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Playspace: collaboration for identification, health, and milestone achievement for infants, toddlers, and children

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PLAYSPACE:

COLLABORATION FOR IDENTIFICATION, HEALTH, AND MILESTONE ACHIEVEMENT FOR INFANTS, TODDLERS, AND CHILDREN

by

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DEDICATION

I dedicate this dissertation to my parents, Hubert and Christina Leveque. They have inspired and instilled the importance of perseverance, acceptance, and equity. Through their hard work, dedication, and confidence in me, they have made it possible for me to achieve this academic honor. Thank you for making everything possible. I love you.

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ABSTRACT

Children with developmental delays are often not identified until they are school-aged (Chödrön et al., 2019). The American Academy of Pediatrics recognized early identification as essential; however, there are inconsistencies in best practices (Bright et al., 2019; Jimenez et al., 2017). These inconsistencies are a problem because there are missed opportunities when children are not identified early, and these problems have a greater significant impact on marginalized communities. Early preventative, proactive interventions are more effective at supporting positive outcomes than when remediation occurs later in life (Center on the Developing Child, 2017). Neuroscience research indicated that early intervention (EI) capitalizes on increased neuronal plasticity to promote infants' and toddlers' physical, emotional, and cognitive development (Demanster, 2017, Welch et al., 2015).

Occupational therapy's role in primary care is often underutilized (American

Occupational Therapy Association, 2014; Donnelley et al., 2013, 2014). Its unique holistic approach makes occupational therapy practitioners (OTPs) valuable members of an interdisciplinary team (Dahl-Popolizio et al., 2016; Donnelley et al., 2013, 2014) and, as such, they have a role in assisting to increase the EI of children. Research indicated that parents also have a significant impact on supporting and promoting optimal development for their children (Demanster, 2017, Welch et al., 2015). It is essential to create new methods to support the EI of developmental delays (Barger et al., 2018).

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children is an initiative that aims to improve the EI of more subtle developmental delays before school age through increasing collaboration among parents, pediatricians, and occupational therapists. This initiative consists of two phases. Phase 1 consists of individualized developmental playgroups led by OTPs. Through participation, parents will gain experiential knowledge about developmental milestones, adapting the environment to promote development, appropriate handling skills, and resources to improve their ability to advocate for their child's needs. Phase 2 will provide pediatricians with options to increase collaboration with OTPs to support the developmental screening process, support parents within their practice, and increase knowledge on evidence-based programs to provide as resources to their families.

This doctoral project will present guidelines for Phase 1. This initiative aims to increase the EI of developmental differences to support optimal health and wellness for infants, toddlers, children, and their families by increasing collaboration among parents, pediatricians, and occupational therapists.

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LIST OF ABBREVIATIONS

AAP ..... American Academy of Pediatrics

ADL ..... activities of daily living

AOTA ..... American Occupational Therapy Association

EI ..... early intervention

IRB ..... institutional review board

ISEEI ..... interdisciplinary sensory enriched early intervention

OT ..... occupational therapy

OTP ..... occupational therapy practitioner

CHAPTER ONE – Introduction

Proposed Problem and Outcomes

There is an underidentification of subtle developmental differences in infants, toddlers, and young children prior to entering school (Chödrön et al., 2019). The American Academy of Pediatrics (AAP) recognized the importance of early intervention (EI) services and recommended that routine surveillance and screenings are performed and referrals to EI services made when there are identified concerns (Bright et al., 2019; Jimenez et al., 2017). Although guidelines exist to identify developmental delays and referral to EI, there continues to be variation and no accepted best practice (Elansary & Silverstein, 2020; Jimenez et al., 2017). Approximately one third of pediatricians reported not utilizing formal screening tools to identify developmental delays, and even more than one third reported not referring those with positive screening results to EI (Elansary & Silverstein, 2020). The same applied to referrals for occupational therapy (OT) EI. Minard (2018) reported that OT was provided in only 10%–22% of initial EI plans. This leads to missed opportunities to assist in developing and forming adaptive responses that afford children the ability to engage successfully in meaningful occupations.

