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# Investigating the Effectiveness of Web-based Modules Reinforcing Therapy Topics for Caregivers involved in Early Intervention

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# INVESTIGATING THE EFFECTIVENESS OF WEB-BASED MODULES REINFORCING THERAPY TOPICS FOR CAREGIVERS INVOLVED IN EARLY INTERVENTION

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**DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY**

Certification

We hereby certify that this Capstone project, submitted by Terri L. Beard, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Occupational Therapy degree.

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**EASTERN KENTUCKY UNIVERSITY**

**COLLEGE OF HEALTH SCIENCES**

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This project, written by Terri L. Beard under direction of Dr. Leslie Hardman, Faculty Mentor, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF OCCUPATIONAL THERAPY

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## Executive Summary

In early intervention (EI), Individuals with Disabilities Education Act (IDEA, 2004) and No Child Left Behind (NCLB, 2001) emphasizes the importance of clinicians using rigorously researched evidenced-based data to drive decision-making processes. Occupational therapists (OT) are accountable under IDEA (2004) and NCLB (2001) to help families achieve Individual Family Service Plan (IFSP) outcomes. This is done using a parent coaching model of intervention; carryover is critical in building-family capacity and achieving outcomes. OT's facilitate caregiver carryover, by embedding treatment intervention in natural settings. Using an online learning environment, the purpose of this capstone pilot study project is two-fold: 1) determine if web-based tutorials are effective for caregivers of children in early intervention programs to reinforce general topic information and 2) examine caregiver attitudes towards using online training modules.

The scientific underpinnings used are the Occupational Therapy Practice Framework (OTPF) (AOTA, 2014) and the Technological Pedagogical and Content Knowledge (TPACK) (Brown & Green, 2011). The study was created on CourseSites website powered by Blackboard, using technology to reinforce occupation-based EI topics, through tutorial presentations and videos. Quantitative data was collected from caregivers using pre-and post-testing measures including Likert Rating Scales for changes in opinions and frequencies and percentages for content questions.

Eighteen participants enrolled in the capstone study; twelve completed all three web-based modules including: pre/post-tests and viewing content folders. Evidence revealed positive ratings in attitudes and perceptions of caregivers using technology to promote carryover and reinforce general EI topics. Further, the study ascertained success in caregivers improving

content topic knowledge and sharing meaningfulness towards applying strategies to their child's daily routines.

This study identified a convenient flexible platform supporting caregivers of children participating in EI programs. Future development of online modules can reinforce face-to-face individualized treatment sessions and provide evidenced-based supplemental instruction to improve communication and collaboration between therapists and multiple caregivers. By enabling carryover OT's can help families achieve IFSP outcomes, positively impacting a child's life at home, daycare, preschool, or other inclusive environments.

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Occupational therapists have the vision, the skills, and the power to lead. Eastern Kentucky University's (EKU) occupational therapy doctorate (OTD) program is a testament to the excellent scholarly guidance and leadership brought forth by many occupational therapy (OT) professors. I express my sincerest thanks to the OT professors at EKU; their support, vast knowledge, and expertise in OT and education helped shape this journey in to a successful fulfilling endeavor. Through the fulfillment of this capstone project, I have had the opportunity to enhance my learning and provide evidence supporting clients in early intervention programs using online technology. I would not have been able to succeed in this effort without the carefully cultivated guidance from my professors.

A special thanks to my capstone committee members for their expertise, guidance, and flexibility. Dr. Leslie Hardman, my faculty mentor, my role model, a truly gifted teacher and leader, I cannot thank-you enough for advising me through this rigorous process. Dr. Shirley O'Brien, your insight, excellent leadership and teaching abilities steered me through this entire learning experience; especially during my capstone analysis. Thank-you!

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## CERTIFICATION OF AUTHORSHIP

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*Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.*

Student's Signature: Terri L. Beard MS OTR/L

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### Introduction

Young children with developmental delays have options for intervention starting at birth. A child identified for early intervention services under Part C of Individuals with Disabilities Education Act (IDEA, 2004) must meet one of three eligibility criteria: 1) a qualifying diagnosis, 2) demonstrate a 25% developmental delay in any area of development, or 3) present with atypical development. Part C of IDEA emphasizes the importance of early intervention (EI) to enhance development of infants and toddlers with disabilities, while improving outcomes for independence, and augmenting a family's capacity to meet their child's individual needs (Case-Smith, 2013; IDEA, 2004). Caregiver participation and carryover are critical components in EI service delivery (Rush & Sheldon, 2013; McWilliam, 2010). It is through repetition and caregiver engagement that skill development is promoted with early childhood routines.

Public Law 99-457 involving Part C of Individuals with Disabilities Education Act's (IDEA) provides early intervention services through an Individual Family Service Plan (IFSP) (ERIC, 2016). The Committee on Children with Disabilities (1999) define an IFSP as a "legally mandated" document outlining the plan for care of a child identified with a developmental delay between ages birth through three (IDEA, 2004). Developing an IFSP begins with a conversation based on assessment and identification of the child and family's supports, needs, and priorities (Gatmaitan & Brown, 2016). The IFSP and subsequent outcomes and services are written based on family-centered needs and a collaborative informed decision-making effort between the multidisciplinary providers and the family (Gatmaitan & Brown, 2016; McWilliam, 2010). The purpose of an IFSP is to provide support within natural settings for children and their families in

minimizing developmental delay, optimize family sustenance, and eliminate further developmental delays (Committee of Children with Disabilities, 1999; IDEA 2004).

In EI, occupational therapists (OT's), educators, and other EI professionals provide individualized face-to-face instruction for eligible children participating under an IFSP. Instruction occurs in natural settings, such as, homes, daycares, and preschools. Natural early intervention settings, provide the staging area to use parent coaching methods of service delivery. By engaging in the natural environment for service delivery, OT's can suggest strategies for parents and caregivers to embed within their daily routines.

Adams and Tapia (2013), McWilliam (2010), and Rush and Sheldon (2013) promote parent coaching as the suggested service delivery method in EI programs. Peterson, Luze, Eshbaugh, Jeon, & Kantz (2017) define "coaching" as a mutual process between coach and learner identifying and guiding agreed upon outcomes. Collaboration and communication methods within the EI service delivery are topics of interest between the family and service providers. Collaboration in EI is a critical component of developing successful relationships between providers and families (Dinnebeil, Hale, & Rule, 1999; McWilliam, 2017: Rush & Sheldon, 2013). Dunst, Bruder, and Espe-Sherwindt (2014) share the primary goal of EI in building family-capacity and collaboration is to provide caregivers the tools and confidence during home visits; enabling them to carryover learned techniques and general topic recommendations during their daily routines.

Occupational therapists (OT's) possess the knowledge and skill to address and foster development of children within their IFSP roles. Occupation-based approaches make OT's excellent leaders in modeling and coaching clients (Arbesman, Lieberman, & Berlanstein, 2013; DEC, 2015). In family-centered practice, OT's provide support by encouraging parents, family

members, and paid caregivers to participate in therapy sessions, by demonstrating and promoting strategies which carry over to the child and family's daily routines (Case-Smith & O'Brien, 2014; Steinberg, 2017). OT's focus on family priorities by helping caregivers solve difficult problems, working together to identify manageable solutions to embed within natural daily routines.

A challenge within implementation of the IFSP is practitioners have limited time to share knowledge with parents and caregiver, especially when multiple individuals care for the child. Serwe, Hersch, Pickens, and Pancheri (2017) found caregivers often have questions after the practitioner leaves, and they may not have support during the time between visits. One potential way to reinforce general topics related to early childhood is to share information with caregivers using web-based modules. Providing a resource, such as an online learning website, would allow caregivers access to information 24 hours a day and as often as needed. Caregivers would also be able to refer other persons caring for the child to the website if they had similar general early childhood questions.

Web-based instruction has been supported in the literature (Allen & Seaman, 2010; Bolliger & Martindale, 2004; Herrington, Oliver, & Reeves, 2003; Rovai & Jordan, 2004; Serwe, Hersch, Pickens, & Pancheri, 2017) as a technique used effectively in adult learning. Parents/caregivers and professionals are all adults that need to communicate about the young child's development and progress in meeting the IFSP goals. Within EI practices, this is a topic that needs further exploration.

With the passage of Public Law 99-457, the Division for Early Childhood (DEC) recognized the need for nationwide standards in servicing young children with disabilities. In 1991, the DEC developed *Recommended Practices*, as a standard of practice for EI programs.

Today, the DEC's *Recommended Practices* are meant to be a guide for practitioners and families, encouraging development of the eligible children through specific learning objectives (DEC, 2015). Recommended practices are not disability specific and are constructed using observable, developmentally appropriate practices, deliverable in natural early childhood settings (DEC, 2015). Recommend practices are evidenced-based and intended to "bridge the gap" between existing research and practice. Recommended practices support children receiving early intervention services in achieving their highest potential (DEC, 2015, p. XI).

Within EI settings there are many recommended content themes shared with caregivers of young children, such as, information on feeding, sleeping, bathing, tooth brushing, hair combing, playing with toys, rotating toys, dealing with temper tantrums, playing with others, and so forth. Recommended practices are general guidelines used in multiple settings, such as, homes, daycares, and preschools. Recommended practice information can be shared through collaborating activities and practices by family members and paid caregivers making the most impact on child outcomes (DEC, 2015). OT's use recommended practices to improve home and classroom routines, suggest simple environmental modifications and provide recommendations which could be used to support all children within the setting (DEC, 2015). More specific individualized strategies or recommendations are provided by OT to meet a child's specific needs and would not be considered as part of general recommended practices.

Through direct observation, the researcher noticed when an eligible child is provided services within one setting, other caregivers of the child might not recognize or receive information significant to the child's development. Caregivers for a child might include: parents, siblings, grandparents, other family members, family friends, nurses, childcare providers, preschool staff, and nurses. Sharing the same information in a variety of means, phone calls,

emails, face-to-face communication with multiple parties for a single visit can lead to undo stress on the therapist. If information is not shared effectively it will not meet family-centered needs. It is imperative all pertinent caregivers are provided with carryover recommendations, so the child has the best opportunity to practice recommended strategies. Not sharing information or collaborating effectively could ultimately affect the child's outcomes on their IFSP. This presents a challenge in sharing information between multiple caregivers and/or providers, when all parties are not receiving or are privy to therapist recommendations and instructions for daily carryover. Thus, a void exists in providing parents and/or caregivers information to reinforce therapy sessions in a teaching format meeting multiple adult learning needs.

The review of literature revealed many studies which supported the effectiveness of web-based instruction for adult learners (Allen & Seaman, 2010; Bolliger & Martindale, 2004; Kane, Shaw, Pang, Salley, & Snider, 2016; Means, Toyama, Murphy, Bakia, & Jones, 2009; Serwe, Hersch, Pickens, & Pancheri, 2017) however, there are few studies demonstrating use and effectiveness of supplemental web-based instruction in EI for parents and caregivers to access following typical therapy sessions.

Web-based instruction for this Capstone Project is not intended to replace individualized face-to-face intervention but rather support general recommended practices through convenient online blended learning opportunities. Using an online format allows caregivers to retrieve information at their convenience and as frequently as required or desired to obtain and reinforce their understanding about topics presented in therapy sessions. Thus, this study aims to explore a potential way to improve communication and collaboration for carryover using web-based instruction to positively impact a child's life at home, daycare, preschool, or other inclusive environments.

**Problem Statement**

Practitioners in EI have limited time for face-to-face instruction between all members on an IFSP team due to timing, location, and individual scheduling demands. Opportunities for coaching and modeling strategies while the therapist is present are limited by time and space constraints. Dr. Robin McWilliam (2017) discusses the significance of caregiver carryover as being "where therapy occurs" because the EI specialist, such as the OT, is only present for 0.00595% (or less) of any given week. Time and organizational structures for communication and teaming; along with administrative support and funding are also identified barriers to providing services across multiple natural settings for an eligible child receiving EI services (Henry, 2016).

OT's are well-suited to aid in "bridging the gap" using technology to support meaningful application of recommended practices addressing everyday life concerns (Lee, 2016). Using online video training may help impact daily routines through modeling and coaching occupation-based recommended practice suggestions for caregivers in EI programs. OT's provide input using evidence-based practice strategies and general guidelines for feeding and bedtime routines, as well as, many other developmentally appropriate routines.

Henry and Lindsay (2016) emphasizes demands on therapists, such as, lack of time, lack of support, and limited mentorship have resulted in deficits in gathering data through evidence-based research. While there are many studies to support web-based learning in adult education, there are few studies demonstrating using web-based instruction with EI caregivers. Therefore, little evidence exists to support using online training modules in EI caregiver training.

This study was developed to address difficulties with carryover related to understanding recommendations and implementing strategies for young children involved in EI programs after individual therapy sessions have ended. When caregivers are living life with their child they might experience questions about general practice recommendations especially when explaining strategies to other caregivers of the child. In the researcher's experience, caregivers generally wait for their questions or concerns to be answered during the next therapy visit. Developing an instructional web-site with general recommended practice opportunities will provide caregivers access to information, as often as needed.

