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ON THE DOCK ™: a multifaceted occupational therapy board game aiding pediatric development through play

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Doctoral Project

ON THE DOCK ™:

A MULTIFACETED OCCUPATIONAL THERAPY BOARD GAME AIDING PEDIATRIC DEVELOPMENT THROUGH PLAY

by

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DEDICATION

Play is a child's most important occupation. This work is dedicated to children and those who are children at heart. May everyday be filled with play.

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ABSTRACT

Technology plays a huge role in our daily lives. While technology provides a multitude of positivity for society, many are blinded to the dangers it can present, especially for children. Technology is proving to impact pediatric development and impair family dynamics. The research presented in this doctoral manual will shed light on this problem, discuss previous attempts at providing a solution, and present the author's solution – *ON THE DOCK* ™.

ON THE DOCK ™ is a classic-style board game, based on current research, curated to aid child development through play. Every detail of this game, both big and small, was meticulously selected to provide as much therapeutic value as possible. Not only does the game provide benefit for children, but this author also created an educational component for parents. The parental education component is meant to bring awareness to parents about child play behaviors, how to create the best play environment for children, and marketing strategies often used to promote toys and games. This information will be presented in the form of a brochure included in each game box as well as through a seminar.

ON THE DOCK ™, and its associated parental education, is an important invention that can prove beneficial for parents and occupational therapy practitioners alike; not only was it developed by an occupational therapist, but the author is also a parent which guarantees both perspectives are represented. The foundation of both components is grounded by three theories: Bandura's Social Learning Theory, Vygotsky's Sociocultural Theory, and Bruner's Scaffolding Model.

Disseminating the game and seminar will be of crucial importance for success; social media will be a big component of the dissemination process. The success of the program, both game and seminar, will be evaluated primarily through sales count. The seminar will also be evaluated through questionnaires completed by seminar participants. The game and seminar will be largely self-funded; the possibility of receiving grants and investors is considered as well. The research and intervention as described in this doctoral project will bring much needed attention to an ever-expanding situation of technology overload.

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LIST OF ABBREVIATIONS

AAP	American Academy of Pediatrics
ASTRA	American Specialty Toy Retailing Association
BU	Boston University
ISO	International Standards Organization
OT	Occupational Therapy; Occupational Therapist
OTP	Occupational Therapy Practitioner

CHAPTER ONE – Introduction

1. Purpose of Doctoral Project

The purpose of this doctoral project is to consider the increasingly present role of technology in children's lives, and provide parents, families, friends, and caregivers the tools necessary to play a more active and engaged role in the development of their children. So many aspects of child learning and development are being transferred from in-person to virtual: from handwriting, to mathematics, to general play, "there is an app for that". Although there are undoubtedly benefits to be gained from high-tech games, nevertheless too often the costs are overlooked. It is noticeable, for instance, that many children seem to become completely entranced when engaging with these games. More fundamentally, play is a child's most important occupation, because it is through play that children explore their surroundings and learn. High-tech games, with their flashing lights and blaring music, do not encourage children to explore through play.

This project presents the evidence and theory basis that went into the design of a traditional board game, *ON THE DOCK* ™ (to be discussed in Chapter Four). *ON THE DOCK* ™ is meant to assist pediatric populations with their therapeutic and developmental needs as well as to assist in increasing quality family togetherness in the home. As such, a secondary component of this doctoral project is the creation of material to educate parents on child play practices; this material will be presented as a seminar as well as disseminated through pamphlets included in each game box. This author designed *ON THE DOCK* ™ to play a positive role in aiding child development and fostering interpersonal engagement.

2. The Problem and Its Consequences

Advanced technologies are changing the way children play, which in turn affects how they grow and develop. As per the American Occupational Therapy Association (2021) guidelines, “Toys are the tools of play. The right toy can engage a child’s sense of curiosity, creativity, and imagination. Toys can also be used in play to help children develop physically, mentally, and socially” (para. 1). When it comes to high-tech games, the constant lights and noise distract children and take away from the human need to exercise bodies and minds. On the other hand, construction toys such as puzzles and blocks have been demonstrated to improve spatial skills and are correlated with later mathematical achievement in elementary school and beyond (Healey & Mendelsohn, 2018). Research from the American Academy of Pediatrics (AAP) also indicates that traditional games are “more beneficial to youngsters than blinking, whirring, flashing, e-gizmos,” and that “the best toys need not be flashy or expensive or come with an app. Simple, in this case, really is better" (Healey & Mendelsohn, 2018, p. 2). Moreover, traditional toys that lack high-tech components prompt more parental involvement in child play, which further develops spatial language and more varied overall language than electronic toys (Zosh et al., 2015).

Advanced technology affects child learning behavior in two ways. First, children are using their bodies in different ways. Instead of playing and learning dynamically with blocks, running around outside, and through environmental exploration, children are often sedentary while learning through computers and tablets, and getting their entertainment from television, phones, and computers (Saunders & Vallance, 2016).

Second, advanced technology changes how children interact with others, not only their peers, but their parents and family members (Lovato &Waxman, 2016). Decreased social interactions, in both quantity and quality, can impact the development of language and communication skills. This will be further discussed in chapter 2.

Participating in dynamic activities, more typical of low-tech toys and games than high-tech alternatives, is associated with physical growth, biological maturation, and behavioral development (Saunders & Vallance, 2016). This participation in dynamic activities also builds curiosity in children, helping them to further explore their environments and learn (Moawad, 2017). Environmental exploration and curiosity encourage, and is further encouraged by, imagination (Adams et al., 2017). However, when children are playing virtual games and spending their time on electronic devices, the need for imagination is lessened (Moawad, 2016).

What currently constitutes as a toy is substantially different than what it was during the previous century (Healey & Mendelsohn, 2018). Whereas more traditional toys encourage parental and peer involvement, these interactions are not as necessary when children are engaged in high-tech play; these games can instead cause mindless distraction (Oswald, 2012). It is often assumed that the newest upgrades and the latest technology are the best, influencing the purchasing desires of children and parents. This cycle puts the population at risk of forgetting about the basics of child development. Furthermore, most traditional toys will be put down or put away after playtime is over, allowing for more family interactions. However, high-tech games played on phones or tablets can be brought with children wherever they go, resulting in continuous immersion.

This can be especially disturbing when the entire family stares at their phones during a meal, rather than engage in conversation.

3. Contributing Factors

It is too simplistic to simply identify advanced technology as the problem and leave unaddressed other factors that determine the value of different types of child play. The structure of high-tech play discourages parental involvement, and this is a key contribution to the negative impact technology can have on child development (Miller, 2017). Children learn best when in socially active settings, especially when they receive feedback from their parents (Moawad, 2016). If children are to learn from technological devices, parents need to make sure to be spending that time alongside their child. Many of devices, apps, and toys are noisy, interfering with the kinds of interactions that are best suited for language and cognitive development (Lovato & Waxman, 2016). Providing parental involvement and oversight at least will ensure that children will receive feedback and social interactions in play.

Another factor contributing to the problem is the misleading advertising strategies. Companies often portray high-tech toys and games as critical for children's wellbeing, even if there is no proof of the toy or game's benefit (Healey & Mendelsohn, 2018). Advertisements are often directed to children, and they are designed to persuade kids to ask their parents to buy specific products (Healey & Mendelsohn, 2018). Targeted marketing strategies make the audience feel they need the item in question.

4. Addressing the Problem

This doctoral project examines how technology impacts child play and proposes a

program aimed to create positive change for children and their families. Given that play is a child's most important occupation, an occupational therapist makes for the perfect person to create a solution to the ongoing problem. The problem was addressed by conducting a literature review about contributing factors, selecting theories to create a guiding foundation, and identifying evidence-based details; this information allowed for the creation of a program that addresses pediatric development and education, parental education, and family dynamics. The program includes the development of the board game *ON THE DOCK ™,* along with educational material for parents regarding what to look for and avoid when selecting toys and games, as well as how and when to play with their children. These details, along with the program evaluation, funding, and dissemination plans, will be discussed in the following chapters.

CHAPTER TWO – Project Theoretical and Evidence Base

This chapter will explore theories and available research to gain a better understanding of the impact technology is having on child play and family togetherness. Factors that contribute to this problem will also be addressed. This information will allow for the creation of an evidence-based solution.

The visual model

The problem at hand is that child play is changing because technological advancements are changing the style of available toys on the market. There is an increase in toys with technological components and an abundance of technological devices with toy-like capabilities (tablets, iPads, cellphones, etc.). The result of play with such technology is overall less social and imaginative and more individual and sedentary.

To better explain this problem and how it came about, a visual model has been created (see Figure 1.1). This visual model identifies two factors contributing to the problem: 1) there is an abundance of technology in children's games and toys and 2) parents are selecting these toys for their children, thus resulting in these toys impacting child play. However, the cause of this problem is not linear; there are additional elements involved. Two moderating factors exist: 1) there is now an influx of games and toys to choose from 2) but there is not enough time for research to be conducted on the impact of these toys before the next new features come out. A moderating factor also exists: when marketing these high-tech toys, designers and marketers make claims about their products having developmental and educational benefit even if they are not backed by research evidence. By understanding how these components are impacting the problem, an

innovative solution can be created; in this case, the creation of a research-backed board game along with resources to help parents facilitate child-appropriate play.

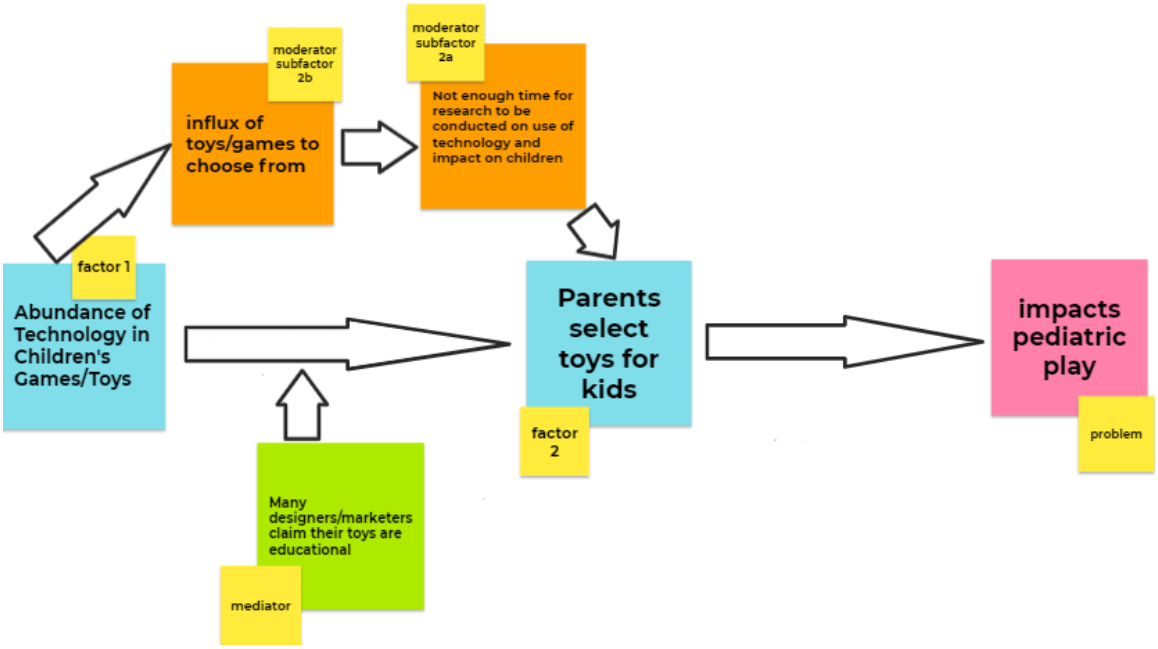

Figure 1.1: Visual Model

Grounding Theories

With technology evolving, parents and educators are allowing children to play and learn with high-tech devices without adult support or feedback. However, trusting technology to teach children without supervision is ill-advised. The following three frameworks will be used to better understand play and how it is being impacted by technology: Bandura's Social Learning Theory, Vygotsky's Sociocultural Theory, and Bruner's Theory of Scaffolding. All three theories share the notion that children learn from others - especially from adults.

Albert Bandura proposed that children model behaviors from what they see: "the child is more likely to attend to and imitate those people it perceives as similar to itself"

(McLeod, 2016, para. 6). The people in the child's environment will respond to the imitated action, which helps the child learn whether the behavior is appropriate. The external reinforcement in turn produces an internal response in the child. If the external and internal reinforcements match, then the child will learn that their behavior is appropriate or inappropriate. For example, a young child may take pleasure in gently petting a soft animal. Praising this behavior will increase the pleasure derived by the child. Children also observe the consequences of behavior before repeating it themselves. Using the same example, a child might see that petting a dog results in the dog expressing affection. Bandura shows that child learning is a dynamic, social, and cognitive process.

Lev Vygotsky also believed that people learn best when able to interact with their environment, especially the teacher-learner interaction, which he states is the "primary factor in the learning process" (Malik, 2017, p. 2). He coined the "Zone of Proximal Development," which describes the relationship between a child's current level of knowledge and the next level a teacher hopes to achieve. The learner starts with a certain level of knowledge or ability regarding a skill, which is the baseline for teaching. Teachers move onto the next step of teaching the skill after students begin advancing their skills. The gap between what learners currently know and what they will learn next is the zone of proximal development. Vygotsky also emphasizes social interactions amongst peers. Learners can also learn from peers who possess more advanced knowledge.

Building upon Vygotsky, Jerome Bruner and colleagues (1976) developed the scaffolding model. This model explains that children learn best when receiving graded

levels of assistance from an expert adult until they have sufficiently mastered the task and can perform it independently. The scaffolding model requires feedback and support when learning something new, with support decreasing as proficiency increases.

Educators use the scaffolding model to this day, but question how to incorporate technology as an educational scaffold. It is an open question as to how to best pair technology with human involvement and oversight in education. According to one theorist, "if technology is to be understood as a teaching aid, it should be understood as technologically enhanced scaffolding … rather than as scaffolding in its own right" (Malik, 2017, p. 7). In other words, technology cannot replace human involvement, but may serve to enhance scaffolding.

The three theories upon which this doctoral project is grounded, Social Learning Theory, Sociocultural Theory, and Theory of Scaffolding, were selected because they all emphasize the importance of social interaction to support learning. This essential element is important to keep in mind when determining if a particular toy or game will have educational and/or developmental benefit for children. These theories leave the implication that content is not the sole proprietor in determining educational benefit; but rather, the method of delivery is highly impactful as well.

Appraisal of Evidence-Based Literature

In today's world, technology is abundant, constantly evolving, and increasingly integrated into children's toys. The increase in technology is causing an influx in available games and toys for parents to select for their children. However, technological advances are coming out before researchers have a chance to conduct studies, which

would allow parents to make well informed decisions. Instead, parents must rely on designers and marketers for information regarding the benefits of a particular game or toy; these factors are impacting child play. To explore this problem and its causes further, a literature search of the following five questions was conducted:

1. Is there evidence that abundance in technology is resulting in an influx of available toys and games?
2. Is there evidence that technology in child toys and games impacts parents' selection?
3. Is there evidence that an influx of available toys and games limits opportunities for research to be conducted on their benefits?
4. Is there evidence that parent toy/game selection impacts child play?
5. Is there evidence that marketing strategies impact popularity of high-tech toys and games?

The following terms were used, in various combinations, to complete the literature searches: play, childhood play, play behavior, toys, childhood curiosity, exploration, technology, parenting, family interaction, development, marketing. The searches were conducted using databases and/or journals including Child Development & Adolescent Studies, PsychINFO, ERIC, Web of Science, and EBSCO. Additional resources were identified using the reference lists of selected articles that were obtained from the searches described above. A total of 21 articles were selected for this synthesis and include true experimental designs (Miller et al., 2017; Moawad, 2017), quasi-experimental designs (Carson & Janssen; 2012; Chou & Fen, 2014; Dauch et al., 2017; Ebbeck et al., 2015; Gardner et al., 2012; Hirsh-Pasek, 2015; Hutton et al., 2020; Shifrin et al., 2015; Sjöberg, 2015; Yamada-Rice, 2018), systematic reviews (Araújo et al. 2017; Arnott, 2018; Dresp-Langley; 2020; Healey & Mendelsohn, 2018; Kent, 2017), meta-analyses (Calvert, 2018; Gaspar, 2018; LeBlanc & Chaput, 2017; Lieberman et al., 2009;

Saunders & Vallance, 2016), and an opinion piece (Choi, 2013).

