

Parent and child participation in a play-based parent education course: Do infant and toddler social and emotional skills improve?

by
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When parents engage in responsive parenting, their children in turn develop well-rounded social and emotional skills that help them create positive relationships, as well as help children learn to express and control their emotions (Nenide & Sontoski, 2014). Parenting education courses can help support responsive parenting skills by educating parents on their child's abilities and how they as parents can support these domains (Yates, 2011). This thesis aims to understand how infant and toddler socio-emotional skills change as a result of parent and child participation in a 10-week parenting education course, Live and Learn. Eleven mother-child dyads participated in a 10-week parenting education program, called Live and Learn. Mothers were, on average, 30.82 years old, identified as White, and earned approximately \$2,000-3,999 monthly. Children were, on average 10.6 months and were primarily White. Mothers completed a Social Emotional Assessment Measure for Infants (SEAM-I; Squires et al., 2014) in week 2 (pre) and week 10 (post) of the Live and Learn program. To examine changes in children's socioemotional skills, a paired t-test was executed. Results revealed no significant difference in socioemotional skills for children ($M_{pre} = 124$; $M_{post} = 128$). Key limitations include a small sample size and that only mothers participated. Future research should work to include a larger sample size, as well as involve fathers and different parenting groups (single parents, grandparents).

Key Words: Live and Learn, infant social and emotional skills, parenting education

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I understand that my project will become part of the permanent collection of Oregon State University, Honors College. My signature below authorizes release of my project to any reader upon request.

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Parent and child participation in a play-based parent education course: Do infant and toddler social and emotional skills improve?

From the very moment a child is born, the actions of their parents have significant impacts on the child's physical, emotional and social development (Nenide & Sontoski, 2014). A supportive and responsive parent-child relationship will provide the child with key skills, such as self-regulation, self-confidence and self-esteem habits (Nenide & Sontoski, 2014). Thus, parents are a key component in infant and toddler social emotional development because when parents encourage and engage in positive and beneficial interactions, their children in turn benefit (Nenide & Sontoski, 2014). Two of the key skills that parents can offer are responsiveness and sensitivity, particularly in early childhood (Bigelow et al., 2010; Kochanska & Aksan, 2004). These parenting behaviors are linked to improved executive function skills, success in school, and better emotional regulation (Bernier, Calkins, & Bell, 2016; Leerkes, Blankson, & O'Brien 2009; Yates, 2011). For this thesis, these two key parenting behaviors are examined in the ways that they are fostered through a parent education course, and then realized in children's social and emotional skills.

Parenting education programs are aimed to foster and develop these skills (and others) in parents, in order to best support children's development. Programs like the Incredible Years (IY) and Parents Interacting with Infants (PIWI), show promise in supporting children's social and emotional skills through deepening the shared parent-child relationship (Yates, 2011). The focus on responsive, sensitive, and positive parent-child interactions within these parenting education programs influences many domains of a child's life, specifically their social and emotional development, as well as their academic performance. One parenting education program, Live

and Learn for Infants and Wobblers, is based on PIWI, but has yet to be formally evaluated for how it may support children's social and emotional skills. *This thesis aims to understand how infant and toddler socio-emotional skills change as a result of parent and child participation in a 10-week parenting education course, Live and Learn.*

Importance of sensitive and responsive parent-child interactions

The driving force behind parenting education programs is the research linking positive parenting practices to child outcomes. The foundation of positive parenting, and thus the links to child development, are rooted in attachment theory. Mary Ainsworth discovered that the qualities of interactions between an infant and their primary caregiver (e.g., mother), lay the foundation for all other interactions and relationships into adulthood, forming the 'internal working model' which was first introduced by John Bowlby (1973). Ainsworth coined three attachment classifications: secure, insecure avoidant and insecure resistant (Ainsworth et al., 1978). Maternal sensitivity in infancy predicts a secure mother-child attachment in toddlerhood (Ainsworth et al., 1971). These secure attachment style patterns of interactions between the primary caregiver and the young child include consistent sensitive and responsive interactions (e.g., matched affect, awareness and responsiveness to the child's state), which serve as a foundation from which the child can explore the world, using the adult as a secure base (Ainsworth et al., 1971). The relationship between a parent and child serves as the base from which children will develop lifelong relationship strategies (McCarthy & Maughan, 2010).