**Purpose**

Schaaf (2005) discusses the importance of using data-driven decision making (DDDM) in occupational therapy to help guide frameworks of clinical reasoning. OT's must gather information about caregiver perceptions pertaining to accessing and sharing relevant information about their young child participating in EI. The IFSP identifies the professionals who will deliver the services. Yet sharing of information can be challenging due to multiple settings, defined as natural environments, as well as, multiple providers offering suggestions and multiple caregivers providing care for the child.

The intent of this Capstone Project using a pre-test/post-test study design was two-fold: 1) discover if web-based modules are effective for caregivers in EI programs to learn recommended practice content and 2) examine caregiver attitudes toward using online training modules. In EI, recommendations and strategies provided by EI practitioners need to be shared with all individuals working with the child. Using meaningful general childhood themes, such as, bedtime and mealtime routines, modules for this study were developed to convey "real-world" knowledge though every day experiences participants might encounter in caring for their young

child. Then, gathering evidence supporting whether using online training modules was an effective method of sharing information with family members and paid caregivers involved in EI.

**Research questions**

The research questions in this pilot study:

1.) Is using an online learning platform an effective adjunct method for caregivers of young children with IFSP's to learn recommended content information?
2.) After completing the instructional modules, did caregivers improve their knowledge related to recommended practice content?
3.) Did participants perceive online instruction effective for their learning?

**Theoretical Frameworks for Study Design**

Two theoretical frameworks serve as the scientific underpinning for this Capstone Project. The Occupational Therapy Practice Framework (OTPF) (AOTA, 2014) provides a disciplinary perspective in understanding the role of the OT in EI. The development of educational modules required understanding instructional design principles; to reinforce best practice in online education. Each of these frameworks will be discussed separately.

**Occupational Therapy Practice Framework (OTPF)**

OTPF focuses on client-centered, evidenced-based approaches; proposing OT's and clients work together to solve difficult problems (Fearing, Law, & Baum, 1997; AOTA 2014). The OTPF's all-encompassing theme is promoting everyday activities as the method for enabling clients to perform meaningful and relevant activities as the goal of their therapeutic intervention. It is the OT's responsibility to recognize meaningful activities and embed therapeutic intervention in these activities to meet client's needs (AOTA, 2014).

In EI, many families struggle with establishing daily routines. OT's are experts in recognizing meaningful daily routines using them for therapeutic intervention (Case-Smith & Lindsay, 2016). Therefore, OT's can be important resources for helping caregivers of young children in EI programs identify and develop meaningful family routines.

**Instructional Design Framework**

The instructional design theoretical approach used in this study is entitled the Technological Pedagogical and Content Knowledge (TPACK) model. TPACK is a framework addressing multiple domains and identifies how instructors can effectively and meaningfully use technology to enhance student learning (Mishra & Koehler, 2006). Content information provided in this study used web-based modules providing participants a platform to engage in meaningful learning. This model of design has been shown effective in incorporating technology to support adult learning (Mishra & Koehler, 2006).

**Significance of the Project**

OT's have an ethical responsibility to meet client needs (AOTA, 2015). OT's working in EI programs under an IFSP are responsible for demonstrating improved child outcomes (IDEA, 2004). When a gap in communication prevents treatment recommendations from being carried over during the child's daily routines, it could potentially affect the child's outcomes. As a supplement to enhance early childhood development topics and intervention discussed with caregivers during face-to-face therapy sessions, this Capstone Project demonstrates one-way OT's can provide web-based learning opportunities to improve communication, reinforcing knowledge and carryover; thereby improving the potential for achieving child outcomes.

While public online modules on EI topics exist, they are not easily accessible. Nowadays parents and caregivers have easy access via the internet to many resources, which are often

superficial and testimonial level opinions of content related to EI topics. A need exists to find a format that is easily accessible, credible, and based in evidence. This Capstone Project provides an example of constructing an educational tool which explains the deeper connections, using evidence to support information on childhood topics often addressed in EI therapy sessions.

This Capstone Project builds upon the American Occupational Therapy Association's (AOTA, 2007) *Centennial Vision Strategic Plan* linking education, research, and practice and demonstrating occupational therapists "power to influence" others (p.613). Further, it is consistent with Healthy People 2020 objectives (HHS, 2013) to help all individuals "achieve health equity, eliminate disparities, and improve health of all groups" (p.1) through increasing caregiver collaboration and learning opportunities.

By providing evidence to close the gap in AOTA's perceived barriers to practice (AOTA 2007), this Capstone project utilizes evidenced-based decision making applied through web-based supplementary learning modules. This use of 24/7 technology could assist in eliminating barriers in OT's time and resources and improve IFSP collaboration in a qualifying child's EI program. This project discusses a technology-oriented approach for OT's to implement evidenced-based practices reinforcing family-capacity (Dunst et al., 2012; Sari, 2004). Using occupation-based practices, the pilot study provides suggestions for best practice in OT through web-based modules to support evidenced-based intervention (Estes & Pierce, 2012; Pierce 2001; Price & Miner, 2007).

**Summary**

Collaboration and communication are expectations of professionals delivering services to young children under Part C of IDEA. OT's are well-suited to provide expertise in analyzing caregiver roles and responsibilities in establishing daily routines. In EI, OT's are an integral part

of the IFSP team and help families identify priorities and outcomes significant for their daily lives. Support of caregivers and communication about best practices using online instruction has yet to be studied. Thus, this Capstone project will fill a void in practice, impacting service delivery for young children.

## SECTION TWO: LITERATURE REVIEW

A literature review was conducted through Eastern Kentucky University's library system. Division of Early Childhood (DEC) website and Google Scholar internet searches. The literature review concentrated on 1) identifying how adults learn, 2) using web-based instruction in EI programs, 3) building collaboration with caregivers in EI settings, and 4) linking occupation-based practices (OBP) to meaningful learning experiences. An EBSCO search was conducted using key words: early intervention, caregiver training, parent training, parent instruction, web-based instruction, adult learning, caregiver collaboration, online learning, recommended practice, and computer-assisted instruction. EBSCO (2017) is a leading provider of research databases used by many academic, educational (K-12), medical, law and government researching agencies. While there was considerable literature revealing adult learning theories and documenting the effectiveness of web-based online instruction through academic and distance education environments (Allen & Seaman, 2010; Baumgartner, Lee, Birder, & Flowers, 2003; Cox, 2017; Ludlow, 2002; Means, Toyama, Murphy, Bakia, & Jones, 2009; Merriam, 2001; Mezirow, 1991; Mezirow, 2000; Papert (2000); Wang & Cranton, 2013; Wang & Cranton, 2017). There was limited research on the effectiveness of online learning and instruction specific to caregivers of children receiving EI services.

### Adult Learners

Learning in adulthood is different than learning in childhood and needs to be addressed through convenient meaningful learning situations. Since the 1920's, to meet adult learning needs, educators and theorists have suggested, instructors must modify their instructional design approach. In 1970, Malcolm Knowles developed a set of adult learning assumptions from the

work of Lindeman's 1926 book "*The Meaning of Adult Education*" (Baumgartner, Lee, Birder, & Flowers, 2003).

Knowles (1970) described adult learners using five assumptions: 1) learners move from being dependent on the teacher to being self-directed, 2) adults have a greater volume and different quality of life experiences compared to children, 3) timing of learning experiences is related to developmental tasks, 4) adult learning is problem-centered, and 5) adults are internally rather than externally motivated to learn. Today, these assumptions are still used to guide the design of instruction for adults. Knowles recognition of adult learners being self-directed, leads to the next two learning theories: transformative and self-directed. Both theories suggest learners go through a type of metamorphosis to transform their beliefs (Baumgartner et al., 2003).

Mezirow (1991, 2000) began developing his adult learning theory of transformative learning in 1975. Transformative learning is especially relevant in today's world, as technology and online teaching have entered a major shift in educational platforms. No longer are brick and mortar classrooms, nor pencil and paper activities necessary to enroll in a course or engage in learning opportunities (Wang & Cranton, 2013; Wang & Cranton, 2017). Transformative learning suggests learners recognize and critically reflect upon personal beliefs. In gaining new knowledge, adults analyze learning, developing new sets of beliefs relating to their firsthand experiences. Transformation begins when individuals identify problems and seek to gain knowledge expanding their beliefs (Baumgartner et al., 2003). When individuals seek to enhance learning it becomes self-directed.

Self-directed learning is acquired through planning, carrying out, evaluating, and applying new knowledge to individual experiences (Baumgartner et al, 2003). Self-directed learning is essential component when exploring a person's free will to engage in an educational

act (Cox, 2017; Merriam, 2001). Wang & Cranton (2013) suggest self-directed learning is influenced by an individual's personal autonomy, self-management, learner control, and autodidaxy. Wang & Cranton describe autodidaxy as a "person' s non-institutional pursuit of learning projects" (p.187). Personal beliefs and the willingness to identify and assimilate current information are evidence using personal autonomy and self-management in seeking additional information (Wang & Cranton, 2013; Wang & Cranton, 2017).

Higher education courses are being offered at a phenomenal rate to meet the demands of adult learners (Wang & Cranton, 2017). Adult learners want to learn when it is convenient for them, the use of technology supports the assumptions and themes suggesting meanings can be constructed by the learner through virtual learning environments, as learners make sense of content based on their historical and social contexts (Mezirow, 2000; Wang & Cranton, 2017). Technology has the potential to support self-directed transformational learning.

**Web-based Instruction**

Web-based instruction in EI using a parent coaching model appears to be a relatively new area of study although, adult online learning is thoroughly documented (Allen & Seaman, 2010; Bolliger & Martindale, 2004; Herrington, Oliver, & Reeves, 2003; Kane, Shaw, Pang, Salley, & Snider, 2016; Means, Toyama, Murphy, Bakia, & Jones, 2009; Rovai & Jordan, 2004; Serwe, Hersch, Pickens, & Pancheri, 2017; Watson, 2008). Watson (2008) projects blended learning, a combination of face-to-face and online instruction will likely be a "predominant teaching model of the future" (p.3). Blended learning opportunities provide the conveniences of online learning along with traditional face-to-face interaction (Rovai & Jordan, 2004). Watson (2008) suggests blended learning will not occur without challenges; requiring new instructional methods, evaluation of content development, and professional development.

Utilizing web-based instructional content was found helpful in a few EI online research studies. In 2014, Hollingsworth and Lim found using web-based modules with early childhood professionals improved learner knowledge and competency; reportedly being most effective when meaningful "real-world" scenarios were used. Web-based modules were found effect in expanding EI practitioner knowledge and competence; some practitioners preferring online methods over traditional instruction (Hollingsworth & Lim, 2014). Son and Lim (2014) found web-based education programs to be effective in improving quality of life and home-based care when used by mothers of children with atopic dermatitis; finding younger mothers and mothers of one child were more interested in using the internet for learning and were more likely to participate in their study compared to older mothers or mothers of more than one child. Wade, Wolfe, Brown, and Pestian (2005) found web-based instruction in content and problem solving "very helpful" for parents of children suffering from traumatic brain injuries.

Herrington, Oliver, and Reeves (2003) report authentic learning activities embedded in to online instruction has been shown to have benefits to learners, as they use problem solving skills applied to realistic situations. Ensuring high-quality, media-rich content and having the personnel to implement blended learning continues to be a challenging due to limited resources and varying degrees of instructor abilities (Babb, 2016). Babb (2016) and Kane, Shaw, Pang, Salley, and Snider (2016) explain the increase in online learning has prompted institutes of higher education to pay close attention to learner satisfaction and continually re-evaluate teaching methods, best practices, and competency of instructors to ensure high quality academic instruction.

In a recent study, Serwe, Hersch, Pickens, and Pancheri (2017) found online telehealth to be a promising field for educating caregivers. In this study participants engaged in synchronous

videoconferencing to learn content material over a six-week period. Serwe, Hersch, Pickens, and Pancheri (2017) revealed positive benefits of improving learner knowledge and being better prepared to handle caregiving tasks. Further, the participants found learning in this manner to be a positive experience, with a high satisfaction rating.

Self-guided web-based platforms provide convenient, flexible learning opportunities, sharing real-world scenarios. Chumley-Jones, Dobbie, and Alford (2002) suggest web-based learning provides ease of accessibility, ease of adjustments to content, and ease for instructors to insert plug-ins and hyperlinks. Chumley-Jones et al. (2002) describe online learning as an efficient way to support online learners. Learners in Hollingsworth and Lim's 2014 study, shared using videos and realistic situations being the most useful resources in training modules.

**Building Collaboration with Caregivers**

To provide meaningful, family-centered intervention strategies and techniques, EI practitioners must build collaborative relationships with families. Douglass (2011) shared family-engagement is key to success in EI programs. Building relationships between EI providers and families is critical in fostering trusting, friendly, sensitive relationships focused on "shared power, reciprocity, and positiveness" (Douglass, 2011).