High-tech toys and child use of technological devices is a relatively new and rapidly expanding topic. Therefore, it was not surprising to find many studies in the literature search conclude that further research needs to be conducted. Fortunately, the research on this subject matter has begun. The depth and content of this information will be discussed below.

Is there evidence that abundance in technology is resulting in an influx of available toys and games?

Our current society revolves heavily on the latest technological advancements. From cars to coffee makers and everything in between, new gadgets are constantly being developed. How does this impact child play? Simply put, toys have changed a great amount over the past few years; most toys that are being introduced now are highly technological and are often created with the purpose of replacing the need for children to play with other humans. Over the past two decades in fact, many aspects of traditional toys have been adapted into electronic versions on laptops, tablets, phones, and other electronic game devices (Healey & Mendelsohn, 2018). These devices and applications are proliferating at an extraordinary pace.

Although the concept of play itself has not changed, "changes in technology, as well as wider social and cultural patterns, bring about new materials in the landscape of young children's communication practices and play" (Yamada-Rice, 2018, p. 1). Children's toys are becoming a high-tech industry with no signs of slowing down; various technologies are being tweaked in ways that create the possibility for them to be a plaything, including information communication technology which is spreading quickly

(Gaspar, 2018). In other words, creators are trying to turn just about anything into a game/toy for children, because children's toys are a "major economic market becoming ever more tech-related and drawn into the battle for convenience" (Gaspar, 2018, p. 1).

With so many options on the market, it leaves parents not knowing which options are best nor where to purchase them. There is lack of evidence to support these new technologies as being necessary for child development - a topic of conversation which will be discussed in detail in a later section. To make matters more confusing, "toy stores, it turns out, are the worst place to buy toys. The educational aisle is even more upsetting, filled with battery-operated toys with cartridges, sounds, and styluses" (Choi, 2013, np). The best places to buy good toys are in specialty toy retailers and through therapeutic product retailers (Choi, 2013). This is because toy stores seem to mainly have the high-tech "impressive" toy options, whereas specialty toy retailers provide toys whose designs focus not on what the toy can do but on what the child can do, per the American Specialty Toy Retailing Association (ASTRA) definition of a specialty toy (Choi, 2013).

Given the influx of available toys, parents may select and provide their children with multiple options simultaneously. However, researchers such as Dauch et al. (2017) are finding that presenting a multitude of toys and games to children at once can hinder play experiences due to increased distractibility from the sheer number of options. Fewer distractions result in increased play with an individual toy, enhancing physical skills such as fine motor and bilateral coordination as well as increasing environmental curiosity; environmental curiosity is an important factor in childhood exploration and learning. (Dauch et al., 2017)

To conclude, “blurring of the line between physical and virtual toys has greatly complicated caregiver decision making when selecting toys, especially because mobile device applications for children have proliferated at an extraordinary pace” (Healey & Mendelsohn, 2018, p. 2). Because of this, pediatric health care providers play an important role in providing guidance to parents for selecting appropriate applications and toys and games. In fact, “academics and those designing and making products for young children can come together to combine knowledge and know how to make products better suited to children” (Yamada-Rice, 2018, p. 16).

The variety of research that has been stated above shows that there is an influx of games and toys on the market, most of which are flaunting high-tech components.

Is there evidence that technology in child toys and games impacts parents' selection?

With technological advancements on the rise, parents may believe that the latest upgrades must be the best thing for their child. “Unfortunately, many caregivers believe that expensive electronic toys (e.g., sensory-stimulating noise and light toys for infants and toddlers) and tablet-based toys are essential for their children’s healthy development” (Hirsh-Pasek et al., 2015, p. 5). However, “only a handful of apps are designed with an eye toward how children actually learn. A small number of developers at both small start-ups and bigger toy/media companies have used research-based approaches with preliminary results of research” (Hirsh-Pasek et al., 2015, p. 5). Instead, what most developers do is simply make the claim that an app is educational by making sure that it includes “educational” content such as numbers and letters. “Rote memorization of

numbers and letters, however, is not sufficient for deep learning" (Hirsh-Pasek et al., 2015, p. 25). In fact, "evidence suggests that core elements of such toys (e.g., lights and sounds emanating from a robot) detract from social engagement that might otherwise take place through facial expressions, gestures, and vocalizations and that may be important for social development" (Healey & Mendelsohn, 2018, p. 2). Parents need to be aware of this when selecting toys and games for their children.

As previously mentioned, convenience has become a major component of children's toys. All too often, parents use toys as babysitters, expecting the toy to engage their child to the point where the child is mesmerized (Choi, 2013). One such example is the fact that parents are providing children of all ages with access to networked toys; networked toys are devices capable of interacting with children by essentially talking and listening, much like the smartphones and tablets parents are using themselves (Gaspar, 2018). Another example of this was found by researchers Ebbeck et al. (2018) who were able to determine smartphone and touch screen tablets as the most popular technological devices used by children aged under 7 years, because they have the ability to serve as "the ultimate babysitter" (Ebbeck et al., 2018, p. 131). Parents need to remember that they play a large role in their child's learning and development; parents need to remain present when children play with technologically advanced devices, set regulations regarding digital play, and lead by example through the way they use their own technological gadgets (Chou, & Fen, 2014).

All the available research points to the conclusion that parents are influenced by technology when it comes to selecting toys and games for their children. Parents'

increased selection of high-tech toys and games seems to be two-fold. First, parents may feel that these gadgets are the best option for their child's education and overall development. Second is the convenience factor; the flashing lights and sounds draw children in (almost in robotic fashion) making parents feel their child is substantially entertained and can be left alone. Digital technologies do not, and cannot, take on the role of parenting (Arnott et al., 2018). Parents still need to supervise their children to achieve a balance in their lives with activities beyond touch screens and flashing tech toys (Ebbeck et al, 2018).

Is there evidence that an influx of available toys and games limits opportunities for research to be conducted on their benefits?

With the pace at which new technology is being developed, it is difficult for researchers to keep up. Not only is research limited on digital games themselves, meaning that many are not created with evidence-based protocols, but there is also very little published research on the impact digital toys and games have on young children's cognitive development, academic skills, learning, or social development (Leiberman et al., 2009). This is especially bothersome because early childhood years sets the stage for lifelong development "and so it is essential to know how to design games that will serve them well and to select games for them that have been designed on the basis of solid evidence and… tested in outcome studies that demonstrate their effectiveness" (Leiberman et al., 2009, p. 305).

The number of current studies regarding the impact of techy toys on children's overall well-being are limited and the quality of these studies "has been identified as being low to very low" (Saunders & Vallance, 2016, p. 329). Many of the available

studies conclude that further research needs to be conducted, making it difficult to know which toys and games are beneficial for children and if there is potential for negative impact. “Relatively few intervention studies have examined the relationship between screen time and physical health. The few studies that are available have focused primarily on screen time and adiposity” (Saunders & Vallance, 2016, p. 325). To add, it has only been within the last five years that researchers have started examining the impact screen time plays on quality of life. Overall, the trends that are emerging from studies currently available raise concerns regarding the impact increased media use has on physiological development, socialization, exploration, and learning.

Examining guidelines presented by the American Academy of Pediatrics (AAP) is a good place to start as they have studied the impact of various media on children and teens and have made suggestions on media use from evidence-based research data (Shifrin et al., 2015). As per AAP guidelines, young children are not recommended to spend excessive periods of time sitting with screen-based media, especially children under 5 years of age, as brain networks are still developing. Specifically, the AAP recommends screen time for children be limited to a total of less than 1 - 2 hours per day; “for children under the age of 2 years, screen time is discouraged altogether” (Saunders & Vallance, 2016, p. 324). A 2020 study (Hutton et al.) found that increased screen-based media use, compared to AAP guidelines, “was associated with lower microstructural integrity of brain white matter tracts that support language, executive functions, and emergent literacy skills” (Hutton et al., 2020, p. 2). The results of this study indicate that higher screen time use results in impaired white brain matter tracts, which suggests a

need for further studies to be conducted on proper screen-time allotment (Hutton et al.).

Besides physiological health and development, use of digital devices can impact pediatric physical and psychological health. “Screen-based sedentary behaviours (i.e., screen time) have recently been recognised as a significant contributor to adverse health (e.g., physical, mental) indicators in children” (Saunders & Vallance, 2016, p.323). Cross-sectional and longitudinal observational studies examining the relationship between screen time and physical health in children “suggest that increased levels of screen time are associated with worse health indicators” (Saunders & Vallance, 2016, p. 325). Regarding psychosocial health, the volume of research is even more limited in number than for physical health (Saunders & Vallance, 2016). Observational studies and systematic reviews of observational studies have been conducted, with results similar to those from studies examining physical health impacts; more screen time is associated with negative outcomes. This includes decreases in “self-esteem, pro-social behaviour, academic achievement and psychological wellbeing” (Saunders & Vallance, 2016, p. 327); as well as increased levels of depression, “sleep problems, musculoskeletal pain, hyperactivity and internalising problems” (Saunders & Vallance, 2016, p. 327). Emerging data continues to support the notion of increased screen time among children and youth as being correlated with negative psychosocial outcomes (Saunders & Vallance, 2016). It should be noted that “to date, only a handful of intervention studies have examined the links between screen time and psychosocial health indicators” (Saunders & Vallance, 2016, p. 327).

Interestingly enough, a few years ago a very popular digital game called Pokémon

Go seemed to prove effective in increasing the amount of time players spent walking in a given day; even more promising was that players were “replacing time they would have spent engaging in indoor passive screen time with active, outdoor time” (LeBlanc & Chaput, 2017, p. 236). Pokémon Go appeared to succeed where other games had previously failed; it was able to change the behavior of typically inactive people. Unfortunately, the initial interest in the game was not sustained; thus, there are no follow-up studies examining the long-term effectiveness of this game on physical activity level. Researchers identify the characteristic nature of games to be unsocial, as they typically limit a pre-set number of players, as well as the “ability for players to cheat, thereby minimizing the need for physical activity” (LeBlanc & Chaput, 2017, p. 235) as two of many, reasons why video games are unable to sustainably promote activity levels. To conclude, “active video games are not a recommended strategy to help kids be more physically active” (LeBlanc & Chaput, 2017, p. 235), as stated by a systematic review in the Active Healthy Kids Canada's Position on Active Video Games for Children and Youth (LeBlanc & Chaput, 2017).

As mentioned previously, parents may believe that digital technologies are highly superior and effective for child education compared to low-tech options; experts are now cautioning parents and educators that there needs to be more than just “pushing and swiping” for something to be educational (Shifrin et al., 2015). Parents need more information about the quality of toys and games they are purchasing if they want their children to foster interactive engagement and meaningful learning during digital play. At this time however, more research needs to be done on the impact of children’s access to

and use of digital media games and devices. At a minimum, parents should be aware that their participation and/or supervision during digital play proves to be highly beneficial; "it is clear that very young children need "contingent interaction" — two-way social interchange — to promote learning" (Shifrin et al., 2015, p. 2). Therefore, parents are advised to engage in using digital media together with their children; not only is this beneficial for child learning but valuing time spent together is always important.

Even though the research on digital toys and games and their impact on children is minimal, new games and toys are constantly being created. One such toy is called Avakai. Avakai is a screenless digital toy, designed to actively encourage users to alter its appearance and use. Avakai designers created this toy to examine the impact of screenless digital toys with child communication as research regarding the connection between play and literacy has been in decline. Yamada-Rice (2018) suggests the reasons for the decline in research are "two-fold, firstly because digital technologies have altered traditional play and literacy practices and secondly, because play might not prepare children for the type of literacy practices they need when using digital technologies" (Yamada-Rice, 2018, p. 3). The data from this study showed that the simplistic design of Avakai "related to a specific emotional quality in the children's play and communication practices" (Yamada-Rice, 2018, p. 11). Yamada-Rice (2018) left readers with a very important statement:

> Academics need to work more closely with designers to understand products made for young children. In turn this will bring greater understanding of young children's play and communication practices and hopefully serve to inform toy

design too. (p. 2)

Arnott et al. (2018) made similar remarks regarding the creation and use of digital technologies for children. “Practitioners and teachers first need to understand the whole child before we can plan for possibilities with technologies or indeed speak of the child centred approach to learning” (Arnott et al., 2018, p. 4).

Not all screen time is bad for children. For instance, “when they talk to a grandparent over a chat program, are exposed to math concepts, work with teachers and parents to learn new things in many domains, and even learn new words” (Hirsh-Pasek et al., 2015, p. 26). As new data comes out and digital games continue to become ubiquitous, perhaps researchers will be able to determine more ways to ensure children benefit from these technologies and are not harmed by them. Unfortunately, this may be difficult to do given the quality and volume of the current research. The majority of present studies do not allow for causal inferences to be made as they use cross-sectional designs. In addition, studies which require measures of screen-time typically use self-reports from parents and/or children to obtain data which opens the door for invalid, unreliable, biased results. “In addition to self-reported screen time, the majority of available studies also relied on children and youth self-rating a variety of health indicators such as [quality of life] and depression, which may introduce additional error and bias in the study findings” (Saunders & Vallance, 2016, p. 329).

Although the topic is new and the overall amount of research is limited, the initial trends are eye-opening. “Screen-based technology is rapidly changing and it is imperative that researchers recognize and keep pace with the shifts in trends and use of screen-based

entertainment devices" (Saunders & Vallance, 2016, p. 329). Researchers need to study and understand what takes place cognitively, socially, emotionally, and physically when children play with digital games, as well as how attitudes, skills, and behaviors may be influenced, for toys and games to be designed and implemented "in ways that best support their learning and healthy development" (Leiberman et al., 2009, p. 307).

Is there evidence that parent toy and game selection impacts child play?

A large majority of the games and toys children are regularly exposed to are provided for them by their parents. Therefore, it would make sense for child play to be impacted by the choices parents make when selecting these items, especially since not all toys and games are created equally.

Well-designed games can provide powerful interactive experiences that can foster young children's learning, skill building, and healthy development (Lieberman et al., 2009). Poorly designed games can be time-wasting sedentary activities that contribute little to children's learning, skill building, or healthy development and instead are associated with obesity and poor cardio-vascular fitness (Lieberman et al., 2009). Very poorly designed games can do significant harm, such as teaching, modeling, and rewarding aggressive or anti-social behavior.

Parents play a huge role in the amount of time children spend watching tv and playing video games. A 2012 study by Carson and Janssen found "parental attitudes, parental barriers, and parental descriptive norms were positive predictors and parental self-efficacy was a negative predictor of screen time" (Carson & Janssen, 2012, p. 5). Today, parents are often purchasing high tech toys and games for their children because

of the societal perception that these types of toys and games are “critical facilitators of early brain and child development” (Healey & Mendelsohn, 2018, p. 1) and not only playthings; this has “challenged caregivers in deciding which toys are most appropriate for their children” (Healey & Mendelsohn, 2018, p. 1).

However, the constant technology use is resulting in young children getting reduced amounts of “natural day and sunlight exposure” because of spending an increasingly longer amount of time indoors online (Dresp-Langley, 2020). This has a snow-ball effect, potentially causing multiple health risks “such as early myopia and blindness, obesity, sleep disorders, anxiety, and depression, leading to impaired performance at school and behavioral problems” (Dresp-Langley, 2020, p. 1). Communicative behaviors and language skills can also be negatively impacted by heavy use of technological toys. A study by Miller (2017) found that infants produced more directed vocalizations and gestures when interacting with traditional compared to feedback toys; and parents responded with higher levels of feedback to these directed communicative behaviors when interacting with traditional compared to feedback toys (Miller, 2017). These implications and the potential risk factors associated with excessive use of high-tech toys and screen-time can disrupt a child’s future and well-being.

When given a high-tech toy to play with, adults often mistake the technology as a substantial reason to leave their kids unsupervised, as previously mentioned. This is important because low-tech toys result in children playing more with other kids and taking part in a variety of activities, whereas playing games on tablets without parental

feedback results in children playing more often on their own, playing with their low-tech toys less, and not participating in a variety of activities (Moawad, 2017).

It is true that toys and games play an important role in early child development in relation to their ability to facilitate "cognitive development, language interactions, symbolic and pretend play, problem-solving, social interactions, and physical activity" (Healey & Mendelsohn, 2018, p. 2). Therefore, it is important for parents to know that "in general, the best toys are those that match children's developmental skills and abilities and further encourage the development of new skills" (Healey & Mendelsohn, 2018, p. 3). Overall, the best toys and games for children, regarding development facilitation, are those that are genuinely enjoyable for the child and can be "productively used for play together with an engaged caregiver, because in such contexts play with toys is likely to include rich language experiences, reciprocal verbal interactions, and scaffolding" (Healey & Mendelsohn, 2018, p. 3). Unfortunately, many digital games are not developmentally appropriate nor evidence-based in design; nor do they recognize or build upon ways young children play and learn. They are often not even tested with children to assure that game play is fun and beneficial (Leiberman et al., 2009).

