahn, Richter, Zschocke, Lohle, & Wirsching, 2001). In the same study, high stress resulting from parenting a child with a cochlear implant was significantly correlated with increased depression, anxiety, and somatization, all of which have the potential of negatively impacting child development. This data, along with the results of work by Perez-Blasco and colleagues (2013) which suggests the effectiveness of mindfulness-based interventions on reducing maternal stress, negative affective emotions, and increasing specific maternal self-efficacy becomes extremely significant for early interventionists. Given the positive results from this mindfulness-based intervention, further investigation of the effectiveness of mindfulness-based intervention in the early intervention practice of educators of the deaf as a means to increase parental self-efficacy is warranted.

These results are in concert with a study investigating mother's breastfeeding self-efficacy for feeding their preterm babies in the neonatal unit (Swanson et al., 2012). The development of maternal self-efficacy offset the mother's negative psychological outcomes resulting from premature delivery, and improved the mother's overall well-being. The feelings

and emotions the mothers in this study experienced after the birth of their pre-term babies may be similar to those felt by mothers of children recently diagnosed with hearing loss: denial, shock, guilt, fear, worry, anxiety, stress, loss of autonomy and control, unmet expectations, and loss of reality (Luterman, 1996; Swanson et al., 2012). Because of the similar emotions mothers of pre-term babies and mothers of children recently diagnosed with hearing loss may experience, suggestions for maternal self-efficacy enhancing intervention drawn from this study's positive maternal self-efficacy outcomes are worth investigating.

There are several key recommendations for improving maternal self-efficacy. First, to address the mother's loss of reality, an early interventionist or clinician should give frequent information about the baby and promote physical contact between mother and child early and often. A parent's loss of expectations may be addressed by providing realistic information about what the parents should expect from the parent-child relationship. The interventionist should also be encouraged to respond quickly and positively to the mothers desire to become involved, allow all decision making to be the mother's, assess mother's confidence in accomplishing the task at hand (feeding her preterm baby or facilitating language development) and strive to cultivate this confidence by specific praise when appropriate (Swanson et al., 2012).

Additional suggestions to increase maternal self-efficacy are consistent with Bandura's self-efficacy model. To promote healthy *psychological* states, it was suggested that the interventionist demonstrate relaxation techniques and encourage their use, provide an atmosphere of calm, and facilitate physical contact between mother and child. In order for the participants to *experience mastery*, it was suggested that clinicians use motivational techniques to encourage the patient, provide information about the health benefits of breast milk, remain consistent in the way they provide knowledge, praise and reinforce the mother's early attempts, help the mother problem solve through difficult situations, praise attempts at expressing milk even when amounts are small, and relate the baby's progress to the mother's involvement. Points for intervention in regards to *social persuasion* include introducing the participants to women who have successfully breastfeed their preterm babies, encourage peer support, convey the notion that breastfeeding is something almost all women can do, establish clear communication between parent and clinician, provide feedback and highlight the mother's role in their child's progress, as well as promote involvement in the husband or partner and other families members in feeding the baby (Swanson et al., 2012). The tangible suggestions and

therapy applications are in line with the current family empowerment model of early intervention, and may have the potential for successful application in deaf education. Results from this study deserve serious consideration by family educators seeking to improve parental self-efficacy in parents of children who are deaf or hard of hearing.

### **Video Feedback**

Another area that deserves attention from early interventionists seeking to improve parental self-efficacy among the families they serve is the use of video-based feedback. The effectiveness of using video feedback as a means to achieve positive behavior change has been investigated across many disciplines. An important study to investigate in order to determine the potential effectiveness of including video-based feedback into interventions targeting parental self-efficacy in early intervention practice was conducted by Ence and colleagues in 2012. The purpose of their research was to evaluate the effectiveness of using video feedback in therapy in order to improve parents' use of research-based strategies in their interactions with their children with autism. Parents not already applying these research-based strategies and techniques were invited to participate in this study. The authors sought determine how best to teach these intervention techniques to parents struggling to implement them outside of therapy in a natural setting.