The Division of Early Childhood (DEC, 2015) "Recommend Practices" suggests quality EI programs support family-centered practices in natural environments fostering respectful nurturing relationships between EI specialists and caregivers. The DEC (2015) recommended practice guidelines provide caregivers with modeling and coaching techniques to promote ownership, confidence, problem-solving, and carryover of best practices. A coaching model is supported among various EI programs and early childhood experts (Adam & Tapia, 2013: Dunst et al, 2014; McWilliam, 2010; Rush & Sheldon, 2011).

EI services have been found most effective using a family-centered approach; a collaborative shared effort between practitioners and families (Adams & Tapia, 2013). Building trusting, effective relationships, providers and parents enhance existing parent knowledge through meaningful experiences expanding parenting skills. Promoting participation and engagement of caregivers involved in a child's life, provides sensitive and responsive ways to support a child's development, and is critical in EI (DEC, 2015; Schranz & Sane, 2017).

The DEC (2015) supports respectful, culturally-sensitive partnerships; facilitating teaming and collaboration by building ongoing relationships with families. Provider acknowledgment of a family's cultural and religious beliefs, as well as, traditions, values, and routines creates partnerships in which all members of the IFSP team feel valued and respected. Promoting participation and engagement of others involved in a child's life, provides sensitive and responsive ways to support a child's development, and is critical in EI (DEC, 2015).

EI specialists enhance collaborative partnerships by assisting families in identifying community supports and coaching primary caregivers in strategies desired to meet family needs. EI programs support family-centered relationships by assisting families in navigating bureaucratic agencies and identifying local supports to help reduce anxiety, chronic stress, and physical illness (Case-Smith, 2013). Douglass (2011) found that large bureaucratic organizations often act as barriers to high-quality family partnerships, as these structures emphasize professional methods not conducive to building caring and collaborative relationships. The Anne E. Casey Foundations "Kids Count" (2012) report indicates in the past ten years, extended family members and close family friends have had to care for 2.7 million children in the United States. Kids Count (2012) discloses one in five black children spend time during their childhood in kinship care. In EI, building trusting relationships with all family members can help cultivate

carryover of home programs (Steinberg, 2017). Adams & Tapia (2013), Rush and Sheldon (2013), and McWilliam (2010) point out, family carryover helps children achieve outcomes, in so doing closing the gap in developmental delays. Thus, investing in positive supportive relationships between EI practitioners, family members, and other paid caregivers could potentially reduce government spending on intervention later in life (Adams & Tapia, 2013; Anne E. Casey Foundation, 2012).

**Occupation-Based Practice**

Using occupation-based practices (OBP), OT's assist families and other caregivers in understanding and enhancing a young child's ability to participate in age appropriate daily occupations. OT's are experts in identifying everyday routine tasks to enhance and enable people to participate in their roles (AOTA, 2014). OT's in EI focus on family-centered approaches engaging families and children in performing their occupational roles and daily routines (Case-Smith, 2013). As experts in analyzing daily roles and tasks, OT's are responsible for providing effective service to their clients (AOTA, 2014).

OT's have the skills sets fostering and empowering caregivers in EI settings by challenging caregivers through brainstorming opportunities; leading to problem solving solutions (Henry & Lindsay, 2016). This problem-solving ability enables caregivers to solve difficult problems and is instrumental in advancing a child's behavior and functional capabilities daily (Henry & Lindsay, 2016). Thus, in teaching parents and caregivers to explore meaningful routines of childhood in natural settings, the OT's applies family-centered knowledge and concepts using direct application in daily occupations impacting young children.

**Summary**

In today's fast track world of technology, using the internet to access information is a common occurrence. Family members and caregivers of children in EI programs often identify problems and seek solutions to improve their daily life. Adults use the internet voluntarily through self-directed inquiry, frequently seeking information via the world-wide web to find meaning and gain clarity concerning meaningful problems related to their everyday lives. In today's world, this process is frequently initiated by using an internet search. Attesting to this, Google (2016) reports processing over 40,000 internet searches per second, each day. Since 1998, searching the internet for answers has confirmed phenomenal growths and today is a common daily occurrence for many individuals. A problem exists in EI settings, as adults search the web and frequently find low-quality opinion-based information rather than high-quality evidenced-based information.

Reinforcing web-based learning theory to enhance service delivery and communication with parents, family members, family friends, and paid caregivers through web-based instruction could help break down barriers by providing convenient accessible support for all individuals involved in caring for an eligible child. Using blended learning, combining online authentic learning opportunities along with face-to-face instruction, OT's are well suited to provide instructional content, through activity analysis, and examining caregiver roles and daily routines (Case-Smith & Obrien, 2013).

A void exists in the literature about the efficacy of using web-based instruction with caregivers of young children that are participating in EI intervention services. OT's have the capability to change service delivery by providing occupation-based early childhood topics and recommendations using high-quality educational web-based instructional modules. Ultimately,

this study intends to provide evidence helping to “bridge the gap” in caregiver follow through of practitioner recommendations and in learning evidenced-based information necessary to help meet IFSP outcomes.

# SECTION THREE: METHODS

## Project Design

This OT Capstone Project used a pre-test post-test design to reveal information about caregiver attitudes and perception and content questions. Pre-test/post-test design allows researchers to examine quantitative data determining relationships using surveys and intervention to answer research questions (Creswell, 2014). This two-fold study intended to examine 1) caregiver perceptions and attitudes in using web-based modules supporting supplemental recommended practice information and 2) evaluate content knowledge. This approach focused on examining the effectiveness of supplemental web-based instruction for occupation-based general recommended practices in early intervention settings.

Prior to developing the study proposal, a needs assessment was conducted to identify how information was being relayed in EI settings. A survey was sent to Maryland EI providers asking how information was currently shared with all members of a qualifying child's IFSP team. Providers were also surveyed on their opinion of using online websites to provide supplemental EI information. Fourteen providers responded to the survey. Survey results yielded findings suggesting the use of web-based modules as a potential means for sharing general practice topic information. The respondents expressed a desire in sharing general knowledge but warned not to provide specific therapeutic techniques, as clinicians needed to be sure caregivers were getting individualized intervention support. One respondent indicated using video-taping of sessions as a powerful tool for sharing information; while another respondent suggested family-centered and community-based online trainings might be helpful for family members and other caregivers.

Based upon the needs assessment, literature review, and the researching therapist's EI experiences, study objectives and content topics were selected. A supplemental instructional design method was developed to support EI topics; not intending to replace traditional face-to-

face individualized intervention sessions. The Capstone objectives identified were: 1) Is using an online learning platform an effective adjunct method for caregivers of young children to learn recommended content information? 2) After completing the instructional modules, did caregivers improve their knowledge related to recommended practice content? 3) Did participants perceive online instruction effective for their learning? Approval for the project was received from the Eastern Kentucky University (EKU) Institutional Review Board (IRB) prior to the initiation of the study (see Appendix A).

**Setting**

The Capstone Project was developed and implemented using a dedicated online training platform, through CourseSites powered by Blackboard website. CourseSites by Blackboard is a free web-based online learning platform for educators serving grades Kindergarten through 12$^{th}$ and adult learners. Unlimited numbers of students can enroll in a CourseSites course, engaging in multimedia training materials at their convenience, as the course is available 24 hours a day, seven days a week. CourseSites is capable of housing surveys, multimedia content, and a full grading center for testing and feedback.

**Inclusion Criteria**

Eligibility for the study was self-determined by answering questions located within an emailed CourseSites invitation. The inclusion questions were (see Appendix B):

1. Are you an adult (18 years or older)?
2. Are you a primary caregiver (providing 5+ hours of care per week) of a child participating in an EI program currently or within the past year?

3. Do you have access to the internet through a computer, tablet, or smartphone device or could you get access to the internet through the local library or free Wi-Fi establishment?

Once caregivers met criteria by answering "yes" to all eligibility questions, they were provided an informed consent statement prior to registering for the website. Individuals who did not meet the study inclusion criteria were sent an email thanking them for their willingness to participate.

**Participants**

Eligibility for inclusion required that the participants must currently or within the past year have been the primary caregiver of a young child receiving early intervention services under an IFSP. Primary caregivers in this study will be defined as adult individuals who care for an eligible child for five or more hours each week. Participants for the study were adults (age 18+ years), self-identified primary caregivers of children aged birth through five years old with a valid email address and access to the internet. Participants were family members and paid individuals of children participating in EI programs; most participants were mothers and grandmothers; paid individuals were preschool teachers, instructional assistants, daycare providers, and nurses. A total of 22 individuals provided an email address were invited to proceed with the pre-study inclusion questions. All were automatically entered in a $25 Amazon gift card drawing after the study, regardless if they were eligible for study participation. Eighteen participants self-determined eligibility per inclusion criteria and were directed to proceed to the web-based course.

A cover letter was written to recruit potential participants (see Appendix C). Participants were identified via snowball sampling or respondent-driven sampling method. According to Patten (2009) snowball sampling is useful for identifying select hidden populations using mutual

relationships to identify eligible participants. Respondent-driven purposeful sampling allowed the researcher to utilize existing professional relationships and networking to solicit study volunteers (Patten, 2009). To help identify eligible study participants, the researcher used social networking communication applications [*Facebook* and *Linkedin*] and professional relationships with other EI specialists, pre-school educators, and daycare providers to solicit interested potential candidates. Potential study participants responding with an email address were contacted by the researcher via an email invitation from the CourseSites website. Within the email invitation via CourseSites website, participants were asked to complete a pre-study inclusion questions determining eligibility for participation (see Appendix B).

**Instrumentation**

Multiple online learning platforms were investigated for meeting the needs of this Capstone Project. The needs of the study included: developing surveys and tests and housing content information. After reviewing three web-building websites: WIX (Wix, 2017) and Weebly (Weebly, 2017) both free web-building sites and Google Domains (Google, 2017), a for fee site, the developer determined these sites did not meet all the needs of this study. At the recommendation of the researcher's mentor, CourseSites by Blackboard (CourseSites, 2017) was chosen as an appropriate online platform to meet all the needs of this research study. A course entitled, "Recommended Practices in Early Intervention" was developed on the CourseSites website.

CourseSites powered by Blackboard is an interactive website for educators and instructors to design course materials up to 500 MB (CourseSites, 2017). CourseSites uses a blended and eLearning environment to support classroom management; allowing instructors to easily modify content, add hyperlinks, and multi-modal content to create engaging online

learning opportunities. CourseSites is capable of housing surveys, multimedia content, and a full grading center for testing and feedback. All the surveys (demographics and conclusion survey) and pre-and post-tests (Modules 1-3) were created and housed within the CourseSites website.

At the start of each of the three training modules, participants were asked to complete a pre-test survey using Likert scales. The questions were designed to assess initial attitudes and perceptions of participants, as well as, focus on learning content within the training modules. At the completion of the training modules, caregivers completed a post-test revealing changes in knowledge as well as exposing attitudes and perceptions regarding the training intervention. Continuous interval Likert rating scale was used to determine quantitative data with regards to attitudes and perception of completing online training. Likert rating scales are a common way to determine client/participant satisfaction. To determine the effectiveness of content knowledge, quantitative data was collected through pre/post-test questions. Microsoft Excel 2016 was used to determine statistical relevance and analyze frequency and percentage changes in content questions. The CourseSites website provided data results downloadable in Excel spreadsheets.

## Procedures

### Pre-study

The study was organized in three phases; 1) a pre-phase, 2) intervention, 3) data analyses. In clinical practice when developing IFSP's, this researcher OT frequently fielded questions and concerns from parents and caregivers regarding difficulties establishing bedtime and mealtime routines. These are typical problem areas OT's encounter and address in EI settings. Additionally, a frequent area of difficulty for parents and caregivers to understand how parent coaching is different from medical models in EI. Therefore, as a follow-up to these parent

questions and the researcher's EI clinical experiences, the investigator developed modules to support these areas of concern.

The modules selected were: 1) define how parent coaching differs from medical model of intervention, 2) provide basic general recommendations about establishing mealtime routines, and 3) provide basic general recommendations about establishing bedtime routines. The content within the modules was developed based upon content expertise identified in the literature (Adams & Tapia, 2013; AOTA, 2017; AAP, 2017; Budd & Chugh, 1998; Case-Smith & O'Brien, 2013; DEC, 2014; Franklin & Rogers, 2003; Graham, Rodger, & Zaviani, 2010; Obleman, 2017; Williams, Reigle & Kerwin, 2009; Sanataro, 2016; Weissbluth, 2003; Zero to Three, 2017). Using this information, the researcher constructed three presentations using evidence to support caregiver understanding of these topics.

Three module folders were created using the presentations and supporting materials (videos and resources). The modules entitled: Parent Coaching in Early Intervention, Establishing Bedtime Routines, and Establishing Mealtime Routines were designed using an ADDIE approach. ADDIE is an acronym describing the process of instructional design; analyze, design, develop, implement, and evaluate (Brown & Green, 2011). Additionally, module content was constructed integrating Bloom's Taxonomy of Learning, facilitating meaningful adult learning styles. Driscoll (2005) shared Bloom's Taxonomy consists of three ways in which adults acquire knowledge through: cognitive, affective, and psychomotor outcomes. Driscoll (2005) discusses Bloom's taxonomy as an approach assisting developers in constructing meaningful content, based on everyday real-world caregiver practices. In this manner, module content was designed to tap in to the caregiver's attention and willingness (affective aspect) to learn

(cognitive aspect) topic strategies and information; ultimately utilizing (psychomotor aspect) these recommendations within daily routines (Driscoll, 2005).