Low-tech toys increase curiosity in children, which is necessary for environmental exploration and is vital for growth and development in young children (Moawad, 2016). To add, using traditional toys, such and blocks and puzzles, to elicit problem-solving through play "can support fine motor skills and language and cognitive development and predicts both spatial and early mathematics skills" (Healey & Mendelsohn, 2018, p. 3).

Not only does less technology allow the mind to draw forth more pretend play behaviors, but studies also show that electronic instruction may be disruptive to children. All the "bells and whistles" in apps are similar to reading a book to a child when a fire alarm goes off; the child will likely not remember most of the story (Hirsh-Pasek et al., 2015). It is true that attention is clearly captured by the flashing lights and sounds, however they are merely filling the "auditory space" which is not beneficial for development and learning (Miller, 2017). Researchers Hirsh-Pasek et al. (2015), have determined that "humans learn best when they are actively involved ("minds-on"), engaged with the learning materials and undistracted by peripheral elements, have meaningful experiences that relate to their lives, and socially interact with others" (p. 7). Digital and high-tech toys are not always ideal for learning as they often limit socialization and can cause distractions due to so many different moving parts, flashing lights, and dynamic components.

As has been made clear, a large proportion of time children spend using high-tech devices and screens can be explained by factors within the home setting — such as parental control (Carson & Janssen, 2012). These findings suggest that fostering appropriate screen time habits in children, especially young children, needs to start by targeting parents. "Increasing parental knowledge and skills, which in turn leads to positive changes in parental modeling and positive changes within the home environment that ultimately facilitate healthy family habits" (Carson & Janssen, 2012, p. 6). Over-dependence on technology often leads to a loss in personal interaction and causes a negative family environment.

It is important to note that high-tech toys are not inherently bad, but adult supervision/feedback or peer socialization is required for high-tech toys to reach their full potential; unfortunately, the odds of solitary play with technologically advanced toys are high because these toys are typically made to be played with independently (Moawad, 2017).

Parents are an important element in young children's learning, especially when using digital games. "They can share the experience with their children and serve as a guide, especially for the younger children ages 3 and 4" (Leiberman et al., 2009, p. 307). Different types of toys and games elicit different play behaviors in children; not only the toy/game itself but also the environment upon which the toy/game is played in. "Play provides opportunities for exploration, experimentation, and manipulation that are essential for understanding basic concepts and constructing knowledge (Bredekamp & Copple, 1997). Play also helps children develop imagination and creativity, which are key building blocks for future cognitive and emotional development and academic success" (Leiberman et al., 2009, p. 304). Therefore, it is important for parents to understand the impact their toy/game selections and play participation may have on their child.

The research presented in this section demonstrates that child play is impacted by the decisions parents make, such as if parents select high-tech or low-tech toys and games. The research also shows that while parent selection is important, parent participation during child play is also of high importance. The extent of the impact parent play participation has on child development is worth researching further.

Is there evidence that marketing strategies impact the popularity of high-tech toys and games?

Advertising strategies marketers implement are meant to entice people to purchase a product. However, can their claims about the product being presented be trusted? When it comes to the purchase of toys and games for kids, this is a crucial question to consider because "many of the claims advertised for toys are not based on scientific evidence" (Healey & Mendelsohn, 2018, p. 2). Being aware of marketing strategies is important for parents, to be better equipped and reach educated conclusions regarding specific toys and games and their features.

Given that children are exposed to various media sources multiple times per day (television, computer, etc.), it is no surprise that marketers have begun using these outlets to plug toys and games to children. Children are now exposed to marketing of toys and games on a regular basis everyday with television being the most frequent and successful method. "Traditional marketing techniques in television commercials include repetition, branded characters, catchy and interesting production features, celebrity endorsements, and premiums" (Calvert, 2008, p. 207). Immature cognitive development "limits the ability of children younger than eight to understand the persuasive intent of commercials" (Calvert, 2008, p. 225). In fact, one marketing strategy involves targeting children by disguising advertisements as content during shows and videos, coined as stealth advertising; "the theory behind the new technique is that advertising is most effective when consumers do not recognize it as advertising" (Calvert, 2008, p. 208). This makes marketing techniques even less transparent and more influential to the child consumer (Araújo et al., 2017).

Marketers seek to persuade and interest children using techniques most effective for the specific age range the toy/game is meant for. Unfortunately, a significant amount of the play-based activities being promoted on television encourage sedentary overactive play, and the disparity is increasing. In 2017, Kent and Velkers investigated toy advertising during Canadian children's shows; advertising from 27 television stations in Toronto were collected from May 2006 and May 2013. After performing a content analysis, a 15% increase in toy ads per hour was discovered, with 88% of the ads in 2013 promoting sedentary play - a 27% increase from 2006. Not only did ads promoting sedentary play increase, but ads promoting active play decreased 33%. This trend is quite alarming. Although the number of ads encouraging sedentary play targeting males and females both increased, a majority of the ads targeted males; this is interesting to note, as marketers do often have a particular sex in mind when creating ads. Even the Disney Store website categorizes many of their items as "boys only" or "girls only", using the color palette, predominant color, and the type of toy as gender markers (Gardner, 2012). Future researchers should consider exploring the impact these advertisements have on children's physical activity levels, overall preference for active versus sedentary play, as well as how children perceive various toys and games (Kent & Velkers, 2017).

Another platform marketers are using to target children more recently is YouTube; YouTube is becoming a very popular site for children for multiple reasons, one of which being the convenience it provides parents (can pull up their child's favorite YouTube show anywhere anytime). Popular YouTubers are used to promote products and brands during their shows; many of these videos "blur the boundaries between

entertainment and advertising" (Araújo et al., 2017, p. 11). Araújo et al. (2017) explained why using YouTube channels for advertising has become a perfect strategy for marketers and manufacturers:

> YouTubers are viewed as authentic by their audience, when reviewing a product or brand. Followers believe that Youtubers' recommendations are honest. In order to look more honest and transparent to their followers, Youtubers label their promoted videos with special hashtags, meaning the content, product or brand is sponsored. (p. 6)

To investigate just how prevalent marketing to children on YouTube has become, Araújo et al. completed a study in 2017. They collected data from 24 Brazilian YouTube channels for kids and 17 YouTube English channels produced from the United States and United Kingdom and utilized "hashtags" to identify the commercial nature of a video. Videos could contain explicit or implicit advertising and so they decided that "if a video mentions products or brands, it potentially has advertising messages" and was thus classified as such in their results (Araújo et al., 2017, p. 7). In total, "6,017 videos in Brazil were classified, and 4,109 videos in English" (Araújo et al., 2017, p. 8). With this information, the researchers were able to identify 23 categories of topics that were being advertised to the children watching these channels. Out of all advertising categories, 29% of the ads were promoting toys and 16% promoted games; in other words, 45% of the advertisements on children's YouTube channels are aimed toward toys and games, significantly more than any other category and taking up nearly half of all advertising time (Araújo et al., 2017). Since children are watching YouTube videos regularly now,

they risk being exposed to a plethora of different things daily including inappropriate content, privacy issues and crimes in the digital world, and manipulative advertising (Araújo et al., 2017).

Marketing of toys and games is being aimed at children as well as parents. The "increased marketing of so-called 'educational' toys" has brought a shift in parental and societal perception of toys" over the last 20 years (Healey & Mendelsohn, 2018, p. 1). In both traditional and newer media outlets, marketing "is used to encourage caregivers to view technologically driven toys as critical for development" (Healey & Mendelsohn, 2018, p. 5). As manipulative as it sounds, marketing strategies play into the fear many parents, especially mothers, have that they are not doing enough or what is best for their child (Sjöberg, 2015). Sjöberg concluded in a 2015 study on marketing which targeted first-time parents, that the advertisements were articulated in specific ways and with such conviction that made the items seem necessary for infant well-being and not that the marketers were simply trying to make a sale (Sjöberg, 2015).

It is important to note that many claims on packaging and advertising of toys and games "are largely unsubstantiated by credible studies" (Healey & Mendelsohn, 2018, p. 5). Thus, it is important for a dialogue to exist between marketers, producers, pediatric health care providers and parents to decipher these advertisements and identify each party's responsibilities in the child consumer business (Sjöberg, 2015).

The presented research indicates that marketing strategies are having an impact on the popularity of high-tech toys. Marketers do a great job convincing consumers that the latest gadgets are the best for child development and are a necessity if parents want their

child to succeed in life. More research should be conducted on the impact advertising has on child preferences.

Conclusion

The 21 studies mentioned in the above synthesis include meta-analyses, true experiments, quasi-experiments, and an opinion piece based on that author's personal experiences. It is important to include published works incorporating various methods during this stage of the research process, as it provides information stemming from multiple points of view. Especially when one is trying to educate parents, it can be quite meaningful to not only provide scientific data but also published works from people whom parents can connect and relate to, such as other parents. When it comes to selecting toys and games for their children, parents may find information in the form of advice from experienced parents to be more influential and informative than information that is provided by marketers and scientific researchers.

The visual model (see Figure 1) reads as follows: the increase in technology is causing an influx in available games and toys for parents to select for their children. This results in technological advances coming out before researchers have a chance to conduct studies on effectiveness of these gadgets. Therefore, parents must rely on designers and marketers for information regarding the benefits of a particular game or toy when selecting; these factors are impacting child play. After reviewing the literature, this model accurately reflects the problem at hand. If more research were available, the impact marketing plays on children's interest in particular toys and games would be an additional topic of interest to explore.

The studies incorporated in this synthesis demonstrate the impact of appropriate toy selection on child play behaviors, crucial for overall development and learning. Traditional toys help foster childhood imagination, creativity, curiosity, and exploration; high-tech devices try to mimic these results but are often not successful. These studies also emphasize the importance environment has during play. Providing too many toys at once or a toy with too many components can disrupt deep play; additionally, parental involvement during child play is proven to have a great effect on the overall ability of a toy to impact child development. To note, while the literature search resulted in a variety of studies discussing technology's impact on children, the research is still new and further research is needed to determine more definitive conclusions. Changes in child play due to technological impact is a growing problem; potential solutions will be explored in the next chapter.

CHAPTER THREE – Overview of Current Approaches and Methods

This chapter will discuss features of various toys and games and the impact they can have on child play and development. Additionally, for this information to be useful in addressing the problem of technology impacting child play and development, parents will need to be made aware of the current research. Methods for educating parents on child play practices and technology will also be identified.

Appraisal of Evidence-Based Literature

Child play is being impacted by the types of games and toys that are abundantly available for parents to purchase and provide to their children. To determine how to solve this problem, a literature search of existing methods was conducted with the following five questions:

1. Is there evidence to support what features make a toy/game educational?
2. What is the evidence on toy/game features that should be avoided?
3. Is there evidence that certain toys/games better promote child play behaviors in children than others? (Socialization, environmental curiosity, imaginative play)
4. Is there evidence to support low-tech toys/games eliciting greater parent-child interaction?
5. What is the most effective way to educate parents on child play? How should this information be written?

The following terms were used in various combinations to complete the literature searches: toys, play, childhood play, play behavior, availability, children's toys, board games, learning, development, adult learning, educating parents, teaching parents, selection, childhood curiosity, exploration, technology, parenting, and family interaction. The searches were conducted using databases and/or journals including Child Development & Adolescent Studies, American Academy of Pediatrics, PubMed, PsychINFO, ERIC, Web of Science, Education Database, and EBSCO. A total of 22

resources were selected for this synthesis and include true experimental designs (Koterba et al., 2014; Miller et al., 2017; Moawad, 2017; Zuccarini et al., 2017), quasi-experimental design (Adams et al., 2017; Chou & Fen, 2014; Dauch, 2017; Hassinger-Das et al., 2017; Hirsh-Pasek et al., 2015; Hutton et al., 2020; Sleifer et al., 2013), systematic reviews (Dresp-Langley, 2020; Wiklund et al., 2018), meta-analyses (Fleer, 2016; Kildare & Middlemiss, 2017; LeBlanc & Chaput, 2017; Lieberman et al., 2009; Shifrin et al., 2015; Verdine, 2018), and opinion pieces (Apache, 2004; Choi, 2012; Choi, 2013).

Since this is a relatively new area of interest, there have not been many successful attempts at solving this problem. The research included in the literature review includes the best suggestions currently available.

Is there evidence to support what features make a toy or game educational?

Games and toys can promote learning. By allowing for fun, curiosity, and inhibiting reality, games and toys are able to "echo most of the key ingredients in playful learning opportunities" (Hassinger-Das et al., 2017, p. 196). Fine details of the game design are important to consider. When appropriately designed, games "can improve learning, skills, self-concepts, and attitude… [and can] foster safe experimentation, interactive learning, [and] self-efficacy" (Shifrin et al., 2015, p. 3) which can ultimately help to improve relationships, social skills, and overall health (Shifrin et al., 2015). It is imperative that parents check details and features of a game, app, or toy as many claim to serve educational purposes simply because they include numbers and letters. Experts warn that interactive media requires more engagement than swiping or pushing to provide

educational benefit (Shifrin et al., 2015) and that memorizing letters and numbers does not equate deep learning (Hirsh-Pasek et al., 2015).

As mentioned above, games and toys should have features that create active, engaged, meaningful, interactive, and fun play (Hassinger-Das et al., 2017). To be even more beneficial, they should also inhibit reality, allow the child to be in control, create a just-right challenge, produce curiosity, and have a rule-based system; games typically include all of these features, whereas free-play and guided play can include some of these features (Hassinger-Das et al., 2017). Creating a just-right challenge means the game should "tap into players' intrinsic motivation and self-efficacy" (Hassinger-Das et al., 2017, p. 195) by striking a balance between players' initial skill levels and more difficult content. This is similar in principle to the model of scaffolding, where an adult or teacher presents "information just above the child's skill level" (Hassinger-Das et al., 2017, p. 195). This is how games can "promote learning in ways similar to other playful learning situations" (Hassinger-Das et al., 2017, p. 191).

Another feature a game or toy should possess is the ability to be manually explored. Object exploration allows for hands-on learning about the characteristics of a particular item (Koterba et al., 2014). In fact, when Zuccarini et al. (2017) examined types of motor object exploration of children ages 6, 9, and 24 months old, holding was the behavior most frequently exhibited; this displays the human need to manually explore objects, a behavior especially useful for learning purposes. These enriched experiences with objects may be beneficial in language and cognitive development and can even help prevent delays in these areas (Koterba et al., 2014).

While not a specific feature, the educational potential a toy or game may produce is significantly impacted by socialization as well as parental supervision or participation. It has been shown that children need socialization for ideal learning (Shifrin et al., 2015). Parents are advised to engage in play with non-digital toys as well as digital media with their children, and to let their children show them what they are doing; this helps children feel empowered (Shifrin et al., 2015). This also creates "social and game-based interactivity, in which adults and other co-players respond to children's actions such that the course of the game is affected by children's contributions" (Hassinger-Das et al., 2017, p. 196) and helps foster curiosity in children. Classic activities such as reading or playing a game look different digitally, but it remains valuable for parents and children to spend this time together (Shifrin et al., 2015). Shifrin et al. (2015), focusing on the neuroscience of infant language development, demonstrated that infants under 12 months of age learn less effectively from video as compared to a live presentation; from 12-24 months of age, they found that children begin to learn some language from video, but a live presentation still proved far superior. This is because very young children require social exchange for learning to take place (Shifrin et al., 2015). The idea is, "just as students are not given books and told to learn independently, games cannot succeed as stand-alone solutions to education" (Fleer, 2016, p. 77). This concept will be discussed in a subsequent section.

It is important to note that not all screen time is bad. As previously stated, the quality details of each game are important; "new research shows that not all screen interactions are created equal" (Hirsh-Pasek et al., 2015, p. 26). Screen-based games that

focus on the true Science of Learning "can only make apps better and children's exposure to them more profitable" (Hirsh-Pasek et al., 2015, p. 26). In other words, screen-time need not be avoided altogether, but created and presented to the child appropriately.

The best way to determine if a toy or game is promoting learning is by ensuring the child will be actively involved and engaged, while avoiding distraction from peripheral elements (Hirsh-Pasek et al., 2015). The game or toy should also create meaningful experiences that relate to the child's life, allow for social interaction, and have a learning related goal (Hirsh-Pasek et al., 2015). Unfortunately, most high-tech toys and devices do not meet the majority of these needs.