The Pivotal Response Treatment (PRT) was the technique targeted for increased use. The invention group included three mother-child dyads. These mothers completed PRT education sessions that consisted of clinician assisted modeling and feedback from previously recorded sessions. Post intervention, treatment group parents were practicing PRT more than at pre-intervention measures, displayed decreased levels of parent-related stress, and reported increased parental self-efficacy (Ence & Koegel, 2012).

Not surprisingly, the children in this study benefited as well. Each child displayed higher levels of positive affect and made gains in their communication goals. It is important to note that while various quantities and forms (constructive, positive, general, and specific) of video feedback were provided, the resulting outcomes did not differ significantly (Ence & Koegel, 2012). Results from this study suggest the potential effectiveness of providing parents with self-observation via guided video-feedback as a means to increase their use of therapy techniques

(language scaffolding, modeling, imitation...etc). Guided video-feedback would allow for the parents to experience mastery with these techniques in the natural environment.

James and colleagues (2013) also investigated the effectiveness of video-based feedback on parent participation and self-efficacy. This study examined the effects of video-based feedback intervention among families with a child who is deaf or hard of hearing. Families in the study who were provided with video-based feedback had increased positive and effective 'family behavior' self-reports, and yielded increases in their positive affective emotions, as opposed to families who did not receive video-based feedback. The purpose of the intervention was to support families in their effort to incorporate language-scaffolding techniques into their interactions with their child in order to facilitate speech and language development. This study utilized Video Interaction Guidance (VIG). VIG is evidence-based in the field of pediatrics, and has been shown to enhance parent's attitude and behavior (James, Wadnerkar-Kamble, & Lam-Cassettari, 2013).

Each therapy session was taped and reviewed by the practitioner. The practitioner would then select portions of the video to review with the parents during their next session. Practitioners selected clips based on goals previously set by parents, highlighting only examples of those successful interactions and communications between parent and child. After the clip was reviewed by parent and practitioner, they would discuss why these interactions were successful. While parental self-efficacy was not a measured outcome of the VIG based intervention, emotional availability (including parental sensitivity and responsiveness) levels were greater following implementation of this intervention. Because healthier mental states are associated with higher levels of self-efficacy (Bandura, 1994), these findings, along with Ence's study (Ence & Koegel, 2012), suggest video-based guided observations may be an influential strategy to increase levels of self-efficacy among parents of children who are deaf or hard of hearing.

VIG methods and procedures are in agreement with elements of Bandura's self-efficacy theory (experience of mastery and social persuasion). Therefore, it is plausible that the positive reinforcement obtained while watching themselves successfully perform the parenting tasks necessary to promote language development in their child who is deaf or hard hearing might enhance their sense of parental self-efficacy. Given these findings, future research specifically

investigating whether video-based therapy, namely VIG, can increase parental self-efficacy and parental involvement among parents of children who are deaf or hard of hearing is warranted.

### **LENA Feedback on Adult Language Production**

Another area of study worth investigating is the exciting work and research done by Dr. Dana Suskind and her colleagues involving the use of qualitative linguistic feedback in their efforts to promote a language-rich environment for infants born into poverty. Qualitative linguistic feedback is evaluated using Language ENvironment Analysis (LENA) technology (Suskind, Leffel, Hernandez, & Sapolich, 2013). LENA is a recording device, worn by children, with the ability to analyze the verbal interactions between a parent and child by quantifying and analyzing conversational turns taken between the two. The verbal information gathered is then used to reinforce behavior change. The desired behavior change of interest is increased communicative interactions between child and parent or caregiver, which would in turn create a language environment that fosters language development in the child (Suskind et al., 2013). Because children who are deaf or hard of hearing may benefit from their parents' involvement in and commitment towards providing a language rich environment in the home through the use of strategies learned in early intervention sessions, early interventionists working with this population may glean critical applications from the results of Suskind's work.

In a 2013 study, baseline, or initial word counts, as well as conversational turn counts were recorded among 17 caregivers and their typically hearing and developing children (Suskind et al., 2013). Caregivers were then required to attend an educational intervention class that highlighted the impact language-rich environments have on a child's language and global development. In addition, strategies for how to cultivate such an environment were discussed. As a result of these components of intervention, parent knowledge was increased. Early interventionists must not forget this critical element of parent education and knowledge.