Presentations were created using PowerPoint by Microsoft and a free-online presentation site, Prezi (Prezi, 2017). Evidenced-based content and videos were used to create the Prezi and PowerPoint presentations. The Advantage Touchstone Applied Science Associates Open Standard (ATOS) reading ease formula was used to assess the vocabulary and the quantitative questions within this learning opportunity (Dubay, 2004). Dubay (2004) reminds us in 1997 the adult reading level in the United States was at a 7$^{th}$ grade reading level. Since 2000, many minorities have entered the United States, therefore ATOS suggests reading levels should be at or below a 4$^{th}$ grade reading level (Dubay, 2004).

Module one sought to define a parent coaching model of intervention compared to a medical model (see Appendix D). In EI, parent coaching has been identified by the American Academy of Pediatrics as a preferred method; supporting the caregivers in applying techniques and strategies within daily routines (Adams & Tapia, 2013). Case-Smith & O'Brien (2013) suggest caregivers who are informed fully involved, participating in the therapy sessions are more likely to implement therapy suggestions and carryover their daily routines. OT's provide support and encouragement through a voluntary collaborative effort; rendered through improved caregiver confidence, competency, and follow through (Case-Smith & O'Brien, 2013; Rush & Sheldon, 2013). Modules two and three demonstrated strategies and revealed the underlying importance of establishing bedtime and mealtime routines for young children (see Appendix E & F). Evidence was assembled through a systematic review of data relating to establishing daily routines for young children.

Modules were reviewed by two subject matter expert examiners for content quality and evidence-based information. Face validity was established by review of experts in the field: Leslie J. Hardman, OTD, OTR/L and Dana M. Howell, PhD, OTD, OTR/L, FAOTA. Brown and Green (2011) suggest subject matter experts can work through individual steps and evaluate content from a learner perspective to make recommendations for improvement to the learning content. After expert review, adjustments and revisions were made to content information.

After expert review and modifications, the PowerPoint and Prezi presentations were shared with two EI professional colleagues, Carol Dansberger, PT, MS and Terri L. Brosey, PT, MS, both holding advanced degrees in instructional technology and two high school students to obtain feedback regarding understandability and multi-media appeal. All four reviewers reported a preference for the Prezi format, stating presentations were more 1) visually appealing, 2) easier to follow, and 3) displayed content using a more "up-to-date" technology medium. Based on these findings, it was determined, the Prezi format would be used for the presentations in all three modules.

An introductory Screencast video was created to explain how to navigate the course. In addition to the introductory video, written instructions were also provided on the main page of the *Recommended Practices in Early Intervention* website. Two types of collection instruments were constructed by the researcher; surveys and pre-tests/post-tests. The first survey collected demographic information such as age, gender, race, income, highest education level, and number of children in household under the age of 5 (see Appendix G). Pre-tests and post-tests were developed to ascertain content knowledge and reveal caregiver attitudes and perceptions (see Table 1 & 2). A conclusion study (see Table 3) investigating participant attitudes and perceptions. A checklist was provided at the end of the course for participants to be sure they had

completed all eight assignments. The eight assignments included: two surveys (demographics and conclusion) and three pre-tests and three post-tests.

Pre-test and post-tests were comprised of performance rating in the form of Likert Rating scales, continuous interval data and nominal data: true/false, multiple answer, and short answer questions. Performance ratings using a 5-point Likert scale (with 1= Strongly Disagree to 5 = Strongly agree) focused on revealing caregiver perceptions and attitudes towards learning content materials using an online web-based platform (Brown & Green, 2011). Nominal data true/false questions were formulated, however Brown and Green (2011) remind us, these questions are limited to factual information and the learner has a 50/50 chance of getting the correct answer. Judged to be the most useful by Brown and Green (2011) in objective tests, multiple choice questions challenge the thinking of learners by expecting them to use critical thinking to select the correct answers.

**Table 1: Quantitative continuous interval rating scale opinion questions for Modules 1-3**

| MODULE 1 | PARENT COACHING Pre-test Question | | PARENT COACHING Post-test Question |
|---|---|---|---|
| Q1 | I feel comfortable using the internet to learn new information. | Q1 | After reviewing this module, I feel *more* comfortable using the internet to learn new information. |
| Q2 | I believe web-based tutorials will be convenient for my schedule. | Q2 | After viewing this module, I believe web-based learning is convenient for my schedule. |
| Q3 | I feel confident using a *parent coaching* model of intervention with my child. | Q3 | After viewing this information, I feel more confident using a *parent coaching* model of intervention with my child. |
| Q4 | When early intervention specialists are providing services for my child, I recognize the importance of "active participation" during therapy sessions. | Q4 | When early intervention specialists are providing services for my child, I recognize the importance of "active participation" during therapy sessions. |

| | | | |
|---|---|---|---|
| MODULE 2 | | | |
| | BEDTIME ROUTINES | | BEDTIME ROUTINES |
| Q1 | I feel confident putting my child to sleep. | | I feel confident putting my child to sleep |
| Q2 | I have a good understanding of getting my child to go to sleep and stay asleep. | Q3 | I have a good understanding of getting my child to go to sleep and stay asleep. |
| Q3 | I have an established bedtime for my child. | Q2 | I have or will try to establish a bedtime routine for my child. |
| MODULE 3 | MEALTIME ROUTINES | | MEALTIME ROUTINES |
| Q1 | I have an established mealtime routine for my child. | Q1 | I believe it is important to establish a mealtime routine for my child |
| Q2 | I feel confident and happy when feeding my child. | Q2 | I feel more confident and less stressed when I feed my child. |
| Q3 | I understand the importance of proper positioning to feed my child safely. | Q3 | I gained a better understanding of how to feed my child safely, in a supported position |

Key-Opinion-5-point Likert Rating Scale: 1= Strongly Disagree to 5 = Strongly agree

**Table 2: Quantitative nominal data content questions for Modules 1-3**

| Content Question # | Pre-test | Content Q# | Post-test |
|---|---|---|---|
| MODULE 1 | PARENT COACHING | | PARENT COACHING |
| Q5* T/F | Parent coaching in early intervention is provided in hospital settings and during outpatient visits. | Q5* T/F | "Natural settings" in early intervention programs means the child is seen by providers within typical environments a young child attends. |
| Q6 T/F | Parent coaching uses a “patient-centered” approach to providing therapy services? | Q6 T/F | Parent coaching uses a “patient-centered” approach to providing therapy services? |
| Q7 T/F | According to the American Academy of Pediatrics, parent coaching has been found to be | Q7 T/F | According to the American Academy of Pediatrics, parent coaching has been found to be |

| | | | |
|---|---|---|---|
| | most effective in early intervention settings? | | "most effective" in early intervention settings? |
| Q8 T/F | In parent coaching, caregivers should only use therapy techniques taught by the therapist during the therapy session? | Q8 T/F | In parent coaching, caregivers should only use therapy techniques taught by the therapist during the therapy session? |
| Q9 T/F | A parent coaching model of intervention believes therapists are the child's most important teacher? | Q9 T/F | Parent coaching model of intervention services believes therapists are the child's most important teacher? |
| Q10 M/C | Which types of services might your child be provided with in their early intervention program? | Q10 M/C | The types of therapy services provided through your early intervention program might include the following: |
| MODULE 2 | BEDTIME ROUTINES | | BEDTIME ROUTINES |
| Q4 T/F | A toddler needs approximately 12-14 hours of sleep each day? | Q4 T/F | A toddler needs approximately 12-14 hours of sleep each day? |
| Q5 M/C | When establishing bedtime routines for children ages 2-5 years, all of the following are suggested ***except***: | Q5 M/C | All of the following *except* _____ are suggested to help establish bedtime routines. |
| Q6 T/F | Sleep effects a child's development, behavior, and emotions? | Q6 T/F | Sleep effects a child's development, behavior, and emotions? |
| Q7 M/C | Helping establish bedtime routines for your child helps to: | Q7 M/C | Helping establish bedtime routines for your child helps to: |
| Q8 T/F | According to pediatricians and sleep experts, putting your child to bed later will actually help them sleep longer? | Q8 T/F | According to pediatricians and sleep experts, putting your child to bed later will actually help them sleep longer? |
| Q9 T/F | Participating in "rough house" play and watching television will help your child get ready for sleep | Q9 T/F | Participating in "rough house" play and watching television will help your child get ready for sleep |
| Q10 M/C | All of the following *except* _____ are suggested to help establish bedtime routines. | Q10 M/C | When establishing bedtime routines for children ages 2-5 years, all of the following are suggested ***except***: |

| MODULE 3 | MEALTIME ROUTINES | | MEALTIME ROUTINES |
|---|---|---|---|
| Q4* S/A | Please describe any concerns you might have about your child's eating at this time | Q4* S/A | Please share 2-3 examples of information you learned or found helpful from this mealtime routines module. |
| Q5 T/F | When teaching your child to increase their appetite, you should give them a bottle before trying solid foods? | Q5 T/F | When working on improving your child's appetite, you should always give them a bottle before solid foods? |
| Q6 T/F | Mouthing toys, fingers, and other objects in early childhood is important because it desensitizes the mouth and decreases a baby's gag reflex? | Q6 T/F | Mouthing toys, fingers, and other objects in early childhood is important because it desensitizes the mouth and decreases a baby's gag reflex? |
| Q7 M/C | The American Academy of Pediatrics (AAP, 2013) and the American Occupational Therapy Association (AOTA, 2014) suggests establishing mealtime routines for young children is important because: (chose the best answer) | Q7 M/C | The American Academy of Pediatrics (AAP, 2013) and the American Occupational Therapy Association (AOTA, 2014) suggests establishing mealtime routines for young children is important because: (chose the best answer) |
| Q8 M/C | According to pediatricians, _____% of parent's share concerns about problem eating in their young child. | Q8 M/C | According to pediatricians, _____% of parent's share concerns about problem eating in their young child. |
| Q9 M/C | When you begin feeding your young child semi-soft baby foods, the best position for them is to: | Q9 M/C | When you begin feeding your young child soft semisolid baby food, the recommended position for them is: |
| Q10 M/C | When is the best time to seek help when dealing with a problem eater? | Q10 M/C | When is the best time to seek help when dealing with a problem eater? |

Key= T/F (true/false), M/C (multiple choice), S/A (short answer)
*eliminated question from study results

**Table 3: Conclusion Survey Questions**

| | CONCLUSION SURVEY QUESTIONS |
|---|---|
| Q1 Opinion | I feel these tutorials taught me valuable information that will help me improve my child's daily bedtime and mealtime routines. |
| Q2 Opinion | In thinking about the objectives of the Parent Coaching presentation, I believe: I gained a better understanding of the parent coaching model used in early intervention programs. I understand what natural settings are for my child. I understand why it is important for me to participate in therapy sessions with my child. |
| Q3 Opinion | After reviewing the Bedtime Routines presentation, I believe I have learned: the importance of a good night's sleep for young children the importance of taking charge, setting limits, and being consistent with bedtime expectations how to establish a bedtime routine. |
| Q4 S/A | Please share one or two strategies you learned from this presentation that you are currently using or plan on using to help your child establish a bedtime routine. |
| Q5 Opinion | After reviewing the Mealtime Routines presentation, I believe I have: learned the social importance of eating with my child, learned how poor eating effects young children, learned the importance of good positioning for feeding learned some tips to improve my child's mealtime routines and feeding habits. |
| Q6 S/A | Please share one or two strategies you learned from this presentation that you are currently using or plan on using to help your child establish a mealtime routine. |
| Q7 M/A | Please share what you found most beneficial in using web-based learning modules: videos, presentations, resources. |
| Q8 Opinion | I found this online course helpful for me and my family. |
| Q9 Opinion | I would recommend online training modules to other parents and caregivers of young children. |
| Q10 E/O | Taking in to consideration if you exited and entered this course, did this course take more than 1.5 hours to complete? |
| Q11 M/C | Please share is you felt this type of online instruction was difficult to navigate. |
| Q12 S/A | Please share any suggestions or comments about improving the instruction, design, or content of these training modules. |

Key-Opinion-5-point Likert Rating Scale: 1= Strongly Disagree to 5 = Strongly agree;

E/O-either/or; M/A-Multiple answers; M/C-multiple choice; S/A-short answer

As a final step in preparing for a live study, two EI clinicians with expert online learning knowledge and one person who had basic social online experiences (no online learning experience/knowledge) were asked to complete the course. Feedback from the trial participants was reviewed, a few technical issues were identified; appropriate modifications were applied.

**Study**

After all revisions in the course were complete, the cover letter was shared with potential informants to gather potential participants. Potential participants were asked to contact researcher by providing an email address. After initial contact by potential participants, an email invitation was generated by the researcher through the CourseSites website providing a detailed description of the study. Participants were asked to answer study inclusion questions, self-determining eligibility for the study (see Appendix B).