The lack of universal best practices for surveillance and screening contributes to the problem of children with developmental delays not being identified or consistently receiving EI services. Inconsistencies in identification and referral to EI are important to address because of the critical development period within the first 5 years of life. Morgan et al. (2016) reported that specialized EI programs are important to support infants'

cognitive and physical gains and parental mental health. Intervening early when a child has a developmental disability improves child and family outcomes. However, "most children with developmental delays are not identified prior to school entry" (Chödrön et al., 2019). When children at risk for developmental delays are identified early, there are improvements in their developmental trajectories and reductions in the negative effects of their disabilities (Shahidullah et al., 2020). The AAP does not recommend a "wait-and-see" approach when there are developmental concerns; rather, a referral for further developmental evaluations and EI services should be provided (Bright et al., 2019). Learning disabilities, speech or language delays, autism, cognitive disabilities, visual or hearing impairments, emotional or behavioral challenges, and motor delays cannot be identified through increasing parent education or screening programs (Bright et al., 2019; Jimenez et al., 2017; Stoppler, 2018). Instead, "less than half of these problems are identified before the child reaches school age, meaning that the problems may have worsened, and critical intervention opportunities have been missed during the preschool years" (Stoppler, 2018, para. 2).

Early identification of delayed development is imperative to children's health and well-being. The AAP recognized that "early identification and intervention for developmental disorders are critical to the well-being of children" (Lipkin et al., 2020, p. 1). Parents and providers reported that EI is helpful; however, there are identified gaps in the current system for determining eligibility, referrals, family acceptance, follow-through, and service provisions (Little et al., 2015).

This underidentification is observed exponentially in communities of lower

socioeconomic status and racial and ethnic diversity. Children often are identified once they enter school and demonstrate challenges with academic performance, social-emotional regulation, behavior, fine motor, or gross motor delays that may impact their ability to assess their curriculum. Early identification is an "appropriate responsibility of all pediatric health care professionals" (Council on Children with Disabilities, 2006). McManus et al. (2019) found more positive gains when children were provided with intervention earlier and with increased intensity.

Occupational therapy's role in the primary care team is often overlooked, misunderstood, and underutilized (American Occupational Therapy Association [AOTA], 2014; Donnelley et al., 2013, 2014). The passage of the Patient Protection and Affordable Care Act (2010) has led to increased awareness of the importance of health care services providing integrated care that is proactive and preventative and empowers clients and their families to promote wellness (Dahl-Popolizio et al., 2016). Occupational therapy practitioners have a holistic approach to wellness that allows them to be valuable members of interprofessional care teams to optimize patient care delivery and improve access and outcomes at less cost. These practitioners are equipped to evaluate physical, social, and psychological health and wellness and address challenges affecting function and quality of life (Dahl-Popolizio et al., 2016).

Occupational therapy has a role in pediatric primary care to support and improve the early identification of children with developmental differences. Occupational therapy practitioners have the tools to advocate and educate others about early childhood development and the impact of early identification on long-term outcomes. They have a

unique, holistic approach that assists children and their families to develop and support occupations such as play, rest, sleep, activities of daily living (ADL), social participation, and education (AOTA, 2021). Their diverse role in supporting EI services in various ways includes promoting:

- Participation: OTPs support participation in occupations such as ADL, instrumental ADL, education, work, play, leisure, rest and sleep, and social participation.
- Occupation: Co-occupations—shared occupations between parents, caregivers and children—are essential for occupations such as play, social participation, self-care, rest and sleep, and education.
- Family-centered engagement: Families determine the intervention's priorities.
- Family capacity and resources: OTPs have awareness and respect for families' knowledge of their children's needs and consider the unique capacity of physical, emotional, and spiritual energy families have and need to support them. Therapists are also aware of the medical, home, and financial resources that affect families' ability to support their children with special needs.
- Natural environments: OTPs understand that under the Individuals with Disabilities Education Act (2004) Part C (Lipkin & Okamoto, 2015), services should be provided in the natural setting whenever possible.
- Family routines and rituals: OTPs recognize the value and importance of routines and rituals.

- Culturally sensitive: OTPs support families to participate in culturally rich and sensitive occupations to enhance engagement in meaningful occupations.
- Evidence-based intervention: As members of a science-driven profession, OTPs use effective treatments to promote participation, well-being, and health. (Stoffel & Schleis, 2014)

Occupational therapists' unique, holistic approach can play a vital role in educating parents and caregivers about early childhood development and collaborating with pediatricians, parents, and caregivers to improve the early identification of children with developmental differences.