In addition to attachment theory, research indicates that interactions and experiences in the first years of life shape brain architecture and patterns of responses. The brain, being the most diverse organ in the body, is physically impacted by positive social and emotional interactions (Nenide & Sontoski, 2014). Depending on the type of care a child receives, specific neurological

patterns are formed; positive social and emotional interactions affect brain development in a positive way (Nenide & Sontoski, 2014). Alternatively, a lack of positive interactions will negatively impact brain development and structure which hinders positive development moving forward (Nenide & Sontoski, 2014). Further, the early years of a child's life (0-3 years) provide the basis from which a child will go on to create self-regulation, self-esteem and self-confidence habits (Nenide & Sontoski, 2014). All of these skills culminate in a child's ability to express, experience and convey their emotions, create and sustain healthy relationships with others, and explore their environment confidently (Nenide & Sontoski, 2014).

One example of this is research conducted by Bernier and colleagues (2016), which focused on understanding how the quality of maternal behavior and interactions with their infants influence infant brain development, with a focus on the frontal lobe and frontal region. They conducted a longitudinal study with 197 mother-infant dyads. Data collection took place at 5 months, 10 months and 24 months. Infant brain activity was measured through use of an electroencephalogram (EEG). At each data collection, resting EEG was recorded before EEG was used to record the infant playing with toys and interacting with their mother. The infants of mothers who engaged in more positive affect and less physical stimulation had higher frontal rest activity, which is associated with later performance on executive function skills (Bernier et al., 2016). Physical stimulation was measured through the number of times a mother tickled an infant, exercised their limbs, touching the infant or gently giving toys to the infant (Bernier et al., 2016). Bernier and colleagues (2016) research demonstrates the immense impact positive interactions have on a developing brain, and further helps us understand the ways in which unsupportive interactions hinder healthy development. Physical stimulation was not considered

an “unsupportive interaction”, but was rather a way to assess interactions between mother and baby (Bernier et al., 2016).

Knowing that positive parent-child interactions can enact a physical change within an infant’s brain, it makes sense that if one of these domains (self-regulation, self-esteem and self-confidence habits) has not been properly supported or encouraged a child may struggle in one or more adult domains. This is because so many facets of development are rooted in these early years. The physical changes that occur within the brain support the idea that the first few years of life are critical to ensuring healthy, lifelong development. Thus, it is clear that the parent-child relationship and the interactions that occur between a parent and child can influence a child for their entire life, as their brain chemistry can be physically changed. As a child grows, a healthy parent-child relationship can serve as a foundation upon which positive socioemotional skills can be developed.

Parent-child interactions shape children’s socioemotional skills

Parents primarily influence their children’s social and emotional development through responsive and sensitive interactions. Responsiveness can be understood as ways in which parents interact with their child including sensitivity, encouragement of autonomy and being aware of their child’s needs and abilities. To respond sensitively and to properly encourage autonomy, a parent must also be aware of their child’s needs. These interactions are parent-driven throughout infancy (Kochanska & Aksan, 2004), highlighting the critical role that parent(s) play during this time of development. Understanding the aspects of responsiveness is key to a parent engaging in quality interactions with their child as responsiveness is largely a process in which individuals (in this regard, parents and children) create a shared history as time goes on (Kochanska & Aksan, 2004). Setting this cocreated history with a positive foundation,

such as with a secure attachment and responsive parent-child interactions, can help ensure that children's socioemotional skills can fully develop.

The first aspect of responsiveness is parental sensitivity. The majority of current research focuses on maternal sensitivity; for an exception view Lucassen et al., (2011) on paternal sensitivity. Maternal sensitivity in infancy can be described as a mother responding to her child's need in a socially appropriate and relatively consistent manner depending upon the signals conveyed by her infant (Bigelow et al., 2010). These sensitive responses include visual (e.g., joint attention) and affect (e.g., positive affect [smiling]). A precursor to sensitivity is that the parent observes and displays awareness of the child's signals. Bigelow et al. (2010) focused on understanding the stability of sensitivity as well as how sensitivity related to young children's social and emotional development from 4 months to 2.5 years. Each observation (4 months, 15 months, and 2.5 years) examined smiling (e.g., positive affect), vocalizations and attention between the mother and child.