Several interested participants expressed a concern they did not receive the CourseSites invitation. After investigation, the researcher found the problem; since the invitation was computer generated through the CourseSites website, it was re-directed from potential participant's email inboxes, instead going directly to their "junk" mail folders. Once, this problem was discovered, a separate email was send directly from the researcher providing a visual example of how the invitation should appear in their email inbox and alerting them to check their "junk" email folder if the invitation was not seen. Once potential participants viewed the invitation, they were asked to answer the inclusion criteria study questions.

After answering the inclusion questions, if participants determined they were eligible for study participation, they were provided an informed consent statement. This statement read, "*By registering for this online research study, you are giving your informed consent to participate in these training modules. The completion of these training modules constitutes your informed*

*consent to participate in this study. You may withdraw from the study at any time. We do not ask for your name or identifying information, the username you chose can be factual or an alias.*" Participants were informed the researcher was available via email to answer questions/concerns arising throughout the study period.

Once inclusion criteria were met and the informed consent statement was reviewed, participants were instructed to login to the CourseSites website by selecting a username and password. During the login process participants were instructed to choose whatever username they wanted to protect their personal identity for confidentiality purposes. Participants who completed the entire course were notified through the introductory video, "Upon completion of all three training modules they will entered in a second chance for $25 amazon.com gift card drawing."

Once participants enrolled in the course using self-selected username and password, they viewed the introductory video informing them they could work at their own pace, but were encouraged to complete the course within one week of their initial start date and each module was programmed to take approximately 20-25 minutes to complete. After one week enrolled in the course if the participant had not finished the course, the researcher emailed reminders to prompt completion of all course components, including eight data collection sources: two surveys, three pre-tests and three post-tests.

After viewing the introductory video, participants were directed to completed a demographic survey. Once the demographic survey was complete, participants began the intervention portion of the study by opening module folders; each containing a pre-test, presentation, supporting resources, and post-test. After the study, a computerized random drawing selected a winner for the two $25 Amazon gift card drawings. One name was drawn via

randomized computer selection from all participants who provided an initial email address to award a $25 amazon.com gift card. Study participants completing all three training modules were entered in the second randomized computer drawing for $25 amazon.com gift card. Winners of the gift cards were notified via email with a gift code to access award.

**Data analysis**

The evidence gathered in this Capstone Project revealed attitudes and perceptions of caregivers in the use of technology to promote recommended practice instruction, as well as, ascertain effectiveness in gaining content knowledge and meaningfulness for parents and caregivers. Data was collected and analyzed by the researcher. Quantitative data was analyzed using Microsoft Excel (2016) for frequency and percentages and statistical significance. Continuous interval Likert rating scales assessing opinion-based questions on attitudes and perceptions for pre-test and post-test comparison were statistically analyzed using Microsoft Excel (2016) paired t-test data analysis package; nominal content questions were analyzed using frequency and percentages to compare pre- and post-test performance indicators. Conclusion survey finding were also collected and reported. Overall findings are being shared via this written capstone report.

**Ethical Considerations**

The researcher reviewed the American Occupational Therapy Association's (AOTA, 2015) Code of Ethics and attended a professional development session 11/11/2016 entitled AOTA's Code of Ethics at the Maryland Occupational Therapy Association's annual conference. Approval through Eastern Kentucky University's (EKU) instructional review board was obtained prior to beginning this study (see Appendix A).

Participation in this study was voluntary and there was no penalty for not completing the training modules. All caregivers providing an email address were entered in chance to win a $25 amazon.com gift card. Caregivers were provided an informed consent statement acknowledging they could withdraw from the study at any time. Caregivers completing all three training modules were entered in a second chance drawing for a second $25 amazon.com gift card.

For subject anonymity and privacy, names and identifying information were not collected. To maintain confidentiality, participants were notified they could use an alias to login to the CourseSites by Blackboard website. Any identifying forms, such as, email lists, survey, and testing results are kept on a password protected computer.

The study posed minimal risk to participants, no more than reviewing online information or completing online surveys in typical daily life. Caregivers were asked to provide demographic information relating to age, gender, income ranges, highest level of education, and number of children in the household under the age of 5 years. This information was used to help the researcher understand emerging themes revealed when analyzing results.

**Outcome Measures**

After completion of the study, data was analyzed and compared using pre-test/post-test study design. Outcomes were evaluated using pre-test and post-test information revealing changes in knowledge through content areas and attitude/perception changes towards using an online platform. Data identified provided evidence supporting research questions and the predicted outcomes.

**Table 4: Timeline**

| Time Frame | Capstone Project Implementation |
|---|---|
| November-December 2016 | Complete IRB application, create cover letter for preliminary survey |
| December 2016-January 2017 | Obtain IRB approval |
| January-April 2017 | Apply content to dedicated website |
| April 2017 | Select participants for study via snowball sampling |
| May- June 2017 | Direct participants to web-site modules |
| June 30, 2017 | Drawing for (2) $25 Amazon gift cards |
| June-August 2017 | Analyze data and write Capstone report |

# SECTION FOUR: RESULTS AND DISCUSSION

## Introduction

The results are presented based on the research questions. Basic demographic information provided an understanding of the group caregivers involved in the study. Analysis of information revealed pre-test post-test comparison based on true/false, and multiple-choice, and multiple answer questions, as well as, opinion-based Likert rating scales. Results revealed participant perceptions and attitudes in using web-based training modules to facilitate understanding basic supplementary recommended practice topics reinforcing OBP's relating to parent coaching, establishing bedtime routines and mealtime routines for young children.

Twenty-two caregivers were invited to the research study. Eighteen caregivers logged in to the study after completing the preliminary inclusion questions and reading the informed consent statement. Fifteen caregivers completed the demographic survey; fourteen caregivers began the modules; twelve completed Module 1 (one participant did not "submit" her post-test answers therefore they could not be counted with the data); thirteen fully completed modules 2 & 3. Overall, 67% of the caregivers logging in to the research study completed all of the study components.

## Demographics

Caregivers (*N*=15) completed a demographic survey upon entering the CourseSites by Blackboard *Recommended Practices in Early Intervention* website. Demographic information is summarized in Table 5.

**Table 5: Demographic Information about Caregivers**

| Characteristic | | *N* (%) |
|---|---|---|
| Gender | Male | 0 |
| | Female | 15 (100) |
| Age | 18-24 | 0 |
| | 25-30 | 3 (20) |
| | 31-40 | 5 (33.3) |
| | 41-50 | 2 (13.3) |
| | 50+ | 5 (33.3) |
| Race | Black or African American | 0 |
| | American Indian and Alaska Native | 0 |
| | Asian | 0 |
| | Pacific Islander or Hawaiian | 0 |
| | Caucasian/White | 15 (100) |
| | Other | 0 |
| Highest level of education | Less than high school | 0 |
| | High school graduate (includes equivalency) | 2 (13.3) |
| | Some college, no degree | 3 (20) |
| | Associate's degree | 1 (6.7) |
| | Bachelor's degree | 5 (33.3) |
| | Graduate or professional degree | 4 (26.7) |
| | Ph.D. or higher | 0 |
| Number of children in household under age 5 | 0 | 6 (40) |
| | 1 | 5 (33.3) |
| | 2 | 2 (13.3) |
| | 3 | 2 (13.3) |
| | 4 or more | 0 |

It was determined 100% of caregivers were white females, age 25 and older; 67% reported having an associate's degree or higher, 13% reported a high school diploma, and 20% state "some college". Caregivers, 33% reported having one child in their home, 26% stated 2-3 children under the age of five, and 40% do not have children under age five residing in their home. Of these 15 caregivers, ten were parents or family members of children in EI programs and five were paid caregivers (pre-school staff members or daycare providers).

## Results

Results were obtained from data supporting the research questions posed: 1) Is using an online learning platform an effective adjunct method for caregivers of young children with IFSP's to learn recommended content information? 2) After completing the instructional modules, did caregivers improve their knowledge related to recommended practice content? and 3) Did caregivers perceive online instruction effective for their learning?

Data was collected through the CourseSites website and downloaded in to Microsoft Excel 2016. A statistical analysis using a paired t-test was applied to pre- and post-test opinion-based questions; content indicators using frequency and percentages were used to determine changes in participant performances between content questions in the module pre- and post-testing questions. Opinion questions for the modules and the conclusion survey (see Table 1 & 3) were rated using a continuous interval Likert rating scale (5=Strongly agree, 1=Strongly disagree). Pre- and post-test content/knowledge questions (see Table 2) were analyzed using frequency and percentages.

### Statistical analysis of pre- and post-test attitude and perception based questions

Amongst caregivers (*N*=12 in Module 1; *N*=13 in Modules 2 & 3) answering opinion rating scales (see Table 6) in all three modules there was a statistically significant difference in certain questions. Module 1, questions 1 & 4 (*M*=-0.06, *SD*=0.89; M=0.5, *SD*=0.28 respectively); Module 2, questions 1, 2, & 3 (*M*=0.85, *SD*=1.21; *M*=1.23, *SD*=1.05; *M*=1.15, *SD*=1.03 respectively); Module 3, question 1 (*M*=1, *SD*=0.96) showed statistical significance. Therefore, the researcher rejects the null hypothesis that there is no difference in participant ratings comparing pre-test verses post-test intervention ratings.

Conversely, there was no statistically significant difference in Module 1, question 2 & 3 (*M*=0.17, *SD*=.037; *M*=0.33, *SD*=0.75 respectively), nor in Module 3, questions 2 & 3 (*M*=0.62, *SD*=0.96; *M*=1.31, *SD*=0.23 respectively). Therefore, the researcher fails to reject the null hypothesis that there is no difference in rating scores when comparing pre-test attitudes and perceptions verses post-test scores.

**Table 6: Group Comparison rating of pre- and post-test attitude and perception**

| Attitudes and Perceptions Questions Modules 1-3 | *n* | Pre-module rating *M (SD)* | Post-module rating *M (SD)* | M Difference Post-Pre *(SD)* | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| MODULE 1-PARENT COACHING | | | | | | | |
| I feel comfortable using the internet to learn new information. | 12 | 4.44 (0.62) | 3.83 (0.69) | -0.6 (0.89) | -1.91 | 11 | 0.04* |
| I believe web-based tutorials will be convenient for my schedule. | 12 | 4.25 (0.43) | 4.42 (0.49) | 0.17 (0.37) | 1.48 | 11 | 0.08 |
| I feel confident using a parent coaching model of intervention with my child | 12 | 4.25 (0.60) | 4.58 (0.49) | 0.33 (0.75) | 1.48 | 11 | 0.08 |
| When early intervention specialists are providing services for my child, I recognize the importance of "active participation" during therapy sessions. | 12 | 4.42 (0.76) | 4.92 (0.28) | 0.5 (0.28) | 2.17 | 11 | 0.03* |
| MODULE 2-BEDTIME ROUTINES | | | | | | | |
| I feel confident putting my child to sleep | 13 | 3.62 (1.26) | 4.46 (0.88) | 0.85 (1.21) | 2.51 | 12 | 0.01* |
| I have a good understanding of getting my child to go to sleep and stay asleep. | 13 | 3.38 (1.12) | 4.62 (0.62) | 1.23 (1.05) | 4.06 | 12 | 0.00* |
| I have an established bedtime for my child. | 13 | 3.62 (1.08) | 4.77 (0.58) | 1.15 (1.03) | 3.89 | 12 | 0.00* |
| MODULE 3-MEALTIME ROUTINES | | | | | | | |
| I have an established mealtime routine for my child. | 13 | 3.85 (0.86) | 4.85 (0.36) | 1 (0.96) | 3.61 | 12 | 0.00* |
| I feel confident and happy when feeding my child. | 13 | 3.77 (1.25) | 4.38 (0.74) | 0.62 (1.27) | 1.67 | 12 | 0.06 |
| I understand the importance of proper positioning to feed my child safely. | 13 | 4.23 (0.80) | 4.46 (0.75) | 1.31 (0.23) | 0.61 | 12 | 0.28 |

*$p \leq 0.05$

Thus, ratings in Module 1 revealed significance in caregiver comfort level of using the internet for learning and understanding the importance in “active participation” during EI

treatment sessions. In Module 2, findings revealed significance in confidence levels of caregivers when putting their child to sleep; understanding how to get their child to go to sleep and stay asleep; and establishing a bedtime routine for their child. In Module 3, there was significance noted for importance of having an established mealtime routine for their child.

Upon visual inspection of individual participant results for Module 1, 2, & 3 (see Appendix H, I, & J) the following findings were revealed. In Module 1 (see Appendix H), it was noted that five caregivers indicated improved/positive indicators about their attitudes and/or perceptions after viewing the module; three caregivers showed no change in attitude or perception after viewing the online module; four caregivers shared after viewing the module, they neither agreed or disagreed that they felt "more" comfortable using the internet to learn parent coaching information. Visual inspection from Module 2 (see Appendix I) revealed, nine caregivers rated improved/positive indicators, five of those valued at $\geq$+5 about their attitudes and/or perception after viewing the module; four caregivers had no change in indicators after viewing the module; no caregivers indicated a negative rating change after viewing the module. After viewing Module 3 (see Appendix J), visual inspection revealed eight caregivers indicated improved/positive ratings; four showed no change; one participant indicated they did not agree/nor disagree they felt "more" comfortable or confident after viewing the module.