Importance of the Problem

A child's well-being involves developing physical, emotional, social, cognitive, and language skills. Neuroscience indicated that "early preventative intervention will be more efficient and produce more favorable outcomes than remediation later in life" (Center on the Developing Child, 2017). *Neuroplasticity* is promoted by the opportunity to engage in activities and occupations that support positive change in the neurological system. Neuroplasticity is time limited, thus supporting the importance of EI. It is essential to intervene early versus waiting until a child is older when the challenges may be more obvious. Interventions at a later age may be less effective due to decreased neuroplasticity.

Explanation of the Problem

Various factors contribute to the underidentification of more subtle developmental differences in infants and toddlers. Some identified problems include decreased parent

education, use of routine standardized screening tools, attention to risk factors, and understanding of what EI OT can do to support children, parents, and families (Chödrön et al., 2019; Little et al., 2015; Pizur-Barnekow et al., 2010; Stoppler, 2018).

Proposed Intervention/Program to Address the Problem

This doctoral project, *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*, proposes two phases. Phase 1 creates a highly specialized playgroup for parents and children with the aim of promoting awareness of developmental milestones, education on options to improve progress towards milestones, and coaching in advocacy towards developmental screenings and pursuit of necessary EI. This infant-toddler-parent group was designed for infants, children, and parents to better access needed resources and care through a specialized experiential group focused on infant and child development, regardless of identified disabilities. Parents will be given resources on ways to support development through increased knowledge of child development, handling skills, play, and setting up an optimal environment to enhance development. Initial screening prior to the group can allow the group leader to tailor additional information to families based on identified areas of need. Phase 2 will consist of collaborating with pediatricians to support the developmental screening process and providing families with increased knowledge of available resources.

CHAPTER TWO – Theoretical and Evidence Base to Support the Proposed Project

This chapter contains two sections. First, a visual explanatory causal pathway model of the problem and moderators that affect the problem is presented with evidence supporting the model. Next, a description and overview of the theoretical framework are presented with a review of the theoretical frameworks used to support the program's conceptualization, development, implementation, and evaluation.

Overview of the Problem

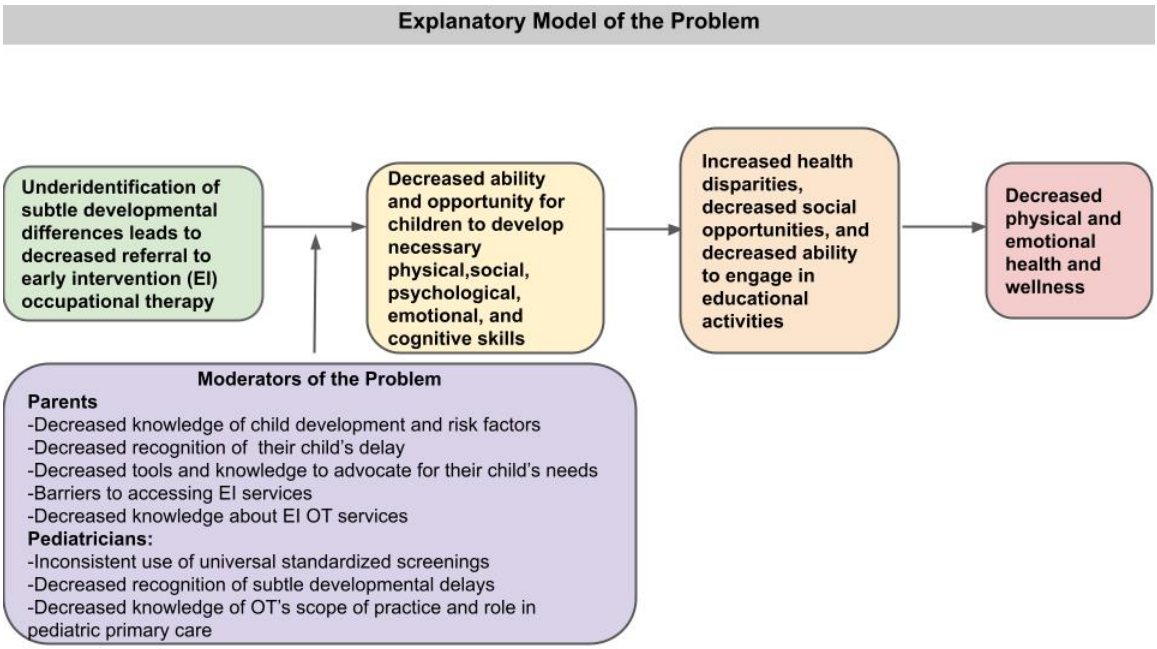
Children with developmental delays often are not recognized or identified until the children enter school (Chödrön et al., 2019). This underidentification is exponentially greater in communities with racial and ethnic diversity and lower socioeconomic status (Rowe et al., 2015). Research supported the importance of early intervention (EI) to most effectively remediate deficits and promote positive outcomes (Little et al., 2015; Shahidullah et al., 2020). It is essential to take an innovative approach to support the prevention of disabilities by enhancing early identification, providing education, and facilitating collaboration among parents, caregivers, pediatricians, and occupational therapists. The diffusion of innovation, social innovation, and social learning theories support the development of *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.*