In Suskind's research, parents identified personal language goals they aimed to achieve by their next session, and were coached on the logistics of reading and interpreting the LENA feedback. Six LENA recordings were obtained over the course of six weeks. All of the caregivers showed significant increases in their baseline word and conversational counts post-intervention. The average word count showed a mean increase of 395 words per hour, a 31%

increase. The conversational turn count (when a child vocalizes and caregiver responds, when the caregiver speaks, and the child responds) increased by an average of 14 turns, resulting in a 24.9% difference (Suskind et al., 2013). The reports and performance graphs produced by the LENA technology allowed the parents to visualize their improvements in the amount of talking done with their children. Along with social persuasion from their coaches, the tangible improvements in their own increased language use provided them with experiences of mastery, what Bandura believed to be the most effective tool for increasing self-efficacy. While parental self-efficacy was not a targeted outcome in this research study, video interviews of parents who participated in the program unanimously report increased self-confidence as parents as a result of their participation in this intervention. This confidence increased in tandem with their participation in their child's language development through an increased number of communicative turns taken with their child.

Readers are reminded of the results of a study by Hess and colleagues (2004) which validated the important relationship between confidence and knowledge. In their study, mothers who self-identified as having high maternal self-efficacy but showed to have a low knowledge of child development were actually the least sensitive to their infants' play interactions. These findings suggest that simply instilling confidence alone into a parent is not the solution. In light these findings, the importance of the educational component of this intervention cannot be understated.

Professionals in the field of deaf education should consider the feasibility of using LENA technology with their clients in the initial stages of early intervention. The incorporation of LENA technology in the early intervention practice of deaf education has the potential to increase parental self-efficacy and parental involvement as well as provide another tool used to promote rich language environments in the home, resulting in positive language outcomes. This study is also important because it has proved to be an effective tool among families living in poverty, a population who is already susceptible to lower levels of parental involvement (Dunst, Leet, & Trivette, 1988; Hornby & Lafaele, 2011).

### **Education and Self-Efficacy Theory**

The research on self-efficacy theory in regards to classroom and educational settings may be beneficial to early interventionists as well. While extensive research on self-efficacy has been conducted in schools, suggestions from one piece of literature stands out as particularly applicable to the population of interest in this literature review. Usher and Pajeres (2008) provide guidelines for improving self-efficacy among students. These strategies include establishing specific, short-term goals that will challenge the student, yet remain attainable, and help students lay out and verbalize a specific learning plan. As these tasks are accomplished, the students are asked to recognize and evaluate their progress, as well as formulate their next steps and establish a future goal. Educators were also encouraged to compare students to themselves, not against others students (Usher & Pajares, 2008). Early interventionists may use these strategies as they educate parents about their child's language development, device use, future education, and assist in family goal development and implementation. It is important to note that the role of an early interventionist should more closely resemble a coach or mentor than strictly that of 'teacher.' However, even as they work to empower parents to achieve their goals, educating and conveying information to the families is necessary.

### **Implications for early intervention practice in the field of deaf education**

It may be beneficial for educators of the deaf to examine the research regarding parental self-efficacy and how it can be applied to improving the quality of early intervention services they deliver. This literature review highlighted the techniques used to enhance parental self-efficacy. These techniques may serve to increase parental involvement or *buy in*. Presented next are several common scenarios related to the involvement of parents with children who are deaf or hard of hearing, and form potential links with that parent's level of self-efficacy. Potential methods early interventionists might implement in order to increase parental self-efficacy and resulting manifestations of commitment and involvement accompany each scenario.

Many parents are challenged to achieve consistent use of hearing technology for their children with hearing loss. When parents are not able to demonstrate consistent device use during all waking hours, the underlying issue may be their perceived ability to monitor device functioning, check and change the batteries, or to ensure comfortable and appropriate fit. A parent who is not confident in his or her ability to accomplish this may avoid the task altogether because of perceived challenges. They may believe consistent device use is beyond their ability



to control, focusing on their perceived inaptitude in this area. If these issues are not addressed, a parent's level of confidence or self-efficacy may be further diminished, perpetuating this negative cycle.