When inspecting data from the group (see Table 7), findings indicate most participants showed improvement in their opinions/perceptions in all three modules. Three participants showed 'no change" in Module 1 & 2; four showed "no change" in Module 3. Four participants indicated they neither agreed or disagreed they felt "more" confident/comfortable after viewing Module 1; one participant indicated they did not agree nor disagree they felt "more" confident/comfortable after viewing Module 3.

**Table 7: Group changes in attitudes and perceptions after intervention**

| | Improved/Positive rating | No change | Neither agreed nor disagreed they felt "more" confident/comfortable |
|---|---|---|---|
| Module 1 *N*=12 | 5 (42%) | 3 (25%) | 4 (33%) |
| Module 2 *N*=13 | 10 (77%) | 3(23%) | 0 (0%) |
| Module 3 *N*=13 | 8 (62%) | 4 (31%) | 1 (7%) |

**Frequency and percentage changes in pre- and post-test nominal content-based questions**

Amongst caregivers (*N*=12 in Module 1; *N*=13 in Modules 2 & 3) comparing pre-test and post-test scores for content based questions (see Table 8), findings indicate overall group improvements in all three Modules. Specifically, in Module 1, caregivers demonstrated improvements of 18.33 % when comparing pre-test scores with post-test scores; eight caregivers show individual improved scores. In Module 2, there was an overall 5.8 % improvement noted; four individuals showing improved scores and one individual with a decreased score. Improvements of 24.39% were observed in overall group scores in Module 3; with nine individuals showing improvement between pre- and post-testing.

**Table 8: Content question pre- and post-test changes in Module 1-3**

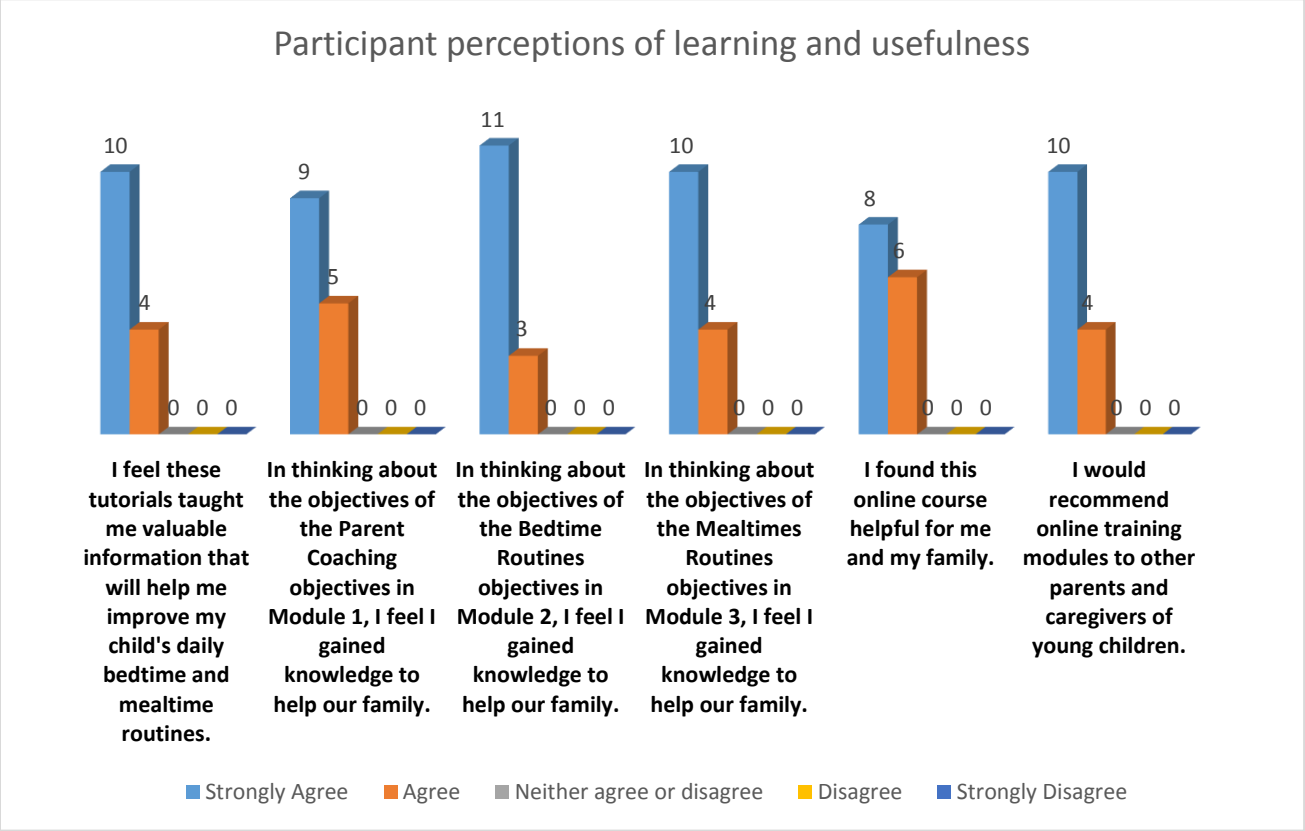
| Results | Module 1 | Module 2 | Module 3 |
|---|---|---|---|
| Pre-test group mean/% | 3.58 (71.67 %) | 6.52 (93.15%) | 4.15 (69.15%) |
| Post-test group mean/% | 4.5 (90%) | 6.92 (98.92%) | 5.54 (93.54%) |
| Overall change | 18.33% | 5.8% | 24.39% |

**Conclusion survey**

After completing the conclusion questionnaire, answering research question #3, "Did caregivers perceive online instruction effective for their learning?" The following results were obtained and represented in Figure 1. Caregivers (*N*=14) were asked to complete Likert rating scales identifying if the evidence-based information provided within the modules was helpful in improving their knowledge regarding understanding (1) a parent coaching model in EI intervention, (2) establishing bedtime routines, and (3) establishing mealtime routines. Seventy-one percent strongly agreed and twenty-nine percent agreed the evidence provided in the bedtime and mealtime routines taught valuable information to improve children's daily routines and shared they would recommend these training modules to other parents and caregivers of young children.

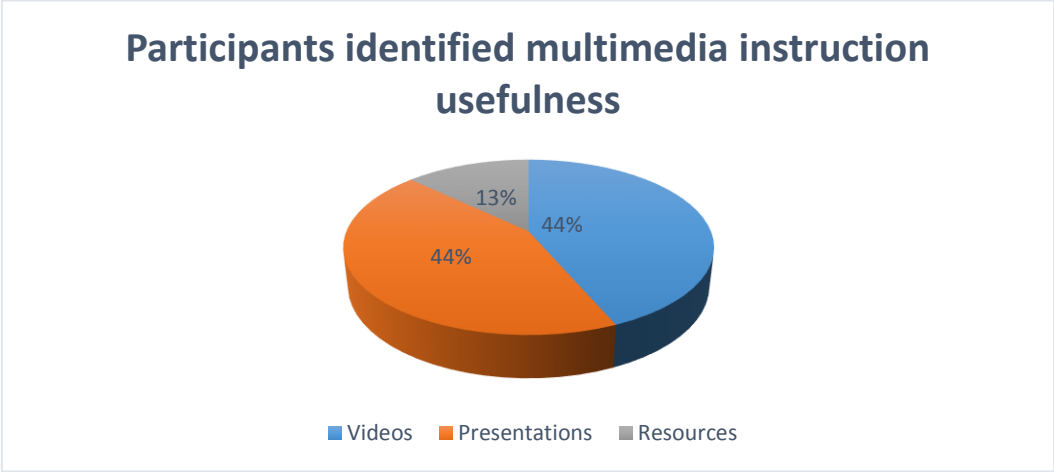
Further, caregivers were asked to rate their belief in whether learning objectives for Modules 1-3 were met; all caregivers selected "strongly agree or agree". No caregivers selected "neither agree nor disagree; disagree; or strongly disagree". When asked if the learning modules within this *Recommended Practices in Early Intervention* course were helpful for them and their families, 57% shared they "strongly agree" and 43% stated "agree".

**Figure 1: Participant perception of learning and usefulness of Recommended Practices in Early Intervention modules.**




To gain an understanding of preferred methods of multi-media instruction (see Figure 2) caregivers were asked to share their opinion on what type of instruction: Prezi presentations, supporting videos, or resources they felt most helpful in this instructional design course. The presentations were created by the researcher; the videos were from YouTube and Zero to Three websites, and the resources were links to evidenced-based websites, such as, HealthyChildren.org and AOTA "Tip sheets" on Establishing Bedtime and Mealtime routines. Caregivers indicated the presentations and videos to be most useful (44% respectively); resources were selected as 13% useful.

**Figure 2: Usefulness of multi-media instruction**




Caregivers were asked about the ease of use and convenience in completing this online instructional course. Specifically, caregivers were asked if the course took more than 1.5 hours in total to complete; 93% (13 caregivers) reported the course work took 1.5 hours or less to complete; one participant indicated the course tool >1.5 hours to complete. Regarding ease of use of the instructional web-course, eight caregivers shared the course website was easy to navigate, five said "sometimes" they had trouble navigating through the online web course and one said she had difficulty (see Figure 3).

**Figure 3: Ease of use**

Caregivers were encouraged to provide suggestions to the instructor on overall course content, instructional design methods, and improvements. Fifteen comments and suggestions were provided; two individuals commented they felt the "tutorials were very informative"; one participant indicated she would have like to have viewed these modules earlier in her EI experience; five individuals gave no feedback comments or suggestions. Seven comments indicated trouble navigating the course or problems with opening videos, presentations, or links. One individual commented they would like to have had a checklist or way to identify where they were in the course so when they re-logged in they would be directed to where they had left off.

**Discussion**

Based on the findings from the study, the investigator uncovered evidence supporting the use of web-based modules as being effective in providing parents and caregivers information regarding general OT occupation-based practice topics in EI. The study found using web-based modules to reinforce EI therapy topics was effective in improving learner knowledge, attitudes, and perceptions, as evidenced by, statistically significant improvements in some of the opinion-based questions. Similar to the results of Hollingsworth and Lim's 2014 study, participants determined videos and realistic situations being the most useful resources in online training modules, caregivers in this online learning opportunity indicated presentations and videos to be most effective.

Occupation-based practice (OBP) topics were instrumental in the design of the training modules, as they are representative of meaningful routines frequently used with young children. Through the development of these online training modules; locating evidenced-based information and reviewing appropriate general family-based concerns and needs, the study used meaningful OBP topics to support caregivers who are interested in establishing bedtime and

mealtime routines. The study supported the use of creating a general EI web-site for parents and caregivers to access when seeking information about general EI topics.

OT's are well-equipped to provide instructional content, through activity analysis and examining caregiver roles and daily routines. Building a website, may help providers be more time and cost effective, as they will be able to spend more time during sessions meeting the individualized needs of their clients. Clinicians could refer parents/caregivers to an evidenced-based website providing information on general EI topics and how to establish meaningful daily routines.

Using adult learning styles under the TPACK framework model of instructional design, online modules allowed caregivers the flexibility of completing the course at their own pace; meeting their own personal needs. This study provided an opportunity for adult learners to expand their knowledge and share their attitudes about learning through this supplemental web-based instruction. Ultimately, the researcher hoped caregivers gained the knowledge, confidence, and competence to utilize these therapy topics and strategies by carrying over these recommendations in their normal daily routines.

**Strengths and limitations of the project**

Using a pre-test post-test study design, the researcher collected two forms of data to complete a comprehensive analysis of the research problem (Creswell, 2014). Thus, the research focus was two-fold, understanding if adult caregivers want to learn general EI topics in this manner and determine if caregivers improved their content knowledge. According to caregiver attitudes and perceptions, they shared the instructional modules were effective and meaningful. Caregivers demonstrated improvements in their learning content information; proof that learning

had occurred. The caregivers shared they would recommend online modules to other family members and caregivers involved in EI programs.

Using online learning platforms provides adult learners with an easy, convenient, accessible place to learn information on topics in EI. The CourseSites website is available 24 hour/7 day a week; giving caregivers the flexibility to complete the training modules at their convenience. Once the learning modules were created, content was easily modified by the instructor and could be revisited by caregivers as often as they required.

This pilot study presented some limitations such as participant size and inclusion criteria. The small sample size of 18 who logged in to the website is representative of a pilot study, which Connelly (2008) sites should be 10% of a larger study sample. Connelly (2008) goes on to say a pilot study should be a small size to identify major problems that could be avoided in larger quantitative studies. The snowball sampling method used to identify participants makes this pilot study subject to bias because of the purposefully selected population group, not generalizable to the entire population (Creswell, 2014). A snowball sampling, allows researchers to target specific populations and in this case helped the researcher to best understand caregiver meaningfulness in EI settings. However, using a snowball sampling, can lead to "backyard" research, a term Creswell (2014) suggests compromises the researcher's ability to disclose information and potentially creates an imbalance of power when participants are directly involved with the researchers own organization (p.188).