The research studies presented in this section all indicate one of two things: 1) games and toys are best able to promote learning with simultaneous socialization, especially with a parent present; 2) children's minds and bodies need to be encapsulated by the game or toy to allow for imagination, curiosity, and exploration, all of which are pertinent to learning through play. The question that remains however, is whether high-tech games and toys can mimic these features common in low-tech games and toys.

What is the evidence on toy and game features that should be avoided?

As mentioned in the above section, play provides children with opportunities for exploration, experimentation, and manipulation; all of which are essential for understanding basic concepts and gaining knowledge (Lieberman et al., 2009). Games and toys that are poorly designed can cause significant harm, such as glorifying poor health habits, and teaching other unwanted lessons (Lieberman et al., 2009). Currently, a few suggestions exist regarding features of toys and games that are best avoided.

However, the research is relatively new, and more studies need to be conducted in order to draw more definitive conclusions.

First, it is being seen that excessive use of digital media is not beneficial for children or adolescents. There are multiple risks associated with over exposure, including physiological, psychological, and cognitive health related (Dresp-Langley, 2020). Screen use is also associated with lower scores on behavioral tests (Hutton et al., 2020). This is especially true for children under five years of age because brain networks are developing rapidly at this age (Hutton et al., 2020). Even children under 2 years of age are experiencing over exposure to digital technologies, which can result in addiction and abuse (Dresp-Langley, 2020). The potential impact this poses on the lives and well-being of children and "future societies as a whole could be dramatic and public awareness of this problem needs to be fostered in communities as well as on a worldwide scale" (Dresp-Langley, 2020, p. 1).

While most digital games and toys tend to be sedentary in nature, some have made attempts at encouraging activity. Unfortunately, the interest in these games does not seem to be sustainable, making active games not a recommended strategy for attempting to increase physical activity in children (LeBlanc & Chaput, 2017). For a game of this nature to succeed long term, developers should consider the cost of equipment, ensuring prevention of cheating, and avoiding a small pre-set player number or individual player game in the game design (LeBlanc & Chaput, 2017). Presently, there are no follow-up studies currently available that examine the long-term effectiveness or sustainability.

Toys and games should also avoid any features that may interrupt deep play

experiences; for instance, a toy having too many bells and whistles can be distracting and not allow the child to explore the toy on a deeper level (Dauch et al., 2017). This is important because "deeper exploration may lead to increased imaginative play, supporting expression and affective development" (Dauch et al., 2017, p. 85). This will be discussed further in a subsequent section. It is important to note that the study conducted by Dauch et al. (2017) was examining the impact of having multiple toys in a child's play environment and not specifically one toy with multiple features. Therefore, this study concludes that an abundance of toys may cause distractions, and while it may be assumed, we do not truly know if the variety of features on an electronic toy would provide that same distraction. Research needs to be conducted on this specific notion.

A third consideration regarding toy and game features is the noise level they may emit. The human ear has a limited tolerance to sound, based on time exposure and intensity; this limit needs to be respected, especially with children, since hearing is the main sense that allows for oral language development (Sleifer et al., 2013). Children's auditory systems are still developing, thus their sensitivity to intense sounds may be greater and their degree of injury more severe (Sleifer et al., 2013). It is recommended that the noise generated from toys should not exceed 85dB for a continuous sound and 100dB for instantaneous noises (Sleifer et al., 2013). Sleifer et al. (2013) found that most electronic/digital toys have a sound pressure level about 85dB; the frequencies ranged from 413Hz to 6635 Hz, with 56.3% of the toys emitting a frequency higher than 2000Hz. They also noticed that toys with higher frequencies produced higher sound pressure levels, which increased their likelihood of having a sound pressure level above

85dB (Sleifer et al., 2013); these findings were in line with other studies, which found similar results. Of note, most of the toys included in this cross-sectional study produced continuous sounds, and therefore would be considered unsuitable for children as they can cause hearing damage (Sleifer et al., 2013). In order to determine which toys have the best chance of being safe, parents and other consumers should check for a certification label, such as “Inmetro”, as toys without this certification have a significantly higher value of intensity and sound pressure (Sleifer et al., 2013). Overall, it is best to minimize toys with noises.

As stated, minimal research depicting specific features to avoid in games and toys is currently available. The studies that do exist contain small sizes and do not have much by way of follow-up. Based on the studies available, the consensus seems to be to use caution when providing children with games and toys that contain electronic/digital features.

Is there evidence that certain toys and games better promote child play behaviors in children than others? (Socialization, environmental curiosity, imaginative play)

Games and toys can have positive and negative impacts on child play and development. Different toys may provide children with different opportunities. Low-tech toys result in children playing more with other kids and taking part in a variety of activities; whereas playing games on tablets results in children getting reduced amounts of sunlight during the day from spending an increasingly longer amount of time indoors online (Dresp-Langley, 2020), playing more often on their own, playing less with their low tech toys, and not participating in a variety of activities which limits experiences and important developmental opportunities (Moawad, 2017). Unfortunately, the odds of

playing alone with technologically advanced toys is high because they are typically created to be played with independently (Moawad, 2017). In infancy, traditional toys cause more frequent vocalization and gesturing than feedback toys, but infants sustained attention for longer periods of time with feedback toys; however, it seems the ability of flashing lights and sounds of feedback toys to capture and hold attention is only filling auditory space, and decreases infant communicative behaviors (Miller et al., 2017). Infant communicative behaviors, such as eye-gaze, gestures, vocalizations, and facial expressions, are important because they indicate infant needs to caretakers.

Another reason why low-tech toys may be of greater benefit to childhood development than high-tech toys is because children's entire bodies and minds are more active when engaging with a toy that has minimal technological components. Both cognition and language are influenced by these play experiences from a young age (Zuccarini, 2017); the amount of time a child spends in "active oral and manual exploration at 6 months… [can impact] language and cognitive performance at 24 months" (Zuccarini et al., 2017, p. 149). Delays in the development of exploratory behaviors during infancy may impact development across multiple domains (Koterba et al., 2014). Additionally, low-tech toys are shown to increase curiosity in older children as well, which is necessary for environmental exploration (Moawad, 2016); they also allow for more in-depth object exploration. Being able to hold the object and visually examine while rotating it brings the infant "perceptuo-motor feedback from multiple perspectives" (Koterba et al., 2014, p. 2); a feature not typical of tablet games. Evidence even shows that "very preterm infants have the ability to memorize objects by touching

them from the first days of life" (Zuccarini et al., 2017, p. 150). This further emphasizes the significance of exploration in infancy and early childhood. The information above is important as it has very strong implications of low-tech toys being beneficial for children across all ages, even as young as infants.

As stated above, children elicit play and other developmental behaviors on a deeper level when their play environment has fewer distractions (Dauch, 2017), that is, less technologically advanced toys and/or fewer toys to play with. This likely occurs because the mind can explore more freely when not overpowered by the distractions (Adams et al., 2017). Adams et al. (2017) found this to be true upon examining differences in pretend play between children using a switch-controlled assistive robot for toy manipulation versus not. A major conclusion of this study was that younger children exhibited more pretend play without the robot than with it; this is important because pretend play, especially at a young age, helps expand imagination which leads to environmental exploration and learning (Adams et al., 2017). Therefore, it is important for a toy or game to be able to allow for imaginary play.

Low-tech toys seem to create more imaginary play than high-tech toys since children's play themes are typically drawn out from everyday life; but it is starting to be seen that children can also draw play themes based on digital experiences (Fleer, 2016). In fact, imaginary play can be stimulated by digital apps and does not always have to be created by the children themselves (Fleer, 2016). However, "the type of app used by the children had a huge impact on how children not only engaged with the device, but also interacted with others" (Fleer, 2016, p. 81). The app must create, support, and model

"digitally simulated role play interactions" (Fleer, 2016, p. 81) to give this new context for imaginary play.

The sources compiled to answer this question provide a variety of information regarding features of various games and toys that have shown to be beneficial for children. The best features are those that allow for or encourage imagination, exploration, and socialization; this is more typical of low-tech toys and games compared to high-tech ones. However, these sources also conclude that more research needs to be conducted, preferably with larger sample sizes.

Is there evidence to support low-tech toys and games eliciting greater parent-child interaction?

When children play with low-tech toys, parental involvement or peer socialization is typical. When playing with a high-tech toy, adults often mistake the technology as a substantial reason to provide less feedback during playtime or leave their kids unsupervised. This can cause communicative behaviors and language skills to be negatively impacted during use of technological toys (Miller, 2017). Miller (2017) and Verdine et al. (2018) came to this realization in two separate studies, both of which looked at the impact toys have on language during parent-child play time. The outcomes were clear; infants produced more directed vocalizations and gestures, and parents provided more feedback, when interacting with traditional compared to feedback toys (Miller, 2017). Verdine et al. (2018) wrote:

> our findings on how children and parents interact with electronic toys are largely consistent with previous research demonstrating that digital formats elicit less language during interactions than traditional, non-electronic versions… Such

> findings present a concern for children whose parents prefer electronic toys or believe that they are highly educational, perhaps due to their classification in the app store as "educational" or the marketing claims made by many companies (p. 128).

Another interesting difference between low-tech toys and high-tech, regarding parental involvement, is the way parents play with their children when using one versus the other. Two studies from Verdine et al.'s (2018) exploratory analysis found that parents' language quality when playing with their child was greater when playing with a traditional toy compared to a high-tech one. The first reads, "when playing with the electronic shape sorter, parents used fewer spatial terms and demonstrated fewer shape focused behaviors" (Verdine et al., 2018, p. 128). The second found parents "produced fewer overall words and content-specific words with electronic toys than the other types" (Verdine et al., 2018, p. 128). A possible reason for these findings may be that electronic games and toys often describe what is happening, which can make parents mistakenly feel as though they do not need to repeat the information (Verdine et al., 2018). These studies seem to suggest that contextual variables contribute to the interactions that take place between parent and child, which play an important role for language, social, and overall communicative development (Miller et al., 2017).

Parent-child interactions play significant roles in young children's learning development. Parenting style regarding technology use is also showing to impact child development. Over dependence on technology often leads to a loss in personal interaction and causes a negative family environment (Chou & Fen, 2014). Not only over

dependence, but parental distraction from using their own devices has a positive correlation with younger children's likelihood of engaging in risky behaviors and risk of injury (Kildare & Middlemiss, 2017). This is likely due to the notion that "using technology without any regulation can have an impact on the psychology of the child" (Chou & Fen, 2014, p. 276). Thus, technology use must be regulated, and parents need lead by example (Chou & Fen, 2014). Parents themselves must use technology in a regulated manner and explain the positives and negatives to their children. One recommendation from the American Academy of Pediatrics (AAP) is "avoiding device use during family meals and playtime and for parents to co-view media with their children" (Kildare & Middlemiss, 2017, p. 591). If parents use technological tools (phones, tablets, etc.) without any control, it is only natural their children will likely emulate that behavior. The caveat being, when families are able to embrace technology in the right ways, a healthy and robust family environment can be facilitated (Chou & Fen, 2014, p. 275).

Parental involvement during child play time, especially with technologically advanced devices, is vital for optimal results. Interestingly, even though adolescents tend to use devices to disconnect from parents (Kildare & Middlemiss, 2017), Chou and Fen (2014) found older kids to actually be "more willing to communicate with parents if their parents [engaged] in make-believe play in their early ages" (p. 273); unfortunately, parents tend to use their devices to intentionally disconnect from their younger children (Kildare & Middlemiss, 2017). These statistics should further encourage parents to engage in digital media use, and other play situations, with their children. Again, high-

tech toys and games are not inherently bad, but adult participation, feedback, and regulation is required for high-tech toys to reach their full potential (Moawad, 2016).

Overall, it seems low-tech toys and games foster greater parent-child interactions and high-tech toys and games should be used with greater adult supervision and feedback to be beneficial for child development. While the five studies mentioned in this section came to similar conclusions regarding parent-child interactions and technology use, gaps in the literature still exist. One area of interest that could use further research is exploring the impact parental cell-phone use during child play has on parent-child interactions, the relationship as a whole, and child development.

What is the most effective way to educate parents on child play? How should this information be written?

When it comes to parent education, successful education practices include self-direction and experiential learning as key strategies while incorporating feedback, encouraging discussion, and allowing for reflection (Taylor & Hamdy, 2013). It is important to provide structure and allow time for the aforementioned activities "if they are to be properly integrated into the learning/assessment system" (Taylor & Hamdy, 2013, p. 1570). Multiple learning theories and models can be incorporated when educating adults. One option includes instrumental learning theories, which includes the behaviorist and cognitive learning theories, that focus on individual experience. Then there are humanistic theories, which are learner-centered and promote individual development, self-actualization, and internal motivation. Also, transformative learning theory utilizes critical reflection to challenge the learner's beliefs and assumptions. Social learning theories emphasize context and community in guiding and encouraging the

learner. Motivational models, that is, any educational theory with motivation and reflection components such as self-determination theory, recognize the importance of intrinsic motivation, and the fulfillment of autonomy, competence, and a feeling of belonging. And finally, reflective models use reflection and feedback as tools in developing knowledge and skills by considering that reflection leads to action, then change, and helps students develop autonomous learning (Taylor & Hamdy, 2013). Lastly, there are said to be five stages in the learning experience: dissonance (learners' existing knowledge is challenged/found to be incomplete), refinement (learner seeks out possible explanations/solutions and turns the new information into new concepts), organization (learner develops/restructures ideas to account for newly acquired information), feedback (learner tests new knowledge, and feedback either reinforces or makes them reconsider the new information), and consolidation (learner reflects on process they have undergone) (Taylor & Hamdy, 2013). These education tools are transferable with parent learners.

While educating parents on any topic, the information should be presented in a way that is relevant and relatable to their needs. Parents do not want to feel patronized or judged (Wiklund et al., 2018), so all communication should be timely and respectful to create successful understanding (Apache, 2004). Parent education should also be family-centered, allowing for such things as continuity, participation, individual adaptation, consistency, and preparation for parents to feel a sense of security (Wiklund et al., 2018). Wiklund (2018) also found parents to rely heavily on confirmation as an important source of security. "Confirmation could come from different sources, such as experienced

relatives or an inner confirmation of oneself. However, the most important was confirmation from healthcare personnel" (Wiklund et al., 2018, p. 40).

Regarding child play, Nwokah et al. (2012) found one major theme in their research on best early intervention practices: the "importance of supporting parent education" (p. 203). Parent education includes demonstrating and teaching parents how to use the particular toys, showing parents which toys to purchase versus which to leave at the store, helping parents feel comfortable in play activities, and teaching parents about play (Nwokah et al., 2012). Parents often give toys to children with the expectation that they play independently. Many parents do not seem to "appreciate the role of play in child development, nor do they know how to play with their children, especially when it came to shared-object play and pretend play" (Nwokah et al., 2012, p. 210). Therefore, parents should be educated on the benefits of age-appropriate play for child development (Nwokah et al., 2012). Parents should be made aware that everyday objects can make great toys, and they do not need to worry about purchasing the most expensive gadgets; educators can demonstrate to parents how to use various toys as well as how the toys could be adapted should the child require (Nwokah et al., 2012).

It is important for parents to be aware of the role they play in their child's play experiences as well as understand the role others, like teachers or specialists, may serve; parents should become aware of "appropriate verbal communication strategies required for positive environment" (Apache, 2004, p. 29) and be provided with education about the developmental process and how to support their child's efforts and interests in a positive manner (Apache, 2004). Parent education can be promoted through discussion

and explanation, modeling parent practices, and involving the parent in play activities (Nwokah et al., 2012). Parents should learn how to create a fun and positive environment, as this is the key to ensuring child retention (Apache, 2004). “Educating parents… on what is appropriate behavior is a good first step” (Apache, 2004, p. 32). To provide consistent support to parents, Apache (2004) found it useful to send a quarterly newsletter with information, such as “outlining communication strategies and how they could apply in a given situation” (p. 30), pertaining to the needs and interests of each family; things like age, number of children, and parental status were all taken into account (Apache, 2004). It is also important to monitor the attitudes and behaviors of parents to sustain positive change (Apache, 2004). Overall, educators need to make parents feel comfortable and confident, especially when being presented with something new.

The literature search did not provide any studies with specific explanations regarding writing strategies when presenting parents with information. However, the parent education blogs written by Choi (2013, 2014) about children’s toys leaves the implication that information should be written in simple terms while getting the facts across clearly and relating specifically with the audience. For example, in 2013 Choi wrote, “if we want to turn our toy purchases into educational investments, then we need to get involved and stay involved. We have to play with them” (Choi, 2013, np). Choi’s use of first-person writing makes the reader feel they are being spoken to directly. Choi used this technique again in 2014 to discuss toy selection writing, “I think as parents, it is our role to help children build skills but also to build appreciation. We want children to learn to see the value in everything and to enjoy as many things as possible” (Choi,

2014). Choi uses personal experiences to connect with parent readers.