A mother's vocal contingency (e.g., positive affect) when their infant was 4 months was found to be the strongest indicator of an infant's security of attachment over the following two years (Bigelow et al., 2010). These positive affect responses towards the infant acknowledge and affirm their emotional experience and expression. They help the infant learn that their emotions can be shared and through this shared experience, a secure attachment can be formed (Bigelow et al., 2010). When a mother imitates and mimics her infant's positive actions, it teaches the infant how their behavior can produce certain behaviors and influence the actions of those they are interacting with, in a positive way (Bigelow et al., 2010). When a mother's actions are highly imitative of the infants, the infant will show more interest and attention towards the interaction (Meltzoff, 2004). It was also found that mothers tend to be the most imitative during face-to-face

interactions, particularly when their infants are under six months of age (Stern et al., 1985). The way the mother imitates her infant is primarily shaped by the mothers perception of the emotional state or need that the infant is trying to express (Bigelow et al., 2010). It is through these interactions that infants learn about their own emotions; seeing their behavior be mirrored by others helps them begin to understand how to convey and express what they are feeling (Gergely & Watson, 1996, 1999).

As infants near 12 months, they begin to coordinate their attention towards a toy and the person playing with them in a more combined fashion, as opposed to focusing solely on one or the other (Bigelow et al., 2010). This sustained and varied purpose joint attention suggests that infants, at this age stage, are beginning to understand themselves as intentional beings; this understanding helps them to begin develop the notion that their attention to objects can be shared, followed and directed (Bigelow et al., 2010). In turn, the ways in which parents interact with their infant during these moments help share children's development. Specifically, the ways in which a mother encourages this joint attention has been shown to impact an infant's cognitive skills as well secure attachment base (Bigelow et al., 2010). Joint attention was observed when the mother and child were both looking at an object or engaged in the same activity for more than three seconds (Bigelow et al., 2010). Joint attention was encouraged within the dyad by acknowledgement of the infant and mothers gestures, vocalizations and turn-taking by both mother and child. Mothers encouraged joint attention by integrating new objects that related to the child's interest, or discussing a toy of mutual interest that engaged the infant (Bigelow et al., 2010).

In an infant's second year (12-24 months), the level of engagement or scaffolding with which their mother shares with the interaction can impact the level of maturity within a play

context a child reaches (Bigelow et al., 2010). Through this scaffolding, the mother is able to adjust their play to their infant's level, within their infants zone of proximal development; this allows for the infant to be properly engaged and challenged while reaching their highest level of play (Bigelow et al., 2010). Overall, Bigelow et al. (2010) found that maternal sensitivity towards their infants was relatively stable across the 2.5 years. Those mothers who consistently displayed sensitive responses, showed consistent joint attention, play scaffolding, and consistent smiling and vocal contingency (Bigelow et al., 2010). For the infants of those consistently sensitive mothers, these consistent responses allowed for the infant to begin to understand how their actions and maternal response to those actions is connected (Bigelow et al., 2010).

When a mother responds to her infants needs sensitively, it shows and teaches the infant how to positively engage and express their needs within a social context (Bernier, Carlson, & Whipple, 2010). Sensitivity, as described above, shapes and supports children's social and emotional development. Bigelow's research also found that when mothers scored higher on the maternal sensitivity measures (positive vocalizations, encouraging autonomy in a play task), their toddlers engaged in more joint attention and collaborative play (Bigelow et al., 2010). Other research also support this claim. Further, maternal sensitivity is associated with children's attachment style, acquisition of language skills, self-efficacy, and the level of maturity one reaches in playing with objects (Bigelow et al., 2010). Additionally, maternal sensitivity positively impacts behavior problems in toddlers, which could potentially help mediate negative social situations and peer outcomes (Edwards & Hans, 2016). Maternal sensitivity has also been shown to influence infant social-emotional functioning (e.g., ability to regulate emotions dependant on the response of their mother), which is a foundational skill that affects an infant both in their early development and beyond (Leerkes, Blankson, & O'Brien

2009). Thus, understanding sensitivity in regards to the way a mother reacts and responds to her infant's needs, is essential to best support young children's foundational social and emotional skills. In order to act sensitively and to encourage positive social-emotional functioning within their child, a mother must be aware of the needs of her infant.

In addition to sensitivity, responsive parenting also includes parent(s) encouraging autonomy within the child, which recognizes a child's state and needs, and mind-mindedness. Encouraging autonomy will look different based off the age and developmental stage a child is in; it can look like a parent encouraging their child to choose a toy to play with, and then encouraging the child as they play with the toy and act out scenarios. A parent encouraging their child to independently create and build with blocks, when the child is already playing with blocks, is another example; the parent is engaged in the interaction but is encouraging the child to be the main driver and creator in the scenario. This is also understood as a parent engaging in mind-mindedness to encourage their child to make independent decisions.