As Watson (2008) described in the literature review, there are many difficulties in the design of web-based instruction. Watson (2008) reported challenges facing online learning platforms include difficulties with compatibility, malfunctions between applications, and the availability of technical support needed to help the course run smoothly. For this study, the

researcher encountered several difficulties when designing and implementing the course. The researcher faced challenges using different computers/devices, internet browsers, and operating systems. Further, some applications were problematic when attempting to embed materials within the course, such as, links not opening, videos not running, and learning how to use the CourseSites functions.

After the course was complete, some caregivers shared they felt the login process was intimidating and navigating the website was sometimes challenging. Some caregivers expressed trouble viewing modules on different devices, such as, when watching on a Smartphone or handheld tablet. Allowing flexibility to enter and exit the course, caused some confusion for one caregiver, who shared she wished she had a checklist. Providing an interactive checklist could have provided another way for caregivers to make sure all the surveys and pre/post-tests were completed; proof of this is noted as one participant did not submit her post-test answers eliminating her information from data analysis in Module 1. If she had an interactive checklist the checklist would have revealed to her that her answers had not been submitted.

During data analysis, the researcher eliminated two questions from the results. A true/false, question #5, in Module 1; the pre-test question asked, "Parent coaching in early intervention is provided in hospital settings and during outpatient visits?" and the post-test question asked, ""Natural settings" in early intervention programs means the child is seen by providers within typical environments a young child attends." Since question #5 in the pre- and post-tests were worded differently the questions were excluded from the study results. In Module 3, question #4, the only short answer question, asked caregivers to provide 2-3 examples of information learned or found helpful. Three caregivers did not provide answers skewing the mean and standard deviations of Module 3, so this question was excluded from the data analysis.

Additionally, the researcher recognized a similar error in some of the other test questions' wording but the content remained the same so those questions were not eliminated from data collection. For example, the researcher reworded or added words, such as, "more" or "better" which changed the meaning or beliefs for some caregivers. Upon analysis, the researcher recognized all questions should have been worded the same in both pre- and post-tests for data analysis purposes.

Completing this course still presented time and technology challenges for some individuals which could have been a reason some people logged in to the course but did not complete all the coursework. The timelines involved and complexity of the online course requirements could have been reason 22 female caregivers expressed interest but only 18 registered and logged in; leaving 12 caregivers to complete all aspects of the course. Although the pilot study permitted flexibility of completing the course at participant convenience, the course was only available during a six-week period; this was a brief time period to gather participants, invite them to enroll in the course and complete all aspects of the study. Even with an estimated completion time of 1.5 hours total, it still might have caused a burden for some caregivers. Most caregivers took two-three weeks to finish the entire course, even after the prompt to "please complete within one week" of their initial enrollment date. This amount of time could have been viewed as a large commitment for some, especially given the fact that several caregivers had more than one child in the home and all caregivers care for a child with special needs.

**Implication for Occupational Therapy and Early Intervention**

The information revealed in this pilot research study provides evidence supporting online learning for caregivers in EI settings. The study supports AOTA's Centennial Vision (AOTA, 2007) linking education, research, and occupation-based practices using technology. The project validates OT's "power to influence" others by revealing optimistic data supporting a web-based learning platform assisting caregivers in EI by providing an avenue to obtain evidenced-based meaningful topics and empowering carryover in daily routines (AOTA, 2007; Steinberg, 2017). Consequently, the project demonstrates OT's value to health care and EI settings; providing evidence supporting OT's ability to create and facilitate caregiver training using technology.

This project is consistent with 2020 Healthy People objectives (HHS, 2013) eliminating disparities and improving the health and well-being of all American citizens through the use of technology. With the increasing popularity of smartphones, tablets, and computers and the ever-increasing capability of people's access to the internet, the focus of these online training modules demonstrates the possibility that web-based learning modules could meet the needs of diverse client populations.

The laws governing EI: IDEA (2004) and NCLB (2001) place emphasis on the importance of EI clinicians using rigorously researched evidenced-based data to drive the decision-making process. OT's use research-based evidence to provide individualized treatment strategies which can be embedded in natural routines. This research supports data-driven decision making for OT in EI (Shaaf, 2015); using technology, to help families improve caregiver carryover and expand family-capacity (Dunst, Bruder, & Espe-Sherwindt, 2014; Steinburg, 2017). Using data to drive the decision-making process, assists OT's in upholding

their professional responsibility; being accountable to assist families in achieving their IFSP outcomes (AOTA, 2015).

The greatest impact on carryover is when all caregivers involved with an eligible child are educated and informed; thus, increasing the chances that carryover will occur and IFSP outcomes will be achieved. Reinforcing parent coaching is critical to the success of achieving IFSP outcomes through engaging family members and caregivers in performing therapeutic carryover. As Dunst, Bruder, and Espe-Sherwindt (2014) recapped, the primary goal of EI is building family-capacity through collaborative efforts of OT's, family members, and other caregivers of the child. This collaborative effort provides caregivers with the tools, competence, and confidence to carryover strategies during natural daily routines.

The development of occupation and evidenced-based online modules provides the "tool" and place to share general EI topics and information. Establishing an online resource could enhance learning for all individuals, both family members and paid caregivers working with young children. Many early childhood topics could be made available to individuals with internet capacity. This availability could ensure individuals working with young children deemed eligible for EI services have access to educational resources.

**Future research**

A need exists to provide rich evidence-based information to support all family members and paid caregivers involved in EI programs. This study found evidence supporting OT's ability and potential impact of providing general therapy topics through web-based instruction for caregivers and providers working with young children in EI programs. Providing research supporting evidenced-based content delivery for all individuals with online access could potentially reduce communication/collaboration barriers in OT and EI, consequently improving

child outcomes. This online learning method could be used to reiterate general EI topics, such as, how to play with toys, how to organize toys, rotating toys, dealing with temper tantrums, getting a haircut, teeth brushing, screen time for children, going to the store, and so forth. When multiple caregivers of a qualifying child are involved, an online website could provide a resource for everyone to view the same information.

This pilot study was an initial step looking at the use of web-based training modules reinforcing therapy topics discussed during EI therapy sessions. Taking participant demographics into consideration, it would be advantageous to repeat this study with a larger number of caregivers; a heterogeneous sample, related to gender, race, age, and socio-economic data. Research on a larger scale could be repeated locally, regionally, or on nationally, revealing generalizable data applicable to general population. A second phase of study, could be determining if using supplemental online learning platforms helped families achieve their IFSP outcomes.

**Conclusion**

This study aimed to understand how an OT might support caregivers involved in EI programs by disseminating evidenced-based information in a reasonable, ethical, and responsible manner. This study involved more than just directing caregivers to a website or blog to review information. Caregivers were required to view presentations and videos richly embedded with evidence-based EI recommended practices. Using an interactive learning platform can help learners solve problems and use critical thinking skills necessary to make informed decisions about their life and daily routines.

In EI under the directions of the IFSP, OT's must accept responsibility to help clients achieve child outcomes (IDEA, 2004). Further, it is the OT's ethical responsibility to meet client

needs (AOTA, 2015). This method of blended learning builds family-capacity, assisting clients in EI settings to understand the value of occupational therapy and the impact of evidenced-based decisions guiding therapist's recommendations. Occupation-based online learning modules could build scaffolding for future successful evidenced-based online training opportunities. These opportunities might involve designing interactive applications or authentic learning opportunities whereby caregivers could view information and complete self-checks through built in questions to review comprehension of instructional material.

The results from this study support the use of online training modules to reinforce therapy topic content and learning for caregivers in EI programs. The caregivers gained knowledge and provided positive ratings with the use of online modules. Therefore, the modules were deemed effective in teaching general recommended EI topics.

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# Appendix A. IRB Approval

Graduate Education and Research

Division of Sponsored Programs

EASTERN KENTUCKY UNIVERSITY

Jones 414, Coates CPO 20

521 Lancaster Avenue

Richmond, Kentucky 40475-3102

(859) 622-3636; Fax (859) 622-6610

*Serving Kentuckians Since 1906*

**NOTICE OF IRB APPROVAL**
**Protocol Number: 000525**
Institutional Review Board IRB00002836, DHHS FWA00003332
Review Type: ☐Full ☒Expedited
Approval Type: ☒New ☐Extension of Time ☐Revision ☐Continuing Review

Principal Investigator: **Terri Beard** Faculty Advisor: **Dr. Leslie Hardman**

Project Title: **Investigating the Effectiveness of Web-Based Recommended Practice Tutorials for Caregivers of Children in Early Intervention Programs**
Approval Date: **1/23/17** Expiration Date: **12/31/17**
Approved by: **Dr. Deborah West, IRB Member**

This document confirms that the Institutional Review Board (IRB) has approved the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date.

**Principal Investigator Responsibilities**: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects, follow the approved protocol, use only the approved forms, keep appropriate research records, and comply with applicable University policies and state and federal regulations.

**Consent Forms**: All subjects must receive a copy of the consent form as approved with the EKU IRB approval stamp. You may access your stamped consent forms by logging into your InfoReady Review account and selecting your approved application. Copies of the signed consent forms must be kept on file unless a waiver has been granted by the IRB.

**Adverse Events**: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

**Research Records**: Accurate and detailed research records must be maintained for a minimum of three years following the completion of the research and are subject to audit.

**Changes to Approved Research Protocol**: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. Some changes may be approved by expedited review while others may require full IRB review. Changes include, but are not limited to, those involving study personnel, consent forms, subjects, and procedures.

**Annual IRB Continuing Review**: This approval is valid through the expiration date noted above and is subject to continuing IRB review on an annual basis for as long as the study is active. It is the responsibility of the principal investigator to submit the annual continuing review request and receive approval prior to the anniversary date of the approval. Continuing reviews may be used to continue a project for up to three years from the original approval date, after which time a new application must be filed for IRB review and approval.

**Final Report**: Within 30 days from the expiration of the project, a final report must be filed with the IRB. A copy of the research results or an abstract from a resulting publication or presentation must be attached. If copies of significant new findings are provided to the research subjects, a copy must be also be provided to the IRB with the final report. Please log in to your InfoReady Review account, access your approved application, and click the option to submit a final report.

**Other Provisions of Approval, if applicable**: None

Please contact Sponsored Programs at 859-622-3636 or send email to lisa.royalty@eku.edu with questions about this approval or reporting requirements.

## Appendix B. Inclusion Questionnaire

**Investigating the Effectiveness of Web-Based *Recommended Practice* Modules for Caregivers of Children in Early Intervention Programs**

**Inclusion Questionnaire**

1.) Are you an adult age 18 or older? Yes or No

2.) Currently or within the past year, did you have a child aged birth-5 years receiving early intervention services through your local infants and toddlers program? Yes or No

3.) Does or did your child have an Individual Family Service Plan (IFSP) as part of his/her early intervention services? Yes or No

4.) Do you have personal access to the internet via computer, tablet, Smartphone, or other device? Yes or No

   a. If you answered "Yes" to all questions 1-4, answer question 5.

   b. If you answered "No" only to question 4, could you access the internet via the library, through another public Wi-Fi location, or friend/family member's computer/device? If "Yes", answer question 5.

   c. If you answered "No" to any of the above questions, STOP HERE.

Please note: You will still be entered in the $25 Amazon gift card drawing to be held June 30, 2017.

5.) The modules and questions are expected to take approximately one-hour total; and you may stop and start modules at your convenience within the designated one-week study timeline. Are you willing to participate in a pilot study investigating the use of instructional web-based modules supporting general recommended practices for caregivers of a qualifying child in an early intervention program? Yes or No

   a. If yes, please begin read the informed consent statement and continue to login to the website.

   b. If no, thank you so much for completing this preliminary questionnaire. You will still be entered in the $25 Amazon gift card drawing to be held June 30, 2017.

## Appendix C. Cover Letter

Seeking 20 Parents and Caregivers

**of children ages birth through five who currently or over the past year have received early intervention services.**

You are needed and have a chance to win a

$25 amazon.com gift card

As a parent or caregiver of a child receiving early intervention support within the past year, you are invited to participate in an online pilot study entitled ***Investigating the Effectiveness of Web-Based Recommended Practice Modules for Caregivers of Children in Early Intervention Programs***. The author is an occupational therapist interested in knowing if using supplementary online training modules are effective for parents and caregivers to learn *Recommended Practice* information. This study is part of author's capstone project in a doctoral occupational therapy program.

The three modules for this study are:

Parent Coaching in Early Intervention
Establishing Feeding and Mealtime Routines for Young Children
Establishing Bedtime Routines for Young Children

**Why is this study being conducted?** To determine if web-based modules are an effective and convenient way for parents and caregivers to learn early intervention *Recommended Practices*.