To summarize, when educating parents on child play, it is important to clearly state what role they serve; the information should be written clearly and in a way that connects with and relates to them. Most resources available to answer the question of how to educate parents were published eight years ago or more (Apache, 2004; Choi, 2013; Choi, 2014; Nwokah, 2012; Taylor & Hamdy, 2013) with only one published within the past two years (Wiklund, 2018). This is not ideal for research as it leaves the possibility of outdated information; specific to this research question, the methods discussed may no longer be relevant for the current generation of parents.

Conclusion

The biggest take-away resulting from this literature search is the importance of the environment when children play. Play environment includes the number of toys or games that are present, the type of toy(s) or game(s) the child is playing with, and whether the child is playing alone. If a high-tech toy or game is being played with, it becomes especially important that a parent or other adult be actively involved. Appropriate play set-ups make the difference between technology being a hinderance or enhancement to child-play (Adams et al., 2017). To add, parents need to be educated about proper play environments and child play behaviors; educational material should be written in a concise, simple to understand, and relatable manner. While the research may still be relatively new and not currently plentiful, the studies available all suggest low-tech game and toy options are best for children and can be used in abundance, whereas high-tech options need to come with strict guidelines set by guardians.

CHAPTER FOUR – Description of the Proposed Program

Modern society is flooded with technology, with no sign of slowing down. Technology has impacted the daily lives of adults and children of all ages. This can be especially seen throughout the 2020 Coronavirus Pandemic, during which many adults worked from home and likewise children had to learn from home. Advancements in technology made it possible for some aspects of normalcy to continue even when the world shut down. However, technology's impact on child play, education, and overall development is not all positive; some drawbacks include alterations in brain development, decreased social and imaginative play, as well as increased sedentary play and learning. Based on the current research, the creation of a classic-style board game, *ON THE DOCK ™,* has been designed to positively aid child development. A secondary component of my proposal includes parental education on child play practices, disseminated through a live seminar as well as a pamphlet included in the game box. Upon completion of the seminar, participants will receive a complimentary version of *ON THE DOCK ™;* included in each game box will also be an educational pamphlet for parents and three bonus activities for families to do together. The seminar, pamphlet, board game, and bonus activities will be discussed in further detail below.

The Game: *ON THE DOCK ™*

The comparison of high-tech versus low-tech toys and games in research is relatively new. However, research trends indicate that highly technological toys and games can have negative impacts on child development, play, and education. For instance, when children use a tablet to play games, they end up getting reduced amounts

of sunlight during the day since they are spending an increasingly longer amount of time indoors online (Dresp-Langley, 2020). Increased use of high-tech toys also results in children playing more often on their own, playing less with their low-tech toys, and not participating in a variety of activities like sports, puzzles, and reading books, which limits experiences and important developmental opportunities (Moawad, 2017).

In contrast, low-tech toys result in children playing more with other kids and taking part in a variety of activities like outdoor play, building with blocks, and imaginative play (Dresp-Langley, 2020). The socialization aspect of low-tech play is known to be an important factor for education, as confirmed by psychologists such as Albert Bandura and Lev Vygotsky. Bandura's Social Learning Theory posits learning is a dynamic, social, and cognitive process (McLeod, 2016). Similarly, Vygotsky's Sociocultural Theory states that people learn best when able to interact with their environment (Malik, 2017). Therefore, a need exists for a fun, well-rounded, low-tech game that can enable children and families to get the most out of play time.

This board game encourages learning and practicing key developmental milestones in a simple and fun way; children work through motor skills, processing skills, and social interaction skills. It must be played with at least two people which promotes social participation and communication; refer to Module 2 for more information regarding child learning theories and socialization. There are no buzzers, batteries, or wires, which guarantees fewer distractions. Ideal games for children are those that can provide a just right challenge; accordingly, *ON THE DOCK* ™ can be graded up or down in to match players' developmental abilities while encouraging the growth of new skills.

I) *Supporting child development*

ON THE DOCK ™ is designed to support pediatric development. The game board is filled with a variety of tasks for players to complete; the tasks focus on different skills and areas of development. Please refer to Appendix 1 for details. Some game spaces will take players through a task requiring their sense of touch, an example can be seen in the instructions section below. This includes identifying different textures based on touch, as well as identifying different shapes using touch alone (stereognosis). Other spaces will focus on fine motor skills, finger isolation, rapid alternating movement, gross motor skills, balance, and proprioception. Not only does this board game work on skills involving physical development, but it also encourages problem solving, reasoning skills, and promotes imagination. The social nature of this game is important as it is key for ideal learning and provides the type of interaction many high-tech and digital games cannot (Shifrin et al., 2015). Refer to Chapter 3 for details regarding support of child education and development through play.

ON THE DOCK ™ is ideal for children and families ages 8+. Some pieces present as choking hazards and should be kept out of reach from young children. Adult supervision is highly encouraged if being played by anyone who tends to put things in their mouth. This game helps developing children work on a variety of skills. Players should be able to grasp small objects; this does not need to be a strong grasp ability, and the game may help improve grasping skills and strengthen hand muscles. Balance may also be improved through this game, but minimal ability must be present. Adult supervision is required if a player presents with poor balance.

II) *Instructions*

a) Each participant selects a pirate ship and places it in the docking area on the board

b) Players will each roll the dice, highest roll goes first; remaining players will go in clockwise order

c) To start each turn, the player will roll the dice to determine how many spaces they will move

d) The goal is for players to collect as many points (doubloons) as possible, first player to 100 wins; players earn doubloons by completing specific tasks when they land on certain spots of the board

i) Example: When players land on the "Blue Lagoon" space, they must reach their hands into the "lagoon" and pull out as much treasure as they can find within a certain amount of time.

ii) to grade up, player can choose to have 10 seconds to find the pieces, making each recovered piece 2 points; to grade down, player can choose to have 15 seconds to find pieces giving them time to find more pieces but each piece worth 1 point

iii) improvements in developmental skills can be identified by recording how many and/or how quickly a player was able to recover pieces during a game as well as between games (e.g., first day played vs. sixth day played)

Bonus Activities Included

Included in the game box in addition to the game itself will be three additional activities for parents and kids to take part in. A few components of the game include touching a slimy texture (representing a lagoon), a sandy texture (representing a beach), and soft cotton texture (representing fog). Therefore, instructions for how to make slime, sand, and fog at home will be provided. Not only does this create three fun and educational activities, but they can be used to replace or supplement, as needed, the original slime, sand, and/or fog included with the game.

Parental education

Many high-tech toys and games are falsely advertised as being highly educational

(Healy & Mendelsohn, 2018). These advertisements are enough to convince many parents that their child needs this to succeed in life, and more so that they would be neglectful parents for not providing this game or toy for their child (Sjöberg, 2015). To add, parents often do not participate when their child is playing with a high-tech toy or game (Choi, 2013). Overall, parents are typically not aware of the proper features to look for in a toy or game and which to avoid; nor do all parents know the ideal play practices that should be adhered to for optimal child development. The purpose of the educational seminar and pamphlet is to inform parents of ideal toy and game features and child play behaviors; refer to Appendix 2 for more information. Participating in the seminar should provide parents with the information they need to feel confident when selecting games and toys for their child, and comfortable knowing when and how to participate in play time activities.

This author and researcher will be conducting the seminar. Parents must feel secure in their learning environment; it has been proven that parents feel the greatest sense of security when they are given confirmation from healthcare personnel (Wiklund et al., 2018). As an occupational therapist, this author has the experience to successfully discuss the topic of child play behaviors; this author's background as a health professional should provide the sense of security that parents desire.

When registering for the seminar, participants will complete a quick questionnaire to establish background; questions will include participant's age, how many children they have, age of child[ren], if they are participating alone or with a partner, marital status (optional), and a few brief questions about their knowledge of play, play experiences, and

learning goals in the seminar. This information will help this researcher and presenter curate an ideal seminar each time by making minor alterations based on the participants' characteristics, needs, and desires. At the seminar, participants will be given a pre- and post-test to determine how much knowledge they gained during the course and to obtain participant feedback. Chapter 5 will provide more information on the program evaluation. The seminar will include educating parents on potential benefits and risks of various features that are common in today's toys and games, explanations as to how they can get involved in play time, the importance of their involvement in play time, as well as opportunities for hands-on experiences to practice the play strategies with a variety of toys and games. Upon completion of the seminar, parents should feel an increased sense of comfort with knowing which toys and games to purchase as well as how to play with their child based on the type of toy or game that is being introduced.

Parent Pamphlet

As mentioned, included in each game box will be a pamphlet with some information for parents about child play and best practices. The information included in the pamphlet focuses on child play and some basic details for parents to be aware of. It will also include a brief description of occupational therapy, how an occupational therapist is qualified to educate parents on child play, and why an occupational therapist is able to create a research-backed board game that parents can feel confident about purchasing.

This brochure will serve multiple purposes. First, it can serve as a refresher to remind seminar participants about the information they learned. Second, for those who

purchase the game prior to attending the seminar, it can serve as an initial source of information for parents. Third, it can drive interest and advertise the seminar. The brochure can be seen in Appendix 3.

Desired outcome of program

This program has multiple outcome goals. The first major goal is to successfully educate parents on the impact toys and games have on child play and development. This goal has two subgoals. Subgoal one is to enable parents to feel confident in their selection of toys and games for their children by making sure they are able to identify exaggerations in marketing and understand which features should or should not be present in the game or toy for optimal child development. The second subgoal involves ensuring parents understand their role during play and the importance of playing with their children, especially when the child is using high-tech devices.

The second major goal is to disseminate *ON THE DOCK* ™ across major stores, making it an easily accessible game for anyone to purchase. Most games or toys that have therapeutic value are predominantly sold in specialty toy stores (Choi, 2013). However, unless their child is participating in a therapeutic service (e.g., occupational therapy, physical therapy, speech language pathology therapy, etc.) parents are typically unaware of these specialty stores let alone the games and toys they have available.

The program is meant to increase child participation in play that is age appropriate and developmentally beneficial. This will take place by educating parents on play behaviors, optimal play environments, and their role during child play. Additionally, the creation *ON THE DOCK* ™ will provide children with an ideal game to play, easing

the minds of parents.

Potential barriers and challenges

A few potential barriers to achieving the program's goals exist. First off, the game itself needs to be produced. While the idea, rules, and theme have been created, a tangible item must be developed. This requires time, skill, and money. Artists and game developers will have to be hired for the finished product to be put together as this author does not have experience in this area. Once the game has been developed, it will need to be marketed either to companies who will then sell the game, or directly to stores and customers for sale. If the game is not adequately put together and marketed, it will not be successful. One solution to these problems is to utilize a "Kickstarter" campaign. Kickstarter is a website that allows people the opportunity to raise funds towards launching their creative projects (art, games, music, etc.). This site not only has the potential to help financially but also to market the game before it is even officially available for consumer purchase. Please refer to Chapter 7 for more details regarding the funding plan.

There may be similar challenges with the parent education portion of the program. To hold the seminar, a location will need to be rented; many places will not hold a room for an event unless the event can produce a minimum number of people. There are two possible solutions to this problem. The first being that participants will need to register ahead of time, giving a better sense as to how many people to expect. The second solution would be for the seminar to be presented virtually via Zoom or other video conference application; a virtual seminar will allow people to attend from a variety of

locations. Either way, the seminar will need to be properly advertised to drive interest. Participants will receive *ON THE DOCK* ™ as a complimentary gift for attending. This may increase interest in the seminar and can also be helpful in disseminating the game itself.

Included in each game box will be an educational pamphlet for parents about child play, the benefits of this board game, and why it is ideal for child development. This information will serve to reinforce what was discussed in the seminar for those who participated. For parents who purchased the game in stores, the pamphlet may pique their interest in learning more by participating in the seminar.

An additional challenge to this process includes maintaining trademark and copyright laws. The name of the board game was selected approximately 5 years ago, when the game was originally created; prior to selection, a trademark search was completed and cleared. Another search was completed 3 years ago, prior to the start of the research process for the full program. Unfortunately, this name was trademarked by another company who created a board game 1.5 years ago, but this author did not make that discovery until prototype production had begun. To avoid this trouble in the future, it is best to either complete trademark searches consistently, or simply trademark the name that will be used right away.

Conclusion

This program, *ON THE DOCK* ™: A multifaceted occupational therapy board game aiding pediatric development through play, is the first of its kind. The game is backed by research and hosts features that aim to promote multiple developmental skills

using occupational therapy techniques. Most games focus on one or two skills, however *ON THE DOCK* ™ is specifically curated to target multiple fine and gross motor skills, socialization and communication, problem solving, and sensory processing. What makes this game even more unique is that it includes sensory processing approaches through desensitization of various textures, stereognosis, as well as vestibular and proprioceptive practice. To add, education on child play and the benefits of this game, along with three bonus activities, are all included in each game box. In other words, this board game can be beneficial for parents and children alike.

Another unique component of this game and associated program is that it was created by an occupational therapist. This means that every detail of the game was created with a specific, therapeutic and/or occupational purpose. The research that went into the creation of this program, along with the occupational therapy experience that this researcher possesses, makes for a well-rounded program that is aimed to enhance the lives of parents and children. After taking part in this program, families can expect to have more wholesome play time, meaningful interactions, and increased communication. These benefits will all be further examined through a program evaluation; the details of this evaluation will be discussed in the next chapter.

CHAPTER FIVE – Program Evaluation Research Plan

The program being discussed throughout this manual, *ON THE DOCK* ™, is a low-tech board game backed by research evidence and guided by pediatric education theories. A second component of the program consist of a parental education seminar; this seminar will focus on educating parents on child play, comparing various games and toys, and identifying strategies used by marketers to sell toys and games.

A large component of the program being discussed throughout this manual is the creation and dissemination of a developmentally beneficial board game, *ON THE DOCK* ™. To measure the game's ability to assist with therapeutic and developmental needs, tasks throughout the game will incorporate skills that coincide with at least one standardized assessment; this will allow practitioners to take pre-test (score prior to playing the game) and post-test (after incorporating the game) measurements. Regarding family togetherness, this can be best measured through surveys, asking parents if they feel their time spent with their children has increased and whether time spent together has a more meaningful impact than previously.

As will be made clear, parents play a vital role in the success of the *ON THE DOCK* ™. If the parent portion of this program succeeds, the goals of the program aimed at the children are more likely to succeed as well. The program evaluation research plan that will be discussed in detail throughout this chapter will focus on the parent education aspect of the program.

Program Scenario and Stakeholders

The name of the program is *ON THE DOCK* ™: A multifaceted occupational

therapy board game aiding pediatric development through play. This program is two-fold. The first portion is a boardgame which features zero technology, allowing children to play, learn, and grow using classic and age-appropriate methods. The second component of this program is parental education in the form of a seminar aimed at teaching parents about child play, best play practices, and ideal toy/game features; a brochure with information will also be included in each game box.

The seminar for parents will be delivered by this author, and creator of *ON THE DOCK* ™, as a live single-day training session; the seminar will be available quarterly. Circumstances permitting, this seminar will be in person; however, it can also be presented as a live or pre-recorded webinar. If in person, a conference room at a hotel or other public location such as a library, church or temple can be reserved. At the completion of the course, parents will receive their own complimentary *ON THE DOCK* ™ game. A pamphlet of the major points discussed during the seminar will be included in the game box as well. In addition to giving the game away at the seminar, *ON THE DOCK* ™ will be sold from toy stores and websites. The game will likely be mass-produced by a toy production company, after a contract has been put in place.

Vision for the Program Evaluation Research

The author envisions the program evaluation research to determine and establish consistency in the seminar for educating parents on child play, as well as to create credibility for the board game's ability to aide pediatric development. Meaning, to provide data on the teaching methods being used to educate parents on the selection of toys and games. The long-term goal includes changing the overall type of toys/games that

are available in popular stores to include more low-tech options as well as options that can serve a therapeutic and/or educational purpose.

The program evaluation research findings can support the importance of educating parents about which toy/game features are best for child development and which may be harmful, as well as optimal play practices with high-tech and low-tech options. In addition, parents will become aware of various advertising techniques used by marketers and designers to make their toy or game be perceived at highly educational. The program evaluation research findings can also serve to educate developers, regarding optimal options available, enabling parents to feel confident when making selections for their children. The importance of educating parents and developers stems from the critical need for children to get back to being children. In today's high-tech world, children are being flooded with devices that are altering natural play patterns; they are now spending more time playing on their own in a sedentary activity, which decreases socialization and exploration during play; both of these aspects of play are vital for overall child development. Moreover, spending too much time looking at screens and flashing lights can have a negative impact on a child's developing brain. (Hutton, J.S., et.al., 2020).