Specific self-efficacy rating scale such as DesJardin's SPISE (DesJardin, 2003) may be used to determine the areas in which parents feel a lack of confidence. If an early interventionist knows points of weakness, they can provide the parent with specific and targeted knowledge and support. If a rating scale reveals that a parent feels extremely unsure of how to check the batteries in their child's hearing aids, the early intervention provider might set up a situation in which the parent has the opportunity to successfully perform this skill (experience of mastery). Intentional and strong verbal support and encouragement is another strategy that may foster increased levels of self-efficacy (social persuasion). The early interventionist might also provide an opportunity for two parents who struggle with similar parenting task to practice this task together (social modeling), or allow the parent who is struggling to watch another parent similar to themselves perform this task successfully (vicarious experience).

Another common hindrance to sustained and committed buy-in may be caused by parents being overwhelmed and too busy to attend early intervention sessions. Cancellations and no-shows are obvious barriers to involvement. It is possible that stress and other negative affective emotions are the root causes of this lack of commitment. An early interventionist who is aware of self-efficacy theory related research will address these underlying feelings of psychological distress. Devoting certain sessions to coaching parents on how to manage their stress, anxiety, and negative emotional states effectively could be beneficial. Mindfulness intervention may also be a feasible addition to an early interventionist's repertoire of self-efficacy improving strategies to implement with families who are showing high levels of stress, and low levels of involvement. An early interventionist may coach her client in the practice of guided meditations during the last several minutes of a home visit.

The lack of consistent higher-level language facilitation strategies at home is another area that reveals a lack of parental involvement and commitment. As educators of the deaf, these techniques may seem easy to consistently implement in a variety of contexts and settings. But for a parent, both learning and using these strategies may be quite challenging. A parent who fails to use these techniques frequently with their children may feel tremendous insecurity in

their ability to fulfill their role of ‘language teacher’ successfully. This lack of confidence could result in weaker commitment in achieving the goal of using these strategies. An early interventionist might address this low level of parental self-efficacy by allowing the parent to experience mastery in performing these tasks. One strategy to support self-efficacy is providing guided observations through video-feedback after a home visit. The early interventionist might review the video with the parent, highlight the parent’s successful use of the language facilitation strategy, and intentionally praising the parent’s success (social persuasion). Exposing the parents to other families who use these strategies may be another way to increase their parental self-efficacy (social modeling).

### **Future Research**

The research literature has extensively documented the benefits of high levels of maternal self-efficacy on improved child and family outcomes. A parent’s positive sense of well-being and lower levels of guilt have been associated with higher levels of parental self-efficacy among parents of children with autism (Kuhn & Carter, 2006). Maternal self-efficacy has also shown to be a mediator between maternal depression and increased child hospitalizations (Holland et al., 2011). Parental self-efficacy is likely modifiable through targeted interventions (Hatamlch, 2012; James et al., 2013; Perez-Blasco et al., 2013). The collective body of literature suggest high levels of parental self-efficacy likely foster high levels of commitment and involvement among parents receiving early intervention services for their child with a hearing loss (Bandura, 1994; DesJardin, 2005). Given these findings, future research is warranted to further investigate parental self-efficacy in the field of early intervention and deaf education. Longitudinal research investing parental self-efficacy targeted interventions among this population would be inform practice, suggest ways to support parent involvement, and improve child development.

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**Table 1** Summary of Program Sessions

<b>Session Number</b>	<b>Session Focus</b>	<b>Task</b>
1	Auto-pilot versus mindfulness	Guided experience of eating a raisin mindfully, followed by a discussion of the consequences neglecting to live mindfully.
2	Overcoming Obstacles	Discussion of the first week's mindfulness practice including successes and difficulties and propose strategies to overcome obstacles met.
3	Living in the present moment with the help of breathing	Discuss the power of breathing as a resource to return to living in the present with mindfulness.
4	Emotions and Acceptance	Discuss concept of 'gaining distance from emotions.'
5	Unconditional love and emotional debt	Introduce and discuss the concept of unconditional self-acceptance.
6	Self-compassion and compassion	Self-compassion and compassion discussed in relation to maternal self-efficacy and the participant's interactions with their babies as well as close friends and family.
7	Forgiveness and Conscious Care	Introduce and discuss the importance of forgiveness and prioritizing self-care without guilt.
8	Application	Share strategies maintain mindful living and thinking in the future.