Mind-mindedness is a relatively new concept that has emerged within the last decade that emphasizes the importance of parents viewing their children as mental agents capable of making independent decisions and acting intentionally (Meins, 1997; Sharp & Fonagy, 2008). In order to be mind-minded, a parent must have knowledge of the developmental stage their child is in, as well as have the ability to observe the child and be aware of what is occurring. Once this "groundwork" has been laid, the mother can respond in a mind-minded way that meets the child in the stage of development they are in, and the interaction becomes one of age appropriate engagement. In order for mind-mindedness to occur, there must be space and freedom within an interaction for a mother to be both present and aware, and able to respond based on the actions of her infant. When a mother engages in mind-mindedness with her child, it allows the child to be

the “director” in the interaction. By reacting in a mind-minded way, the mother is exhibiting awareness of her child and the skills her child is exhibiting. Thus, awareness (or mind-mindedness) and encouraging autonomy go hand in hand. In order for a parent to successfully engage in mind-mindedness and encourage appropriate autonomy, an understanding of their child’s skills and developmental capabilities is necessary.

Building upon mind-mindedness, autonomy can be encouraged when a parent is aware of their child and their capabilities. Kochanska and Aksan (2004) focused on understanding the changing relationship between a child and parent as a child grows, through looking at the different contributions from both parties (Kochanska & Aksan, 2004). They found that between 7 and 15 months the behaviors and responses between parent-child changed the most; there was an observed decrease in a child’s physical bids, and an increase in social bids (Kochanska & Aksan, 2004). Parents in turn decreased their physical bids to their child but increased their response to independent behaviors or thinking to reflect their child’s growing independence (Kochanska & Aksan, 2004). As the relationship became more mutual, both parties became more responsive; this change can be attributed to the rapid growth and development an infant undergoes during this time of life. As the child became more aware of the influence on their parent, the parent realized their infants capabilities (mutual influence was appreciated) (Kochanska & Aksan, 2004). When an infant is able to connect their behavioral changes to changes made by their parents in response, an infant can begin to grasp the concept of change and how they can control that change (Bigelow & Power, 2014). However, when mothers are not aware of their child’s needs or abilities and engage in negative, unsupportive behaviors, poor self-regulation such as overactivity and emotional dysfunction can be observed in toddlers (Rispoli & Sheridan, 2017). When a parent can acknowledge their child as capable of making

decisions, the child can continue learning new skills. Mutual appreciation of the skills that both parent and child can bring to an interaction allow for positive, involved relationships to form that further encourage autonomy and independent decision making.

Continuing on, an infant's knowledge of themselves (self-concept, a component of socio-emotional development) is created through the ways parents react to their behaviors and emotions (Bigelow & Power, 2014). Mothers are often selective in the ways in which they chose to respond to their infant's behavior; choice of reaction is based on what emotions they want to reinforce or discourage (Bigelow & Power, 2014). If a mother does not have an accurate or strong understanding of which emotions or actions are developmentally appropriate, then the mother could be unintentionally engaging in detrimental interactions that do not encourage positive development. Having the awareness and understanding to respond in developmentally supportive and appropriate ways allows for both mother and child to benefit from each and every interaction.

While there are many aspects to parenting, the above mentioned components (sensitivity, autonomy and awareness) can be understood as being some of the most pivotal to support young children's social and emotional development. Sensitive interactions teach infants appropriate ways to engage with their environment, and encouraging autonomy allows the child to develop an understanding of how their actions impact their surroundings. The ways in which sensitivity, autonomy and awareness engage and support one another creates a well-rounded definition of parent responsiveness. This definition allows us to better understand the critical role that parental responsiveness plays in the parent and child relationship and ultimately the development of children's social and emotional skills.

In summation, social and emotional development refers to the child's growing ability to develop close and secure relationships, express their emotions in ways that are culturally and socially appropriate, and explore their environments confidently (Yates, 2011). Children who are more socially and emotionally healthy have a much greater chance of achieving success in both school and life (Yates, 2011). Having a clear idea of how to cultivate, encourage and maintain these domains is critical in creating successful and applicable parenting education courses, as these courses serve as an environment in which individual and collective learning can take place. Using the discussed domains of responsiveness as a foundation for course content and structure offers the chance for parenting educators to provide high-quality education while positively impacting a child's developmental trajectory.