Engagement of Stakeholders

The main stakeholders for this program are parents. Parents typically know what their children are interested in; therefore, consulting with parents about various components of the game will be useful. Additionally, parent education aspects of the program will be best curated by having direct feedback from parents themselves. This

will allow the program to be better created for parents since it was established by parents. In addition to parents, toy and game designers, as well as marketers, and pediatric practitioners would have an interest in these program evaluation results to ensure they are incorporating appropriate features in their games.

Simplified Logic Model for Use with Stakeholders

A project model has been created to provide a summary about the program. Please reference *Figure 5.1* below for a simplified logic model of the author's proposed program and research design outcomes. The model will also include the planning phase, implementation activities, and dissemination activities.

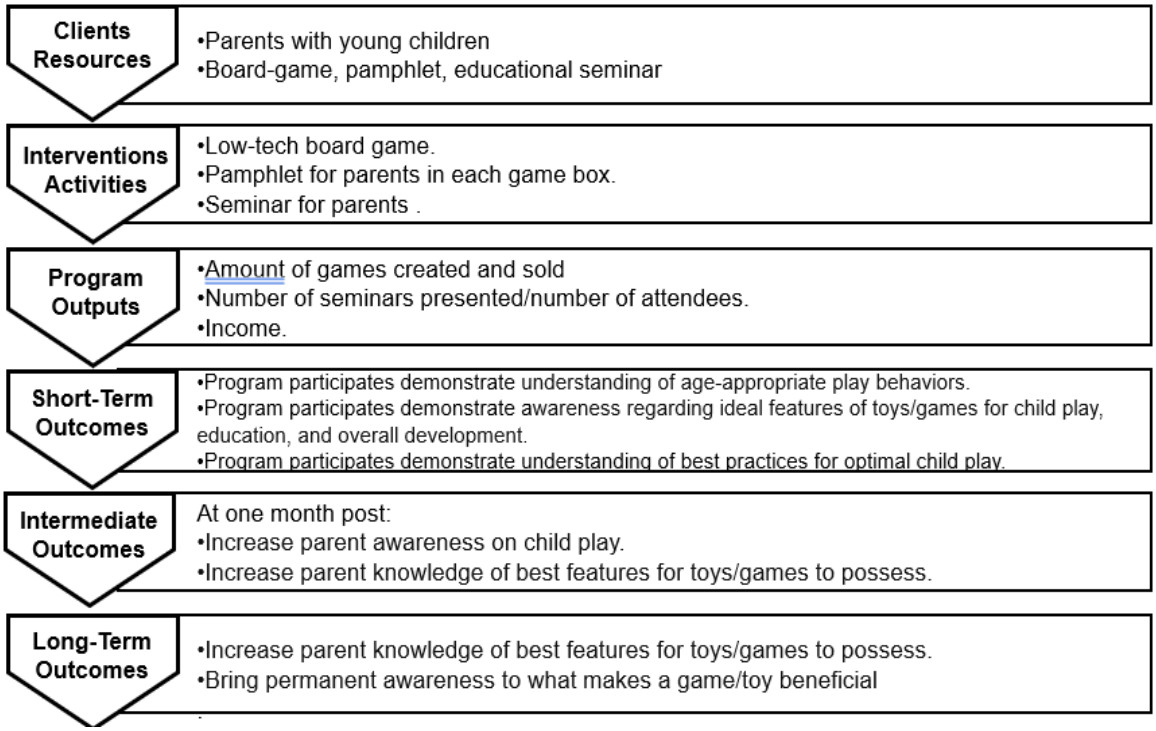

Figure 5.1: Simplified Logic Model

Preliminary Exploration and Confirmatory Process

In the confirmatory process, the main stakeholders are parents with young children and game designers. Communication with a person who creates games and toys for a living has begun; as actual development of the game draws closer, communications will likely become more frequent and will be both in person as well as via email or other forms of communication. It will be important to listen to the game developer's opinions and honor their perspectives as they are experts in this field. Specifically, acknowledging their ideas regarding creation and selling will be important. These points will go a long way in getting the game produced and successfully entered into the marketplace.

Communication with parent stakeholders will also play a big role in development of the game and educational materials for parents. Parents will be able to provide feedback regarding the game's ability to be engaging for children and families. They can also serve to inform whether the educational materials are informative for parents or if adjustments should be made.

Program Evaluation Research Questions by Stakeholder Group

Table 5.1

The table below explores key questions stakeholders may ask regarding the proposed project, which would be answered through the program evaluation research.

Stakeholder or Stakeholder Group	**Types of Program Evaluation Research Questions**
This author, as the researcher	***Quantitative:*** • Will program participants report increased perceived knowledge on child play? • Will game sales produce a profitable margin in the long run? ***Qualitative:*** • Was the program content and delivery enough for parents to start using the information during toy/game selection and child play?
Person (this author) actively involved in program delivery	***Qualitative:*** • Was the information presented relevant? • Was teaching delivered at an optimal pace and intensity for parent learners? • Was the instruction sufficient for the participants to begin using it after program completion? • Is there anything that should be changed to improve program content or delivery? • What other key issues or problems faced by participants were not addressed in the program? ***Quantitative:*** • Did participants gain needed knowledge consistent with program goals? • Did participants gain needed skills consistent with program goals? • Did participants gain perceived confidence in their ability to recognize beneficial toys and games for their children? • Did participants gain perceived competence regarding creating ideal environments for their children to develop appropriate play behaviors?
Parents of young children	***Qualitative:*** • Does the content of the program match stated goals?

	• Does the course content align with parent learning needs? • Were program participants sufficiently prepared to apply the learned content in their daily life? • Were any problems or issues reported? ***Quantitative:*** • Will parents report a positive change in ability to confidently select toys and games? • Will parents report more positive parent-child interactions during play as a result of seminar participation?
Game Developer	***Qualitative:*** • Is the game created in accordance with most recent research trends? ***Quantitative:*** • Are game sales successful? • Is the game producing a sustainable profit?

Research Design

The program idea being discussed is an educational parent seminar about child play along with a low-tech board game, *ON THE DOCK* ™. The main stakeholders helping to create and evaluate the program are parents. Game creators will also be helpful in creating and disseminating the program. Stakeholders will likely want to know how beneficial the game is in aiding child development and family togetherness, as well as how informative the parental education services are. The program evaluation research design discussed below should provide answers to these questions.

Formative/Qualitative Designs

Formative information from participants of the educational seminar will be gathered by having each participant complete a post-test questionnaire. The questionnaire will include an open-ended section regarding what they liked about the seminar, what could be improved upon or altered in any way, and how they felt about the delivery

process/set-up and content on the seminar. This information will help to adjust the program according to the specific needs of the participant population.

Summative/Quantitative Designs

Summative data will reflect on seminar participants. Participants will be given pre and post-test questionnaires. These questionnaires will look for any immediate changes in parent knowledge of toy/game features and appropriate child play. The final portion of the post-test questionnaire will ask for participants' consent to be contacted one month and six months after seminar completion; at this time, parents will be asked to report on any changes they might have observed since participating. Changes may include their process of toy and game selection, child play behaviors, and their parent-child relationship.

Methods

The following section will describe methods for collecting formative and summative data. It needs to be noted that Institutional Review Board (IRB) approval will not need to be obtained for the program evaluation research to commence, but confidentiality of all participants will still be of the upmost importance. Confidentiality will be ensured by including a question at the bottom of the post-test asking if participants would consent to their responses being used as anonymous entries in my research and if they would consent to being contacted (likely via email) in the future. Date and signature will be needed at the end of the questionnaire. Validity of a digital signature will need to be investigated, should that be the method of completion. When filing results from the questionnaires into the database, names of participants will be

changed to maintain anonymity and confidentiality. A spreadsheet connecting each person with their code name will be stored in a secure, password protected, digital filing system.

Parents need to see that there is a problem regarding children's use of technology and thus a need for a low-tech/no-tech board game exists; not only a need for the game, but a need for the educational material that will be disseminated (a pamphlet in every game box and a seminar to be held quarterly). Without the parents purchasing the game and attending the seminar, the program will not be a success. Preferably, the seminars will take place in person; however, if current circumstances continue, then a virtual seminar can be arranged.

During the seminar, it will be crucial to include all the important research that has been compiled regarding pediatric play; this includes information on recommended screen time for kids of various ages, the impact playing alone with high-tech toys has on a young child, and the importance of parental involvement during child play. This will ensure parents' eyes and minds have been opened to the realities of our time, which will also ensure engagement of parents with future seminars as well as recommending the program and game to others.

Parents will be recruited via social media advertising, postings in parent-specific pages, as well as through word of mouth. Parent participants will need to fill out a brief registration form when signing up for the seminar. This will secure their seat as well as provide some basic background information such as their age, child(ren)’s age(s), etc. Since they will be voluntarily registering for the seminar, it is likely that they will already

be aware of basic details of the program, but information will also be available on the registration portal. This information includes points of discussion to be addressed in the seminar as well as outcomes parents can expect to learn. More information on dissemination and recruitment will be provided in Chapter Six.

Formative/Qualitative Data Collection Methods

The primary goal of the qualitative inquiry is to determine how parents feel about the seminar and if any aspect needs to be adjusted to better meet the learning needs of parents. Ideally, the seminar will be presented in person and a post-test questionnaire will include the necessary questions needed to gather the qualitative information, as mentioned in the research design section. Should the seminar have to be virtual, the post-test questionnaire will be given in a virtual format as well. To ensure participants complete the questionnaire, they will only be given their complimentary board game upon submitting their filled-out post-test.

Methods for Formative/Qualitative Data Management and Analysis

All the qualitative data will be reviewed by this author to see if any themes should arise, big or small. From there the seminar content/presentation will be adjusted accordingly. This process will continue after each seminar, likely indefinitely, as content needs to remain as inclusive and current as possible.

Summative/Quantitative Data Collection Methods

Changes in parent knowledge after participating in the seminar, as well as their self-perceived level of confidence utilizing the information taught, will be collected upon participant submission of the pre and post-test questionnaires and through follow-up

contact. The data will be monitored and analyzed by this author.

Methods for Summative/Quantitative Data Management and Analysis

The summative/quantitative data will be analyzed for numerical trends and stored in a secure, digital spreadsheet. Descriptive statistics will identify the degree of change in parent knowledge and level of confidence in using this new knowledge. This information will assist in molding the program for future launches.

Disseminating the Findings of Program Evaluation Research

In addition to parents, stakeholders include game designers and marketers as well as those who study the impact of technology on pediatric play, education, and overall development. Initial contact with a person who creates games and toys for a living has begun; having spoken once in person and a dozen times via email. To ensure engagement with this stakeholder, research findings regarding the benefits of low-tech toys will need to be presented to demonstrate the game be of importance and relevance to his goals. Negotiation strategies regarding a financial agreement will need to be investigated as well. These stakeholders will be interested in the program evaluation research findings as informative measures to base their future projects on.

The main audience for whom program evaluation information will be disseminated to is parents. Information will be shared with parents digitally through "killer paragraph" style of dissemination to obtain interest for seminar registration and participation. During the seminar, information will be provided via paper outlines as well as through verbal and hands-on instruction. These two methods should provide parents with enough information to feel they will benefit from seminar participation and/or

purchase of the game without being overwhelmed with too much information. Further details regarding the program dissemination plan can be found in the next chapter.

CHAPTER SIX – Dissemination Plan

Program summary

This program focuses on the creation of the board game, *ON THE DOCK ™,* as well as parental education on child play practices. The board game being created is low-tech which utilizes evidence-based features optimal for enhancing child development. The parental education component is an informative seminar, as well as pamphlets included with each game. This will allow parents to have a more in-depth and hands-on educational experience. In addition to these two program components are three bonus activities for parents and children to complete together, also included in each game box. The overall goals of *ON THE DOCK ™* board game and its associated parental education components are to provide children with ideal learning experiences and simultaneously increase family togetherness.

Dissemination goals

Over the course of two years, the short-term goal of program dissemination is the mass-production of the game and the implementation of the parental education components. *ON THE DOCK ™* is a therapeutically beneficial board game created by an occupational therapist. Most games and toys of this caliber are only available at specialty stores, which limits the number of customers who are aware of their existence. For this reason, one long-term goal of the program is to have *ON THE DOCK ™* be commercially available at major distributors such as Target, Walmart, or Amazon. This high-quality game would be a welcome addition as most available games at popular stores are not evidence-based, even if they claim to have developmental or educational value for

children. Therefore, a second long-term goal of this program is to change the way toys and games are marketed. By moving the focus of advertising to the positive and negative attributes various game features can have, producers and marketers will no longer be able to make exaggerated claims.

Target audience

Toys and games can have a massive impact, both positive and negative, on child development and well-being. While the game itself is a large component of the program, the primary audience is not the children, but rather their parents. Specifically, the program focuses on parents of children ages eight to ten. Children in this age group are the secondary audience of the program. The reason for this is two-fold. First and foremost, to impact young children, it is imperative that their parents are directly involved. Without parents truly understanding the specific details that make *ON THE DOCK* ™ an ideal game for children, the impact of the program will not last because parents may unintentionally revert to purchasing toys and games that have little to no developmental benefit. Secondly, the program is intended to create developmentally appropriate play environments for children and improving the quality of family interactions. This necessitates parents not only understand how various technologies, high and low-tech, impact child play but also ensures their own technology use is appropriate and not impeding on the parent-child relationship.

Key messages

Primary audience

Parents are the primary audience. The following are two key messages the

primary audience should take away from this program:

1. Playing with your child is of the utmost importance; especially if your child is taking part in a high-tech activity. Parents participating in play activities aid in child learning and development and can help to create a positive family dynamic.
2. You should be mindful of marketing techniques claiming educational or developmental benefit for children without actual proof of such findings; marketers know parents want what is best for their children and try to take advantage of this. Please note, a game or toy simply containing letters or numbers does not make a game or toy educational.

Secondary audience

Children ages 8 – 10 years old are the secondary audience of *ON THE DOCK* ™. The following are two key messages for the children to receive during this program:

1. There are a lot of fun games to play and activities to do that are not on an iPad. The most fun things let you use your creativity and imagination!
2. Multi-player games are the best kinds of games to play because you can have fun with your friends and family. If the game also involves using some brain power and/or moving around, that would be great! Finding a game that has all three of these would be the best game to pick.

Overall, key messages for both the primary and secondary audiences focus on the fact that not all games and toys reap equal benefits. It is important to be aware of these facts when children and parents are selecting what to play with. Play is a child's main occupation; therefore, every effort should be made to ensure their play time is well spent.

Sources/messengers

People are more likely to listen to someone they like, know, and trust. Therefore, it will be crucial to recruit such people to assist in disseminating the key messages presented by this program. Two such people are Amy Gutman and Evelyn Gutman. Amy and Evelyn are neurodevelopmental occupational therapists who work with parents and children. They have a plethora of experience and knowledge about the impact technology has on children and families. Together, they have published numerous research articles and discussed their findings through webinars, podcasts, and social media platforms. They are both experts in their field and will be a good source of information to reach the parent audience of this program.

To reach children, it would be wise to form a relationship with a well-respected child celebrity. As mentioned in chapter two, children are spending a lot of time watching new shows and videos on YouTube and are highly influenced by the creators on these programs. These individuals can be sponsored to promote the game to children. One such Youtuber is nine-year-old Ryan Kaji who is known for his videos unboxing and reviewing new games and toys. He would be a perfect promotional source for *ON THE DOCK* ™. Another well-respected celebrity who is looked up to by many children is Jojo Siwa; she is a well-known dancer and often talks about kids being kids and having fun on her media platforms. This makes her someone parents and children trust and could prove to be an invaluable resource in promoting the benefits of *ON THE DOCK* ™.

Dissemination activities, tools/techniques, timing, and responsibilities

To reach the parent audience, a brochure will be included in each game box. This will provide parents with brief, initial exposure to the program content. The brochure will also provide some information regarding the seminar, including how to register for it. It is hoped that within five years, *ON THE DOCK* ™ will be commercially available and marketed. This will provide a wider scope of exposure. Until that level of exposure is reached, dissemination activities will include electronic media in the form of a website and social media platforms.