**Where?** Online using a dedicated web-site.

**When?** May-June 2017

**How?** Eligible participants will view three online modules completing questions before and after each tutorial. Modules include video, audio, and written information; questions include use of a simple rating scale and some short answers. In total, this should take approximately one hour to complete. Participants can address questions and concerns to the researcher at any time by email.
After initial contact by email, no personally identifying information will be collected for this study. Voluntary participants will create their own login and password for data collection and analysis purposes only.
If you are interested in the study, you will be asked to complete a pre-study questionnaire to determine eligibility. After answering eligibility questions, you will be directed to the website to begin the study.

**Study incentives:** All interested participants who provide an email address to Terri L. Beard, MS OTR/L @ terri_beard3@mymail.eku.edu will be entered in a **$25 amazon.com Gift Card drawing**. You do not need to participate in the study to be eligible for the drawing. The drawing will be conducted June 30, 2017. The winner will be notified through the email he or she provided. Your email address is only used to provide study information, a certificate of completion, and notify the winner of the gift card drawing.

Enter for a chance to win by emailing directly to: terri_beard3@mymail.eku.edu with "Recommended Practice Study" in the subject line. Thank-you so much for considering participation in this study!

## Appendix D. Parent Coaching Course Outline

Module 1-Parent Coaching

Objectives and Outline

Objectives

1. Explain how and why parent coaching in early intervention (EI) promotes best outcomes.
2. Discuss natural setting where services occur.
3. Provide a basic understanding of participant (therapist and caregiver) responsibilities.

I. Define importance of early intervention services for children with Individual Family Service Plans (IFSP).
   - Family engagement is key
   - Learning in natural environments is crucial to development
   - Caregiver engagement leads to improved outcomes

II. Define Parent Coaching
   - Why is it important? Focus on developmental and family-centered outcomes.
   - Enhance daily routines
   - Using strategies daily for carryover
   - Builds trust
   - Advocates for child and family needs

III. Caregiver Responsibilities
   - Parents as teachers.
   - Be engaged and active during therapy sessions
   - Who provides the services?
   - Parents/caregivers and providers work together to solve complex problems
   - Improves caregiver confidence and competency to utilize techniques and solve problem

IV. Define natural settings

V. Compare parent coaching with medical model of intervention
   - Frequency of intervention
   - Define medical environments

VI. Discuss benefits of parent coaching
   - Trusting relationships
   - Improve child and caregiver bonds
   - Benefits for society and families

## Appendix E. Bedtime Routines Course Outline

Module 2-Bedtime Routines

Objectives and Outline

Objectives

1) Participants will develop an understanding of the importance of a good night's sleep for young children.
2) Participants will develop an understanding of the importance of taking charge, setting limits, and being consistent with bedtime expectations.
3) Participants will learn how to establish a bedtime routine.

Content

I. Bedtime difficulties
    Impact of poor sleep
II. Importance of sleep for children
    Healthy sleep patterns
III. Understanding childhood routines
IV. Establishing bedtime routines
    Four B's of bedtime
    Tips for getting your child to sleep
V. Conclusion
    Consistency
    Patience
    Safety and security

## Appendix F. Mealtime Routines Course Outline

Module 3-Mealtime Routines

Objectives and Outline

Objectives: Participants will learn

1. Social benefits of healthy mealtime routines
2. Negative impacts of poor feeding skills
3. Importance of proper positioning during mealtimes
4. Tips to build a child's appetite and establish healthy mealtime routines

Content

I. Developing healthy mealtime routines

- Help children understand their day
- Make children feel safe and secure
- Good eating=healthy kids
- Eating as a family

II. Feeding problems

- Frequency of problem eaters

Where to get help

III. Developmental sequence of feeding

- Talk with pediatrician before beginning baby foods and table foods
- Knowing what and when to feed solids

IV. Positioning for mealtimes

V. Strategies for establishing mealtime routines

- Use a bowl/plate
- Building appetite
- Get messy
- Stick with meal and snack schedule

VI. Conclusion

## Appendix G. Demographic Questionnaire

Demographic Questions for CourseSites survey

1. Age range- 18-24 years, 25-30 years, 31-40 years, 41-50 years, and 50+
2. Gender
3. Income range- under $25, 000, $25, 000-50,000, $50,000-75,000, $75,000-90,000, 90,000-120,000, $120,000+
4. Race-Black or African American, American Indian and Alaska Native, Asian, Pacific Islander or Hawaiian, Caucasian, or other
5. Highest level of education-Less than high school, High school graduate (includes equivalency), Some college, no degree, Associate's degree, Bachelor's degree, Graduate or professional degree, Ph.D. or higher
6. Number of children in the household under the age of 5 years

## Appendix H. Module 1-Parent Coaching Individual Responses for opinion-rated questions

| | Pre-test Question | | Post-test Question | Participants | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q1 | I feel comfortable using the internet to learn new information. | Q1 | After reviewing this module, I feel more comfortable using the internet to learn new information. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** |
| | | | | Pre | SA 5 | A 4 | SA 5 | N 3 | SA 5 | SA 5 | A 4 | A 4 | A 4 | A 4 | A 4 | SA 5 | SA 5 | N 3 |
| | | | | Post | SA 5 | A 4 | A 4 | A 4 | N 3 | N 3 | A 4 | N 3 | A 4 | N 3 | A 4 | SA 5 | X | X |
| | | | | change | = | = | -1 | +1 | -2 | = | = | -1 | = | -1 | = | = | N/A | N/A |
| Q2 | I believe web-based tutorials will be convenient for my schedule. | Q2 | After viewing this module, I believe web-based learning is convenient for my schedule. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** |
| | | | | Pre | SA 5 | A 4 | SA 5 | A 4 | SA 5 | A 4 | A 4 | A 4 | A 4 | A 4 | A 4 | A 4 | SA 5 | SA 5 |
| | | | | Post | SA 5 | A 4 | SA 5 | A 4 | SA 5 | A 4 | A 4 | SA 5 | A 4 | A 4 | SA 5 | A 4 | X | X |
| | | | | change | = | = | = | = | = | = | = | +1 | = | = | +1 | = | N/A | N/A |
| Q3 | I feel confident using a parent coaching model of intervention with my child. | Q3 | After viewing this information, I feel more confident using a parent coaching model of intervention with my child. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** |
| | | | | Pre | SA 5 | A 4 | SA 5 | N 3 | SA 5 | A 4 | A 4 | SA 5 | A 4 | A 4 | A 4 | A 4 | N 3 | SA 5 |
| | | | | Post | SA 5 | A 4 | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | A 4 | A 4 | A 4 | SA 5 | A 4 | X | X |
| | | | | change | = | = | = | +2 | = | +1 | +1 | -1 | = | = | +1 | = | N/A | N/A |
| Q4 | When early intervention specialists are providing services for my child, I recognize the importance of "active participation" during therapy sessions. | Q4 | When early intervention specialists are providing services for my child, I recognize the importance of "active participation" during therapy sessions. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** |
| | | | | Pre | SA 5 | N 3 | SA 5 | N 3 | SA 5 | A 4 | A 4 | SA 5 | A 4 | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 |
| | | | | Post | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | A 4 | SA 5 | SA 5 | SA 5 | X | X |
| | | | | change | = | +2 | = | +2 | = | +1 | +1 | = | = | = | = | = | N/A | N/A |
| | **SA-Strongly agree-5; A-Agree -4; N-Neither agree or disagree/not sure-3; D-disagree-2; SD-Strongly disagree -1** | | | Total change in opinion score | = | +2 | -1 | +5 | -2 | +2 | +2 | -1 | = | -1 | +2 | = | N/A | N/A |

## Appendix I. Module 2-Bedtime Routines Individual Responses for opinion-rated questions

| Opinion Question | Pre-test Question | | Post-test Question | Participants | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| Q1 | I feel confident putting my child to sleep. | Q1 | I feel confident putting my child to sleep | Pre | N | N | SA | D | SA | N | N/A | SA | A | D | N | SA | D | N/A | SA |
| | | | | | 3 | 3 | 5 | 2 | 5 | 3 | - | 5 | 4 | 2 | 3 | 5 | 2 | - | 5 |
| | | | | Post | SA | SA | SA | A | SA | A | N/A | SA | A | SA | SA | SA | D | N/A | A |
| | | | | | 5 | 5 | 5 | 4 | 5 | 4 | - | 5 | 4 | 5 | 5 | 5 | 2 | - | 4 |
| | | | | change | 2 | 2 | = | 2 | = | 1 | N/A | = | = | 3 | 2 | = | = | N/A | -1 |
| | | | | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| Q2 | I have a good understanding of getting my child to go to sleep and stay asleep. | Q3 | I have a good understanding of getting my child to go to sleep and stay asleep. | Pre | N | N | SA | D | N | N | N/A | A | A | D | N | SA | N | N/A | D |
| | | | | | 3 | 3 | 5 | 2 | 3 | 3 | - | 4 | 4 | 2 | 3 | 5 | 3 | - | 2 |
| | | | | Post | SA | SA | SA | A | SA | A | N/A | SA | A | A | SA | SA | N | N/A | SA |
| | | | | | 5 | 5 | 5 | 4 | 5 | 5 | - | 5 | 4 | 4 | 5 | 5 | 3 | - | 5 |
| | | | | change | 2 | 2 | = | 2 | 2 | 2 | N/A | 1 | = | 2 | 2 | = | = | N/A | 3 |
| Q3 | I have an established bedtime for my child. | Q2 | I have or will try to establish a bedtime routine for my child. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| | | | | Pre | SA | A | SA | N | SA | A | N/A | SA | A | A | A | SA | D | N/A | N |
| | | | | | 3 | 3 | 5 | 3 | 5 | 3 | - | 5 | 4 | 2 | 4 | 5 | 2 | - | 3 |
| | | | | Post | SA | SA | SA | SA | SA | SA | N/A | SA | A | A | SA | SA | N | N/A | SA |
| | | | | | 5 | 5 | 5 | 5 | 5 | 5 | - | 5 | 4 | 4 | 5 | 5 | 3 | - | 5 |
| | | | | change | 2 | 2 | = | 2 | = | 2 | N/A | = | = | 2 | 1 | = | 1 | N/A | 2 |
| | **SA-Strongly agree-5; A-Agree -4; N-Neither agree or disagree/not sure-3; D-disagree-2; SD-Strongly disagree -1** | | | Total change in opinion score | 6 | 6 | = | 6 | 2 | 5 | N/A | 1 | = | 7 | 5 | = | 1 | N/A | 4 |

## Appendix J. Module 3 Mealtime Routines individual responses for opinion-rated questions

| | Pre-test Question- | | Post-test Question- | Participants | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q1 | I have an established mealtime routine for my child. | Q1 | I believe it is important to establish a mealtime routine for my child. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| | | | | Pre | SA 5 | N 3 | A 4 | N 3 | SA 5 | A 4 | N/A - | A 4 | A 4 | D 2 | A 4 | SA 5 | A 4 | N/A - | N 3 |
| | | | | Post | SA 5 | SA 5 | SA 5 | SA 5 | SA 5 | A 5 | N/A - | SA 5 | A 4 | SA 5 | SA 5 | SA 5 | A 4 | N/A - | SA 5 |
| | | | | change | = | 2 | 1 | 2 | = | 1 | N/A | 1 | = | 3 | 1 | = | = | N/A | 2 |
| Q2 | I feel confident and happy when feeding my child. | Q3 | I feel more confident and less stressed when I feed my child. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| | | | | Pre | SA 5 | N 3 | N 3 | N 3 | SA 5 | A 4 | N/A - | D 2 | A 4 | SA 5 | A 4 | SA 5 | SA 5 | N/A - | SD 1 |
| | | | | Post | SA 5 | A 4 | A 4 | A 4 | N 3 | SA 5 | N/A - | N 3 | A 4 | SA 5 | SA 5 | SA 5 | A 4 | N/A - | SA 5 |
| | | | | change | = | 1 | 1 | 1 | -2 | 1 | N/A | 1 | = | = | 1 | = | -1 | N/A | 4 |
| Q3 | I understand the importance of proper positioning to feed my child safely. | Q2 | I gained a better underst anding of how to feed my child safely, in a supported position. | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| | | | | Pre | SA 5 | A 4 | SA 5 | N 3 | SA 5 | N 3 | N/A - | SA 5 | A 4 | N 3 | A 4 | SA 5 | A 4 | N/A - | SA 5 |
| | | | | Post | SA 5 | SA 5 | A 4 | SA 5 | N 3 | SA 5 | N/A - | SA 5 | A 4 | SA 5 | SA 5 | SA 5 | A 4 | N/A - | N 3 |
| | | | | change | = | 1 | -1 | 2 | -2 | 2 | N/A | = | = | 2 | 1 | = | = | N/A | -2 |
| | **SA-Strongly agree-5; A-Agree -4; N-Neither agree or disagree/not sure-3; D-disagree-2; SD-Strongly disagree -1** | | | Total change in opinion score | = | 4 | 1 | 5 | -4 | 4 | N/A | 2 | = | 5 | 3 | = | -1 | N/A | 4 |