Parenting education programs as a mechanism to support children and families

The main goal of parenting education programs is to improve parenting practices, which can broadly be understood as the ways in which parents engage with their children and support and encourage their development. Improving parenting practices will in turn improve the quality of one's parenting skills, so that children's social and emotional outcomes can also be improved (Gardner & Leijet, 2017). While there are a multitude of parenting programs in place today, this thesis will draw research from two programs in particular: Parents Interacting with Infants (PIWI) and the Incredible Years (IY) to garner evidence to explore a not-yet-validated program, Live and Learn. While each program is unique in its format and delivery, the end goal is the same: increase parental competency to ensure positive development of young children (Yates, 2011). A main focus of parenting education programs, and the program examined in this thesis (i.e., Live and Learn), is to encourage positive social and emotional development, because improving social and emotional skills for young children through parental connection is critical

towards supporting positive development, such as regulation skills, later in life (Suchodoletz et al., 2011). Positive behavior regulation in turn will influence how well one can engage in relationships, social settings, and life in a broad context. Parents are warmer, more responsive and accepting, and less harsh towards their child when they feel more confident and trust in their parental ability (Nenide, & Sontoski, 2014). When parents do not feel confident in their ability to parent, they will withdraw from interactions and will not focus on addressing children's problematic behavior because they do not feel confident doing so; this can have lifelong ramifications (Nenide & Sontoski, 2014). Many parents overestimate their toddler's ability to regulate their emotions and underestimate the emotional and psychological ability of their infants which leads to parents inadvertently not fully supporting their children to the best of their ability, due to a lack of awareness (Yates, 2011). Positive parent child interactions are at the heart of a healthy parent child relationship, thus it is a worthwhile focus of programs and research alike (McCollum et al., 2001). A parenting course can serve as the link between parental misunderstanding and parental competency. For some parents, a parenting course can be a safe haven in which they are free to be honest about where they are at in the parenting realm, and feel encouraged and supported enough to receive helpful advice and guidance.

The research supporting two evidence-based parenting education programs, IY and PIWI, are reviewed in following two paragraphs. The aim of the review is to outline key components of these programs and then illustrate the parallels to a parenting education program (Live and Learn), which is the focus of this thesis.

One of the most widely research parenting programs with a large foundation of evidence based practices is The Incredible Years (IY). This program is theory-based and focuses on reducing children's conduct problems (Gardner & Leijten, 2017). The IY focuses on how to

model positive behaviors, reinforce desired behaviors, and build warm relationships with children while mitigating stress levels (Gardner & Leijten, 2017). In contrast to PIWI, however, IY is a parent-focused course and the theory of change is that parents will enact the change at home. In other words, only parents attend the parenting education sessions. A component of the IY program that reflects the goal of this thesis is the emphasis placed on responsive play with children and the ways positive behaviors can be encouraged through these interactions (Gardner & Leijten, 2017).

Another well-known parenting education course is Parents Interacting With Infants (PIWI). A main goal of PIWI is to create developmentally supportive environments that increase a family's knowledge of their children through natural interaction styles (McCollum et al., 2001). Each PIWI session takes into account different parenting styles, so that the lesson and skills covered in class can be continued in the home environment (McCollum et al., 2001). PIWI does this through creating developmentally appropriate play environments that parent and child participate in together while a PIWI facilitator observes and supports. This allows parents to engage with their child in ways that encourage independence and allows the parent to learn more about their infant through input and guidance from the PIWI instructor (e.g., encourage autonomy and awareness; McCollum et al., 2001). Through this facilitated play, parents have the chance to understand things through the eyes of their child which can lead to parents positively altering their behavior to match their child's; doing this can lead to increasing parental competency and an improved sense of well-being as a parent (McCollum, Gooler, Appl, & Yates, 2001). Through increasing a parent's awareness of their child's skills, a parent is more likely to model and encourage those behaviors. When parents are equipped with the necessary tools for how to positively parent and engage their child, interactions moving forward have a

much higher likelihood of being positive and developmentally supportive (Nenide & Sontoski, 2014).