Simultaneously, the plan is for children to be reached through exposure to the game at their school. This author will create contracts with school personnel to have *ON THE DOCK* ™ be available for children to play with at school. Information about the game and its benefits will also be sent home with the students, as an additional method of reaching the parent audience.

Dissemination of the program and research findings will also be extended to reach occupational therapy practitioners and other allied health professionals. This will primarily be accomplished through national and international conference presentations. Publication of books and magazine articles will also be a method of dissemination.

Budget

The following is a description of the budget for the dissemination activities which will reach the primary target audience. The creation of the brochure design will be done through a graphic designer ($100). Next will come the parent seminar portion. The main expenses for this will include marketing the seminar (~$1500/month), cost of digital

signup link services and funnels ($119/month) and renting a location should an in-person seminar become possible (~$300). Please see Table 6.1 for a detailed breakdown of these numbers.

Dissemination to the secondary audience will be done through schools. To create the necessary relationships with school personnel, contracts will need to be put in place. This will require hiring an attorney ($1500).

Reaching occupational therapy practitioners and other allied health professionals may prove to be costly. Presenting at conferences requires conference registration fees ($450 - $1,295), cost of hotel (cost varies) and travel (cost varies). Publishing books will likely require hiring a publisher ($700), graphic designer ($200), and printing company ($400). *Table 6.1* below will clarify this information.

What is needed	***Personnel***	***Cost***
Primary Audience Budget		
Brochure	Graphic designer	$100
Marketing of seminar	Marketing company	$1,500/month
Digital signup link/service funnels	Kajabi.com	$119/month
Room rental	Hotel conference room	$300
Secondary Audience Budget		
Contracts with school	Attorney	$1,500
Occupational therapists and allied health professionals		
World Federation of Occupational Therapy Conference presentation	Conference fees Hotel Travel	$1,295 Varies Varies

American Occupational Therapy Association Conference presentation	Conference fees Hotel Travel	$450 Varies Varies
Book publication	Publisher Graphic designer Printing company	$700 $200 $400
Total		$24,373+

Table 6.1 Dissemination Budget

Evaluation

Dissemination success can be evaluated in two ways, sales and sign-ups. Tracking the number of games sold and parent seminar registrants will determine if dissemination efforts are succeeding or if alternate methods should be explored. It is possible for one to succeed without the other. For instance, perhaps a multitude of games will be sold but it will not entice parents to register for the seminar. If this is the case, the game dissemination plan can remain, but adjustments should be made to increase registration for the parent seminar.

Conclusion

Properly planned and funded dissemination activities are crucial for the success of any program. Activities need to be appropriate for the specific audience that is trying to be reached. In the case of this program, parents and children are typically interrelated; therefore, the dissemination activities have some overlap as well. The game box will include items to draw in both parents and children. To further engage each audience group, separate activities will also be conducted. For parents, this will be in the form of a seminar; for children, it will be playing the game at school. Program creation and

dissemination is costly. Further information regarding the financial commitment and funding plan is discussed in Chapter 7.

CHAPTER SEVEN – Funding Plan

Program Summary

The program being developed by this doctoral project is a low-tech board game, *ON THE DOCK* ™ along with parental education on child play practices. The board game being created will utilize evidence-based features optimal for enhancing child development. The parental education component of the program will be disseminated through pamphlets included in each game box, as well as through a seminar. The latter will allow parents to have a more in-depth and hands-on educational experience. The final components of this program are three bonus activities for parents and children to complete together. These activities will be included in each game box. The overall goals of *ON THE DOCK* ™ and its associated parental education components are to provide children with ideal learning experiences and increase family togetherness.

Available local resources

Local resources will be crucial to assist with the launch of this program. These resources include game development advice from a professional developer whom this author is familiar with, free business counseling from the New Jersey Small Business Development Center (NJSBDC), as well as brief question/answer sessions with occupational therapists (OTs) who are successful entrepreneurs. In order for the board game to be properly developed, a prototype must first be created. The steps of this process were discussed with a professional game developer. As a result of these conversations, this author was informed that graphic designers with specific skills, illustration and 3D computer-aided design (CAD), will need to be hired. After the game

has been designed digitally, a prototype can be 3D printed, or a company can mass-produce the game. The dissemination of the game *ON THE DOCK* ™ and educational seminar for parents will require business knowledge. For this reason, advice from the NJSBDC and successful OTs entrepreneurs will be vital. These professionals can provide guidance on marketing strategies, maintaining financial organization, and even which type of attorney is needed for various documentation.

Financial resources will also be utilized. This program will be largely self-funded by this author. Furthermore, financial assistance can be sought through grants and other funding sources. These resources, as well as a breakdown of the budget, will be further discussed in the next section of this chapter.

Needed resources: budget

The First Year

At the beginning of production, spending includes the hiring of graphic designers to create illustrations and 3D images ($2,500), as well as the instruction manual and pamphlets ($1,000). During this phase, an attorney will also need to be hired to file trademark (~$1,850) and copyright (~$1,350) agreements; government fees for filing these agreements are included in these estimates. Once the illustrations and 3D images have been created, printing can begin (~$2,000). All of these items will come together to create the prototype. The first year will conclude with the mass production of the board game (~$10,000/2,000 copies). Please see *Table 7.1* for a more detailed breakdown of these numbers.

The second year

The second year of program implementation will focus on finalizing and launching the parent seminar portion. The main expenses for this will include marketing the seminar (~$1,500/month), cost of any digital signup link services and funnels ($119/month) and renting a location should an in-person seminar become possible (~$300/day). Please refer to *Table 7.2*

Budget:

What is needed	***Personnel***	***Cost***
Game board illustrations, 3D CAD drawings of game pieces	Graphic designer	$2,500
Game instruction manual, parent brochure, bonus activities	Graphic designer	$1,000
Trademark agreement	Attorney fees Government filing fees	$1,100 $750
Copyright agreement	Attorney fees Government filing fees	$1,200 $150
Printing of all materials	Printing company	$2,000
Mass production of game	Production company	$10,000
Total		$18,700

Table 7.1 The First Year Budget

What is needed	***Personnel***	***Cost***
Marketing of seminar	Marketing company	$1,500/month
Digital signup link/service funnels	Kajabi.com	$119/month
Room rental	Hotel conference room	$300
Total		$1,919

Table 7.2 The Second Year Budget

Potential funding resources

While the idea, rules, and theme of the game have been created, it has to all be turned into a tangible item. This requires time, skill, and money. Multiple options exist as potential resources for funding.

The first avenue that will be explored will be crowdfunding campaigns. Multiple platforms can be used, including GoFundMe, The Game Creator, and Kickstarter. All of these are websites that allow people the opportunity to raise funds. The Game Creator and Kickstarter are specifically geared towards assisting in the launch of creative projects such as art, games, and music. The unique aspect about these platforms is that they not only have potential to help the project financially but also can serve in the beginning to market the game with its associated parent seminar.

Additionally, a variety of available grants will also be researched and applied for. A few that are currently being further explored are The Amber Grant, IFundWomen Universal Grant Program, and government grants through the Small Business Administration (SBA). Refer to *Table 7.3* for details.

Another potential avenue to generate funding would be to create relationships with investors such as angel investors and venture capitalists. If this funding method is used, investors will expect a return on their investment. This can be done through equity, where the investor earns a percentage of the company's value or fixed income where the investor earns a fixed percentage of product sales. Negotiations would need to take place with attorneys drafting the agreements, resulting in additional expenses. However, this avenue could yield significant funding as well as create relationships with experts in the

field who may have connections to further expand the reach of this project.

Source	***What they offer***	***Funding amount***
The Amber Grant	Variety of grant opportunities for women owned businesses	Grants vary from $1,000-$25,000
IFundWomen Universal Grant Program	Provides grant opportunities for women-owned small businesses	Grants vary; grant pool of over $8 million
SBA Grants	Small Business Innovation Research Program (SBIR)	Grants vary, up to $150,000 for 6 months
GoFundMe	Crowdfunding platform	$5,000
The Game Creator	Crowdfunding platform for Games	$5,000
Kickstarter	Crowdfunding campaign for creators in the arts	$5,000
37 Angels: Angel Investor	Monetary assistance for equity or profit share	$5,000 for 10% of the profits

Table 7.3 Funding Opportunities

Conclusion

This doctoral project has multiple components. The first component is the creation of *ON THE DOCK* ™, which is a low-tech board game aimed at boosting child development. The second component of the project is to educate parents on different aspects of children's play. This can increase their confidence in selecting the best toys and games for their children, as well as improve their knowledge on best ways for parents to participate when their child is playing. A third goal of this project is to increase family togetherness, without the distractions of high-tech gadgets.

In order for a program of this magnitude to be successful, it has to have financial backing and support as well as a good marketing and dissemination plan. With this program specifically, financial stability can be achieved through multiple avenues

including self-funding, private grants, government grants, and crowdfunding campaigns. The dissemination plan of this program can be found in Chapter Six.

CHAPTER EIGHT – Conclusion

Moderation and supervision are crucial when it comes to children using technology. Children are spending increasing amounts of time on devices and starting to do so at increasingly younger ages (Dresp-Langley, 2020). Not only has technology infiltrated how children learn and play, but it is also impairing the quality of interactions children have with peers and family members. To add, marketing strategies may convince parent consumers into believing the latest technology is crucial for their child's well-being. These claims are often not evidence-based, play on vulnerability, and only continue to contribute to the overload of technology (Healey & Mendelsohn, 2018). Developing a low-tech game with developmental value is an innovation to combat this growing problem.

ON THE DOCK ™ is a multifaceted board game aimed at supporting child development through play. The board game is guided by three theories: Bandura's Social Learning Theory, Vygotsky's Sociocultural Theory, and Bruner's Scaffolding Model. These theories all focus on strategies to promote pediatric education. Something they all have in common is the concept of socialization for the optimal learning experience. Whether this socialization comes from peers, parents and caregivers, or teachers, it is proven that children learn the most in social situations (Shifrin et al., 2015).

ON THE DOCK ™ is backed by research evidence. The research into the short and long-term effects of technology is still relatively new, but the available studies conclude very similarly. First, active parental participation during child play is very influential. Playing with an engaged caregiver is "likely to include very rich language

experiences, reciprocal verbal interactions, and scaffolding" (Healey & Mendelsohn, 2018, p. 3). Researchers (Shifrin et al., 2015) have found that kids need two-way social interchange to promote learning. Next, it is important to create an ideal play environment. This is one that should promote socialization, imagination, and curiosity; encourage dynamic over sedentary activity, and have minimal distractions or interference (Hirsh-Pasek et al., 2015). Distractions or interference with deep play experiences will derail the potential for imagination to take place. Imagination triggers curiosity, which creates environmental exploration (Adams et al., 2017). Exploration is key to pediatric development (Adams et al., 2017). Both high-tech and low-tech toys can interfere with deep play. In high-tech toys, this typically comes from various lights and sounds but with low-tech toys, having too many at once actually distracts from the play experience (Dauch et al., 2017).

Current research is also able to compare high-tech versus low-tech play. Low-tech play typically involves more socialization and participation in a variety of activities, which we know increases curiosity and environmental exploration (Moawad, 2016). Traditional games also elicit problem-solving skills, support fine motor skills, language and cognitive development, and even early math skills (Healey & Mendelsohn, 2018). High-tech play on the other hand tends to result in children playing alone and not participating in a variety of activities (Moawad, 2016). Children even receive reduced amounts of sunlight exposure since they are spending too much time indoors online (Dresp-Langley, 2020). Too much screen-time and high-tech play is showing to be a significant contributor to adverse physical and mental health in children as well

(Saunders, & Vallance., 2016). Studies are even showing that white brain-matter development can be impaired by exposing very young children to high levels of technology (Hutton et al., 2020).

What makes *ON THE DOCK* ™ extremely special is that every detail has been designed with a therapeutic purpose; game components are consistent with occupational therapy techniques. Even the smallest detail, like using a pair of dice instead of cards, was meticulously chosen. Some skill areas embedded into the game include sensory integration, stereognosis, proprioception, fine motor and gross motor skills, problem solving, socialization, and communication.

As mentioned earlier, scaffolding is important for child learning. One idea behind scaffolding is that the learner is given a "just right challenge"; meaning, the task they are presented with is not too easy or too hard, it is right at their level. With this in mind, *ON THE DOCK* ™ was created with the ability to be graded to match the current skills and abilities of any individual player, while encouraging the development of new skills. Also as mentioned, socialization is incredibly important for children, and one sure way to turn any play activity into a developmentally beneficial one. For that reason, this game must be played with at least two people. Children can play with other children, or with an engaged caregiver. The ability to match skill levels, encourage development of new skills, and allow for socialization, are a few features of an ideal game.

With *ON THE DOCK* ™, parents can feel confident that their child is playing the best game for their developing body and brain. It is important for parents to understand why *ON THE DOCK* ™ is an ideal game for their child to assist in selection of future

games and toys. Therefore, a seminar dedicated to parent education regarding child play behaviors and practices has also been developed. This seminar will help to identify beneficial features versus potentially harmful ones; it will also teach parents how to minimize the potentially harmful effect of high-tech play. Providing parents with this information will equip them with the proper tools to ensure long-lasting change when it comes to their child developing good habits with technology use. Creating awareness of misleading marketing strategies will also be a big part of the intervention. Not only do companies claim a game or toy to be developmentally beneficial when there is not such evidence to back their claims, but many marketers make parents feel as though they must equip their child with the latest technology if they want their child to succeed (Hutton et al., 2020). By the end of the seminar, parents will be able to identify which features to look for and which to avoid when selecting games and toys. They will also be able to confidently create a play environment for their child that ensures a positive play experience.

The development of this doctoral project is predominantly self-funded by this author. The game and seminar will be largely disseminated through social media platforms and websites to reach parents and children. Dissemination to occupational therapy practitioners and other allied health professionals will take place through national and international conferences, as well as publications in books and magazines. Program success will be evaluated based on sales numbers, as well as through questionnaires completed by parent seminar participants. *ON THE DOCK* ™ combines evidence-based occupational therapy techniques, theories, and research evidence, with child fun. It

exemplifies how occupational therapy practitioners can assist children in enhancing play skills that will serve to support life-long development. The program also demonstrates how occupational therapy practitioners can serve as educators to parents and have a positive impact on improving family togetherness.

Today, everyone is always on the go. Innovations in technology play a large role in creating this fast-paced society. Ironically, technology is also a main contributor to people of all ages living increasingly sedentary lives. Technology, like everything, should be used in moderation; to some, this may sound obvious, to others challenging given how embedded it is into our daily lives. *ON THE DOCK* ™ and the associated parent seminar is an ideal contribution to solving this growing problem.

APPENDIX A –

Appendix A.1

Game Features and Their Purpose

Game Feature	Purpose	Research Support
Pirate theme	• Imagination	• Games and toys should allow for active, engaged, meaningful, interactive, and fun play (Hassinger-Das et al., 2017)
Pair of dice	• In-hand coordination • Bilateral hand coordination • Cognition	• Games and toys should possess the ability to be manually explored since humans often learn best through exploration (Zuccarini et al., 2017). • Object exploration may be beneficial in developing language and cognitive skills and may help prevent delays in these areas (Koterba et al., 2014).
Variety of textures to touch	• Cognition • Imagination • Sensory integration • Stereognosis • Problem solving/reasoning • Fine motor coordination	• Lev Vygotsky, author of Sociocultural Theory, believed that people learn best when they are able to interact with their environment (Malik, 2017).
Identifying objects by touch	• Cognition • Stereognosis • Fine motor coordination	• Per Albert Bandura's Social Learning Theory, child learning is a dynamic, social, and cognitive process (McLeod, 2016).
Tandem walking	• Proprioception • Gross motor coordination • Balance • Problem solving/reasoning	• The best way to determine if a toy or game promotes learning is to identify if its features allow the child to be actively involved and engaged, while avoiding distraction from peripheral elements (Hirsh-Pasek et al., 2015)

Use of coins	• In-hand coordination • Cognition • Problem solving/reasoning • Imagination	• Games/toys should create meaningful experiences that relate to the child's life, allow for social interaction, and have a learning-related goal (Hirsh-Pasek et al., 2015).
Players can select how they wish to complete the task (e.g., how much time, how many coins they are risking, etc.)	• Grading of tasks up/down • Supports individual rate of development/education • Problem solving/reasoning	• Bruner's Theory of Scaffolding explains that children learn best when receiving graded levels of assistance (Malik, 2017). • Games should provide a balance between content levels and players' skill levels, similar in principle to the model of scaffolding; this will encourage the human nature of intrinsic motivation and self-efficacy (Hassinger-Das et al., 2017).
Up to 5 players	• Social participation • Communication • Imagination	• The potential of a toy or game to produce educational significance is impacted by socialization; research shows that children need socialization for ideal learning (Shifrin et al. 2015).