Live and Learn is a community-grown parenting education program that has many parallels to PIWI. It was developed at the Parenting Success Network and is based on the PIWI curriculum. Live and Learn parenting programming includes a ten-week session in which parent(s) and child play together in a facilitated small group. Children and parents are grouped by ages (Infants, Wobblers, Toddlers, Twos, and Preschool) and facilitators set up activities (e.g., games, songs, arts and crafts) that encourage interactions. The facilitator also models and supports responsive parent-child interactions with the aim of creating responsive parent-child relationships. To date, no research has been published that links Live and Learn to children's social and emotional skills. This honors thesis aims to fill that gap by exploring if infant and toddler (6 months to 18 months) social and emotional skills change after parent and child participate in a 10-week Live and Learn series (Infant and Wobbler class). I hypothesize that the children who participate in Live and Learn will show improvements in their social and emotional skills, as reported by their parent.

Method

Participants

Our sample included 11 parents (all mothers) and 11 children who completed data collection at pre and at post in fall 2018 and winter 2019. The parents ($n = 11$) had a mean age of 30.82 with a standard deviation of 5.38 years. The infants ($n = 11$) had a mean age of 10.6 months with a standard deviation of 2.91 months. The education level of the mothers who completed both the pre and post survey varied (Table 1). Monthly income also varied across the sample, with 54.5% earning between \$2,000 to \$3,999 (Table 2). Of the 11 mothers and children, 72.7% had already taken a Live and Learn class before. 90.0% of mothers surveyed were married and living with their partner, while 9.1% were unmarried and living with their partner. Our sample included multiple mothers and child ethnicities, self-identified (Table 3). One hundred percent of participants were parenting with a partner; thus, this sample did not include any single parents. All of the children only spoke English at home. About half (54.5%) of the children included in the study were female and 45.5% were male. None of the children were identified by their parents as having a disability.

A research team member visited the Live and Learn class in week 1 and discussed the project with the parents. Parents who indicated interest in participating in the study completed an informed consent form and received a link to the pre survey packet (demographics and social-emotional assessment). Data collection took place in week 2 (pre) and week 10 (post) of the Live and Learn series (a 10 week course) during fall 2018 and winter 2019. Parents received another link after the week 9 class to complete the survey for post (in week 10). Dyads also participated in a videotaped play task at pre and post and completed items regarding the Live and Learn course and parenting practices, but they are not considered in the current study.

Measures

Demographic Survey

The demographic survey collected information on multiple different descriptive, such as parent and child age, income level, ethnicity, highest level of education attended and marital status.

Social Emotional Assessment Measure

In addition to the short demographic survey, parents completed the Social Emotional Assessment Measure for Infants (SEAM-I; Squires et al., 2014). The SEAM-I is appropriate for parents of infants age 2-18 months. The SEAM was created as a tool to address the need for social-emotional measures for young children, to assess where children fall within expected developmental milestones (Squires et al., 2014). It acts as a tool to understand the ways in which young infants interact with others, regulate their emotions, and develop a positive self-image (Squires et al., 2014). As stated previously, ensuring children and infants have a strong foundation to build upon is one of the greatest predictors to ensure healthy social-emotional development, and the SEAM is a measure used in attaining this goal.

The SEAM-I includes 34 behavioral items within 10 benchmarks” (e.g., baby cooperates with daily routines and requests, baby regulates activity level). Parents rate each question on a four point Likert scale (not true = 1 to very true = 4). The version of the SEAM-I used in this study removed the “concern” and “focus area” items that follow the Likert scale as the measure was not used as an assessment tool for parents and teachers to encourage collaboration, but for research purposes. In previous studies, the SEAM-I shows acceptable interrater reliability ($r = .776, p < 0.01$; Squires et al., 2014). The SEAM-I also demonstrates strong internal consistency (Chronbach’s alpha = .90; Squires et al., 2014). In the current study, the total score is used, as

recommended by the authors (Squires et al., 2012) at pre and post to calculate differences in infant's social and emotional skills after participation in the Live and Learn course. Scores on the SEAM-I can range from 34 to 136.

Results

I hypothesized that the infants and toddlers who participated in Live and Learn would show improvements in their social and emotional skills from pre (week 2) to post (week 10). Pre and post parent-report of the SEAM-I (Squires et al., 2014) were analyzed first for descriptive statistics, and then for mean differences. Correlations were also analyzed for bivariate associations between social and emotional skills at post and key demographic variables. Results are presented below.

First, the mean of infant and toddler social and emotional skills at pre was 124 ($SD = 7.8$; range 112 to 136). The mean score for the infant and toddler social and emotional skills at post was 128 ($SD = 6.4$; range 116 to 136). This indicates that most parents reported a high score for their child's social and emotional skills at both timepoints.

Correlations of key demographic variables with the SEAM post were analyzed. Results for the bivariate correlations are presented in Table 4. The only significant correlation for SEAM-I post scores was with child age, and this was a positive, large correlation, based on conventions recommended by Cohen (1988). This indicates that the older in age a child is, the higher they scored on the SEAM-I, indicating they were more advanced in their skills as reported by their parent. The remaining correlations with SEAM-I post were not significant but parent age and parent education were of moderate effect size and negative. This suggests that the older a parent was, or the higher level of education they had, displayed a tendency to score their child's skills lower on the SEAM-I. Further, note the significant, positive correlation between income and education, indicating that as years of education increased, monthly family income increased as well.

Lastly, a paired t-test of SEAM-I scores at pre and post for the 11 dyads was calculated. A paired t-test was used because, unlike an unpaired t-test, a paired test allows us to compare the individuals with themselves at pre and post. Each person is used as their own comparison point, to see changes from the beginning of the program to the end. As stated, the mean of social and emotional skills at pre was 124, and was 128 at post (Figure 1). A paired t-test revealed that the difference between the two mean was not significant ($t(10) = -1.56, p = .15$). This indicates that although the means were different, there was not a statistically significant improvement of social and emotional skills from pre to post.

Discussion

Prior research shows that children whose parents exhibit high levels of responsiveness and sensitivity show higher emotion regulation and social emotions skills (Nenide & Sontoski, 2014). Further, when parents engage in parenting education courses, they are able to better meet their children's needs through an increased awareness of their child's needs and abilities (Yates, 2011). Attachment theory further supports this concept through the ways in which early parent-child interactions build the foundation for later relationships (Ainsworth et al., 1971). The aim of this thesis was to understand how infant and toddler socio-emotional skills change as a result of parent and child participation in a 10-week parenting education course, Live and Learn. I hypothesized that the infants and toddlers who participated in Live and Learn would show improvements in their social and emotional skills from pre (week 2) to post (week 10).

As previously stated, the only significant correlation related to children's social and emotional skills (as assessed through parent report with the SEAM-I; Squires et al., 2014) was with age. The older an infant, the higher social emotional skills the mother reported. Parent age and parent education level were not significantly related to social and emotional skills, but were correlated of moderate negative effect (Cohen, 1998). This negative correlation is interesting, and one way to understand it may be that parents of higher education (or income) may have been more critical of their child's skills, which could have resulted in them scoring their child lower on the SEAM-I.

To test for changes in infant and toddler social and emotional skills as a result of parent-child participation in Live and Learn, a paired t-test was conducted. The results revealed no significant difference in children's skills. While the means were different from pre and post, the infants and toddlers involved in Live and Learn did not experience a statistically significant

improvement in their social and emotional skills. The means for pre and post were 124 and 128, respectively; these are high and close to the cap or highest possible score range for the SEAM-1, which is 136. These means may indicate that these infant's skills were already high prior to participation in Live and Learn, and thus they had little room to grow and improve. These consistent high means are called a "ceiling effect". Another possible explanation for the high scores (pre mean of 124) could be that 72.7% of participants mothers had participated in a Live and Learn class before. In future studies, attention could be paid to the differences between those who have taken the course versus those who have not, to further explore the association between Live and Learn participation and social and emotional skills.

Limitations and Future Directions

There are several limitations within this study. The first is the small sample size; we only had 11 parents and 11 children involved in this portion of the program. This limits our analytical power and external validity. Thus, we cannot generalize our findings to the greater population. Another limitation was that this study involved only mothers; 11 mothers and their infants and toddlers were involved, thus we did not have any fathers involved. Research by Lucassen et al. (2011) indicates that the higher the level of paternal responsiveness, the stronger the infant-father attachment (Lucassen et al, 2011), suggesting that fathers also play an important role in the development of the infant. To improve upon this limitation, special attention could be paid to recruit and encourage both mothers and fathers to participate in future programs. Additionally, parenting dynamics are diverse given family type (e.g., single parent, same gender couple, grandparent), and these results should not be generalized to other populations. Our study did not include any single parents. To improve this limitation in the future, recruitment efforts could be made to reach out to a more diverse parenting population. Finally, the timing of the parenting

education course is also a limitation, because it was offered during the weekday, which is when some parents may be working and thus unable to attend class. Offering classes at different times could help improve this limitation, as this would allow more individuals to be involved.