Appendix A.2

Parent Education Seminar

The purpose of this seminar is to provide information and support to parents. It is important for parents to not only be aware of the most appropriate games and toys for their child to play with, but also for parents to feel comfortable and confident in their decisions and abilities to appropriately play with their children (Nwokah et al., 2012). Since education for parents is best promoted using multiple strategies, the seminar will include discussion and explanation, modeling parent practices, and involving the parent in play activities (Nwokah et al., 2012). The seminar will be presented by an occupational therapist or pediatric play expert.

Learning Objectives: By the end of the seminar, parent participants will be able to:

1. Distinguish beneficial toy/game features from potentially harmful ones in 3/3 trials with 100% accuracy
2. Describe the importance of their participation in play by being able to identify at least one benefit of playing with their child with 100% accuracy
3. Determine if they should be active or passive play participants based on the toy/game their child is engaging with (high-tech vs. low-tech) in 3/3 trials

Program Content	Theoretical Grounding	Evidence Base
Features of toys/games discussion	Social Learning Theory • Vygotsky's Social Learning Theory emphasizes the notion that children learn from socialization, imitation, and exploration. Vygotsky believed that people learn best when able to interact with their environment (Malik, 2017). This is why the game hosts a number of features that encourage object manipulation and exploration, as well as social participation. Vygotsky also coined the phrase "Zone of Proximal	• Benefits to low-tech play (Moawad, 2017) • Risks of excessive or unregulated high-tech play (Dresp-Langley, 2020) • How to ensure highest developmental and educational benefit from every toy/game (Hassinger-Das et al., 2017)

	Development," which describes the relationship between a child's current level of knowledge and the next level that is hoped to be achieved. In other words, the learner starts with a certain level of knowledge or ability regarding a skill; this is their baseline. The gap between what learners currently know and what they will learn next is the zone of proximal development (Malik, 2017). This was important information when curating game features to have the ability to be graded based on a player's skill level.	
Adult/parent participation in child play	Sociocultural Theory • Bandura's Sociocultural Theory explains one of the reasons why adult participation is important for child learning, especially with what would otherwise be a passive activity. This theory proposes that children model behaviors from what they see and imitate the behaviors of the adults in their lives (McLeod, 2016). Bandura shows that child learning is a dynamic, social and cognitive process. Theory of Scaffolding • Brunner's Model of Scaffolding explains that children learn best when receiving graded levels of assistance from an expert adult until they have sufficiently mastered the task and can perform it independently. The scaffolding model requires feedback and support when learning something new, but the support can decrease as proficiency increases (Malik, 2017). Therefore, interacting with a parent is crucial during child play.	• Significance of social participation during play (Shifrin et al., 2015) • Importance of parental involvement/supervision with high-tech toys/game and screen time (Miller, 2017)

Seminar Outline:

1. Pre-test:
   Determine current level of knowledge and confidence in child play, toy/game selection, and adult play participation

2. Features of toys/games discussion:
   Lecture
      Current research identifying features and their level of benefit
      High-tech vs. Low-tech
   Demonstration
      Variety of toys/games with different features
      Explanation of each feature's benefits/risks
   Common marketing strategies
      What to look out for

3. Playing with your children:
   Presentation with current research; includes video and written content
   Group instruction
      High-tech vs. Low-tech
         Importance of parent participation
         How and when to best participate
   Question and answer discussion

4. Demonstration/Case Study Scenarios

5. Role play practice

6. Post-test:
   Discover changes in knowledge and confidence of child play, toy/game selection, and adult play participation

7. Wrap-up discussion

Complimentary game distribution

Appendix A.3

Parent Education Seminar Brochure Draft

Let's Play: Seminar for Parents

Like what you see? Want more information? Register for our seminar!

- Lively seminar made by parents for parents
- Learn how to create the best play experiences for your child[ren]
- Connect with other parents
- Receive *A Pirate's Life* board game FREE

Who We Are

About Us

"Let's Play: Teaching parents how" is brought to you by mOTion spOT LLC, an occupational therapy practice based out of New Jersey. The founder, Jacqueline, is passionate about helping others live their best life through action and education.

What is occupational therapy (OT)? Occupational therapists help you overcome a variety of personal daily life struggles.

Contact Us

Email: mOTion.spOT1@gmail.com
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OCCUPATIONAL THERAPY
EMBRACING CHALLENGES
ENHANCING LIVES

Let's Play: Teaching Parents How

Playtime helps kids learn and grow. Find out how and ways you can join in on their fun!

Can an occupational therapist teach me how to play?

Occupational therapists are play experts!

Not only can an occupational therapist teach you a lot about how children play, they can also show you how to get involved yourself.

It is important for parents to know when and how they can play with their children to create the best environment as all times.

Children Need Variety

Just like you might get bored looking at the same thing every day, kids can too. Children should be exposed to different types of toys and games. It is also important that they play with others sometimes and by themselves other times.

Learn all about different toys and games out there and which ones are best for your children!

How to play with high-tech toys and game

It is important for an adult to be around when children play with high-tech toys and games. Parents should be actively participating. But at the very least, parents should closely monitor.

How to play with low-tech toys and game

Parents and children can play with low-tech toys and games together, but it is also okay for children to play on their own. Let their imagination run free!

Play Guidelines

The American Academy of Pediatrics (AAP) is a good resource to use when setting play guidelines for your children at home.

They even make recommendations for how much screen time is appropriate based on age.

Example: children under 2 should not be spending time on screens except for brief video calls with family or friends. Children who are 2 - 5 years old should spend no more than two hours in front of a screen per day. (Shifrin et al., 2015)

Reference:

Shifrin D, Brown A, Hill D, Jana L, Flinn SK. *Growing up digital: media research symposium*. Elk Grove Village, IL: American Academy of Pediatrics; 2015. Available at: https://www.aap.org/en-us/Documents/digital_media_symposium_proceedings.pdf.

APPENDIX B – Executive Summary

Introduction

Technology in modern society impacts the daily lives of all adults and children. This can be especially seen throughout the Coronavirus-19 pandemic, during which many adults worked, and children learned from home. Advancements in technology made it possible for some aspects of normalcy to continue; however, technology's impact on family dynamics, child play, education, and overall development is not all positive. Based on current research, a classic-style board game, *ON THE DOCK* ™, was developed by this author to aid child development and improve the quality of family togetherness. A large portion of the literature being reviewed focused on parent education regarding child play and bringing the discovered information to their attention.

In order to ensure *ON THE DOCK* ™ and the associated parent education component were created based on evidence, a literature search was conducted. The search focused on identifying features needed for the game to be developmentally beneficial for children, game components to avoid, and what impact the play environment has on children and families. Ideal methods for parent education were also explored. This executive summary will provide a brief overview of the program, research findings, and dissemination plan recommendations.

Project Overview

ON THE DOCK ™ is a therapeutically beneficial board game created by an occupational therapist. The purpose of this game is to increase child participation in age appropriate and developmentally beneficial play and increasing the quality of family

togetherness. Playing the game facilitates children's social participation and communication as well as other developmental milestones. An additional component of the program educates parents on play behaviors, optimal play environments, and their role during child play. This board game encourages learning and practicing key developmental milestones (e.g., motor skills, processing skills, and social interaction skills) in a fun way. *ON THE DOCK* ™ can be graded up or down to match a players' developmental abilities while encouraging the growth of new skills. Additionally, parental education regarding child play practices will be disseminated through a live seminar as well as a pamphlet included in the game box. The pamphlet will provide parents with brief, initial exposure to the program content. The brochure will also provide some information regarding the seminar, including how to register for it. Parent education will encourage parents to feel confident when selecting games and toys for their child, and comfortable knowing when and how to participate in play-time activities.

Most games and toys of this caliber are only available at specialty stores, which limits the number of customers that are aware of their existence. For this reason, the short-term goal of program dissemination is mass-production of the game and the implementation of the parental education components. One long-term goal of the program is to have *ON THE DOCK* ™ be commercially available at major distributors such as Target, Walmart, or Amazon. Until that level of exposure is reached, dissemination activities will include electronic media in the form of a website and social media platforms. Simultaneously, the plan is to reach children through their schools. This author will create contracts with school personnel to have *ON THE DOCK* ™ be

available for children to play with at school. Information about the game and its benefits will also be sent home with the students, as an additional method of reaching the parent audience.

Dissemination of the program and research findings will be extended to reach occupational therapy practitioners and other allied health professionals. This will primarily be accomplished through national and international conference presentations. Publication of books and magazine articles will also be a method of dissemination.

Key Findings

Upon conclusion of the evidence-based literature search, it became clear that many games and toys currently on the market, especially high-tech ones, make baseless claims of having developmental and/or educational benefits for children (Healey & Mendelsohn, 2018). In fact, many claims on packaging and advertisements of toys and games are often unsubstantiated by credible sources (Healey & Mendelsohn, 2018). Unfortunately, parents often purchase high tech toys and games for their children because of the societal perception that these types of toys and games are critical for the facilitation of early brain and child development (Healey & Mendelsohn, 2018). This has increased the challenge caregivers face in deciding which toys are most appropriate for their children (Healey & Mendelsohn, 2018). Contrary to societal perception, the constant technology use has resulted in young children getting reduced amounts of natural day and sunlight exposure because they are spending increasingly longer amounts of time indoors (Dresp-Langley, 2020). This has a snow-ball effect, potentially causing multiple health risks “such as early myopia and blindness, obesity, sleep disorders, anxiety, and

depression, leading to impaired performance at school and behavioral problems" (Dresp-Langley, 2020, p. 1). Overall, the best toys and games for children to facilitate development are those that are genuinely enjoyable for the child and can be "productively used for play together with an engaged caregiver, because in such contexts play with toys is likely to include rich language experiences, reciprocal verbal interactions, and scaffolding" (Healey & Mendelsohn, 2018, p. 3).

The biggest take-away from the literature search is the importance of the environment in which children play. Play environment includes the number of toys or games that are present, the type of toy(s) or game(s) the child is playing with, and whether or not the child is playing alone. If a high-tech toy or game is being played with, it becomes especially important that a parent or other adult be actively involved. Appropriate play set-ups make the difference between technology being a hindrance or enhancement to child-play (Adams et al., 2017). Parents need to be educated about the importance of enriched play environments and child play behaviors; educational material should be written in a concise, simple to understand, and relatable manner.

Recommendations

Games play an important role in early child development in relation to their ability to facilitate "cognitive development, language interactions, symbolic and pretend play, problem-solving, social interactions, and physical activity" (Healey & Mendelsohn, 2018, p. 2). Therefore, it is important for parents to know, generally speaking, that toys and games should match a child's current developmental abilities while encouraging development of new skills (Healey & Mendelsohn, 2018). Using traditional toys, such as

blocks and puzzles, to elicit problem-solving through play can support the development of fine motor, language, and cognitive skills, and may even predict early spatial and mathematics abilities (Healey & Mendelsohn, 2018) because they allow for creativity and curiosity. While the research may still be relatively new and not currently plentiful, the studies available all suggest low-tech game and toy options are best for children and can be used in abundance, whereas high-tech options need to come with strict guidelines set by guardians. Therefore, *ON THE DOCK* ™ has been developed without any high-tech features.

Regarding the parent education portions of this project, the information will be presented in a format that is relevant and relatable to their needs. Parents do not want to feel patronized or judged (Wiklund et al., 2018), so all communication will be timely and respectful. Parent education will also be family-centered, allowing for such things as continuity, participation, individual adaptation, consistency, and preparation in order for parents to feel a sense of security (Wiklund et al., 2018). When making decisions, parents rely heavily on confirmation as an important source of security (Wiklund et al., 2018). "Confirmation could come from different sources, such as experienced relatives or an inner confirmation of oneself. However, the most important was confirmation from healthcare personnel" (Wiklund et al., 2018, p. 40). Therefore, having an occupational therapy practitioner or other pediatric practitioner conduct parent seminars will help to create an ideal learning environment for the parent participants.

General Conclusions

The creation of this board game exemplifies how occupational therapist

practitioners can be involved in aiding child play. As technology continues to fill our daily lives, child play and parent participation during child play are changing. These changes can impact child development and family relationships.

Today, children are often seen with various digital devices throughout the day – especially during playtime. It seems toys have taken on two different components. Toys are essential building blocks to learning as well as sources of entertainment. Parents are led to believe that the best toys for them to purchase must contain the most up to date technological components. These features are being made to not only serve as teachers but also babysitters and playmates. Unfortunately, research is showing that when children are given high-tech toys to play with, parents become less involved in child play which has a negative impact on child development.

To combat this growing issue, a low-tech board game, *ON THE DOCK* ™, was developed. For the benefits of the game to be as impactful as possible, parental education regarding how best to facilitate child play was also created. The research findings helped to guide specific details that went into the development of the game and parent seminar. *ON THE DOCK* ™ will be commercially available in stores, such as Target and Walmart, and online through ecommerce websites. The game will cost between $25 and $35 to purchase. The parent seminar will cost approximately $30 per person. Overall, this project aims to inspire parents and children to press pause on their high-tech devices in exchange for low-tech play, to improve the quality of family togetherness.

APPENDIX C – Fact Sheet

BOSTON UNIVERSITY

ON THE DOCK™: A multifaceted occupational therapy board game aiding pediatric development through play

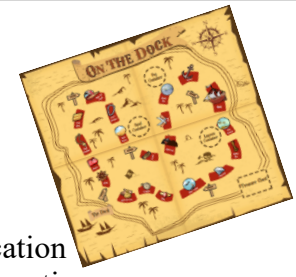
Jacqueline Roberman-Glyn, OTR/L
OTD Candidate

The Problem

Technology has changed the way children learn, grow, and develop. Instead of playing and learning dynamically, children are sedentary, learning through computers and tablets, and being entertained by television and phones. The frequency and quality of interactions between peers as well as family members also have been impacted.

Proposed Solution

ON THE DOCK™



- Low-tech/no tech board game; ages 8+
- Every detail designed with therapeutic purpose
  - Some skill areas embedded into the game include:
    - Fine motor and gross motor skills
    - Problem solving, socialization, communication
    - Sensory integration, stereognosis, proprioception
- Created according to research evidence to aid child development
  - Can be graded to match current skills and abilities and encourage new skill development; features of an ideal game (Healey & Mendelsohn, 2018)
  - Can be played with an engaged caregiver (Healey & Mendelsohn, 2018)
- Based on child learning theories
  - Bandura's Social Learning Theory (Mcleod, 2016)
  - Vygotsky's Sociocultural Theory (Mcleaod, n.d.)
  - Bruner's Scaffolding Model (Malik, 2017)

Parental Education

- Importance of active parent participation during child play
  - Playing with an engaged caregiver is likely to include rich language experiences, reciprocal verbal interactions, and scaffolding (Healey & Mendelsohn, 2018)
  - Kids need two-way social interchange to promote learning
- Ideal play environments
  - Promote socialization, imagination, curiosity
  - Have minimal distraction/interference
  - Encourage dynamic over sedentary activity

- High-tech versus low-tech play
    - Low-tech
        - More socialization and participation in activities, increases curiosity and environmental exploration
        - Traditional games elicit problem-solving, support fine motor skills, language and cognitive development, and early mathematics skills
    - High-tech
        - Results in playing alone and not participating in a variety of activities
        - Children receive reduced amounts of sunlight exposure since they spend too much time indoors online
        - Significant contributor to adverse physical and mental health in children
        - Good screen-time includes video chats with family and friends or working with a teacher or parent to learn new things like math concepts and vocabulary words

(Dresp-Langley, 2020; Healey & Mendelsohn, 2018)

- Creating awareness of misleading marketing strategies
    - Many advertising claims encourage technologically to be seen as critical for development but are not based on scientific evidence (Healey & Mendelsohn, 2018)
    - Marketing strategies play into fear for many parents, especially mothers, that they are not doing enough or what is best for their child

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How you can help

Much work still needs to be done to make *ON THE DOCK*™ and Parent Seminar the best they can be. Please consider donating to my crowdfunding campaign:
https://gofund.me/9f98124d

How to access

ON THE DOCK™ and Parent Seminar will be available soon:
For the latest information, kindly send an email to jacquelinerobermanglyn@gmail.com

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Impact on provisions of occupational therapy services

- This board game exemplifies how occupational therapists can be involved in enhancing child play skills
- Tips for Educating Parents:
    - All material is written in clear, non-judgmental language (Wiklund et al., 2018)
    - Parents more likely to accept advice from healthcare professionals (Wiklund et al., 2018)

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