An additional limitation is the fidelity of implementation within the Live and Learn curriculum, or in other words, how well the parent educator followed the intended curriculum. As researchers, we cannot be completely sure that the parent educator followed the Live and Learn curriculum as indicted and directed. Our results could be influenced by differences or digressions from the teaching curriculum (Berkel et al., 2011). We do not know if the Live and Learn educator focused on the PIWI behaviors of responsiveness and sensitivity, which should have fostered an increase in parental responsiveness and sensitivity. It was hypothesized that the parental increase in these constructs would have led to improvement in children's socioemotional skills, but again it is unknown whether the educators focused on these constructs. To address this in the future, researchers themselves could be present at Live and Learn classes and could work with the educator to ensure that program components are being properly implemented.

Conclusion

This thesis impacts my future career in multiple ways. I plan to become a pediatrician with a focus on children with special needs, thus the work done in this thesis can be directly applied to how I will interact with and support my patients. As a physician, I will have a better understanding of the ways in which socioemotional skills are fostered and supported, and with my understanding of the negative impacts, I can hopefully intervene if necessary. The knowledge gained through this work, in regards to the immense importance of a positive parent-child relationship, will lead me to try and establish that between my patients and their families, and will help me to know how to best support those who may need more guidance.

This thesis did not find a significant difference in infant and toddlers social emotional skills after participating in a Live and Learn course, contrary to hypothesized. While I learned an immense amount throughout this process, I learned the most about data collection, data entry, and the formal writing process. Through data collection, I learned about successful ways to engage with parents and infants, and also learned that the degree to which data collection is successful can often be affected by many different outside factors such as child temperament, parental cooperation, or even the emotions and feelings the parent or child may be experiencing on a given day. The data entry process taught me about how to categorize and organize vast amounts of information and helped me to further understand the constructs and goals of the research. The write up process combined all of these skills, and taught me about scientific writing and how to present findings in a professional yet relatable way. All of these experiences have shown me that the research process is often full of unexpected discoveries and challenges, which, overall, can contribute to more interesting and nuanced discoveries.

One additional and unexpected thing I discovered was that the research process often exposes you to information or knowledge that you did not expect to find. While the t-test did not reveal significant mean differences, other results, like the negative correlation between social emotional skills and parent education level indicate ways in which other variables that I did not consider may influence the ways in which a parent views their child. This highlights that research will often be influenced by multiple factors, and thus we should work to include different components in future work to gain an even deeper understanding of the ways in which children's social and emotional development can be impacted. As a future pediatrician, I see myself applying this knowledge as I watch my patients grow and begin to establish those pivotal, necessary parent-child relationships that will impact both their current and future skills.

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Tables and Figures

Table 1

Parent education level (N = 11)

	<i>n</i>	<i>%</i>
Some college/no degree	3	27.3
Bachelor's degree	5	45.5
Master's degree	3	27.3

Table 2

Parental Monthly Income (N = 11)

	<i>n</i>	<i>%</i>
\$1,000-1,999	1	9.1
\$2,000-3,999	6	54.5
\$4,000-5,999	1	9.1
\$6,000-7,999	1	9.1
More than \$10,000	2	18.2

Table 3*Parent and Child Ethnicity*

	<i>n</i>	<i>%</i>
<hr/>		
<i>Parent (N = 11)</i>		
White/Caucasian	8	72.7
Hispanic/Latino	1	9.1
Asian/Pacific Islander	1	9.1
Black/African American	1	9.1
<hr/>		
<i>Child (N = 11)</i>		
White/Caucasian	8	72.7
Hispanic/Latino	1	9.1
Asian/Pacific Islander	1	9.1
Black/African American	1	9.1
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Table 4

Correlations between key demographic variables and Infant SEAM at post data collection (N = 11)

	1.	2.	3.	4.	5.	6.
1. SEAM-I, post	--					
2. child age	0.56*					
3. Child gender (1 = girl)	0.27	-0.05				
4. parent age	-0.40	-0.10	-0.53			
5. parent education	-0.33	0.40	-0.49	0.74***		
6. family income	-0.20	-0.01	-0.05	0.61**	0.46	
7. Participate in Live and Learn class before	-0.17	0.29	-0.15	0.26	0.55	0.34

* $p = .08$ ** $p < .05$ *** $p < .01$

Figure 1.

Graph of Mean SEAM-I scores at Pre and Post (N = 11)