Proposed Explanatory Model

Figure 1 provides a visual representation of the problem's explanatory model. This model details causal and resulting factors related to the underidentification of subtle developmental delays in children.

Figure 1

Explanatory Model of the Problem



Research revealed an underidentification of children with subtle developmental differences before entering school (Chödrön et al., 2019). Various factors contribute to this underidentification, leading to decreased referrals for EI. Some contributing factors include parents not recognizing the delay, fearing or denying the delay, or not understanding what EI occupational therapy (OT) can do for their child, and pediatricians not recognizing more subtle delays, not understanding what EI OT can do, or assuming that a child will grow out of identified problems. Underidentification and lack of intervention lead to decreased ability and opportunity to develop physical, social, psychological, emotional, and cognitive skills. These, in turn, lead to increased health disparities, decreased social opportunities, and reduced ability to engage in educational

activities, which ultimately lead to decreased physical and emotional health and wellness (Williams & Holmes, 2004).

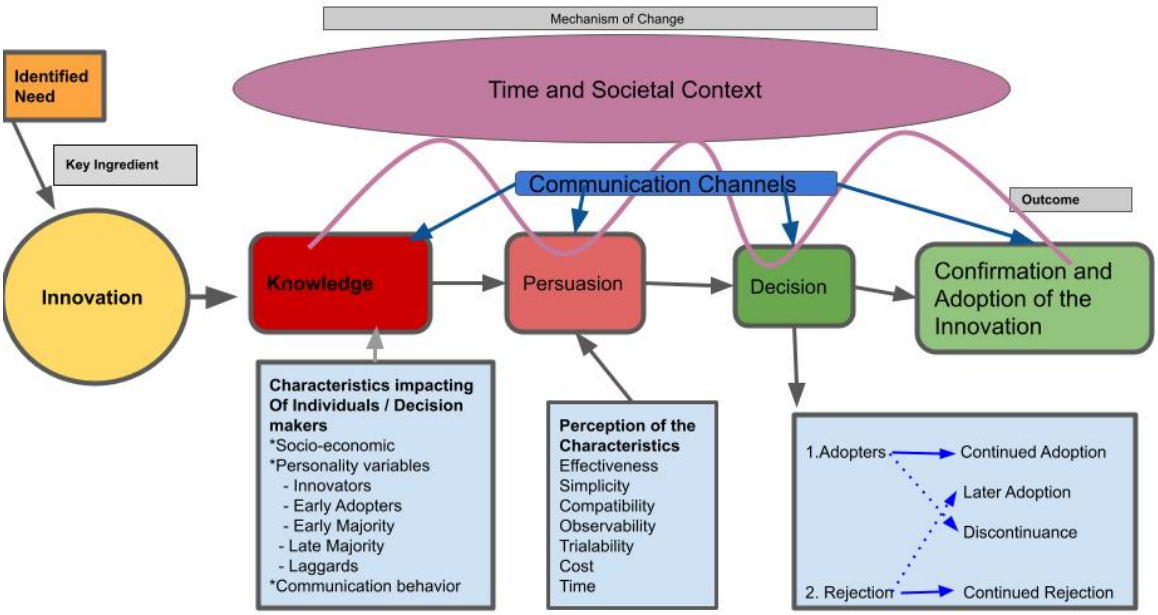
Frameworks for Understanding the Problem

Diffusion of Innovation Theory

The diffusion of innovation theory aims at understanding behavioral change and analyzing why, how, and at what rate new ideas disseminate among individuals and society (Rogers, 2003). Innovation, communication channels, time, and social systems are four elements that influence an individual or group to change (Kaminiski, 2011). The core assumptions of diffusion of innovation are that (a) individuals, groups, or societies need a new idea, and the new idea is better than the old way of doing things; (b) people are open and interested in new ideas and have access to various communication channels; (c) individuals' characteristics influence their rate of adopting a new idea, and (d) opinion leaders are valuable change agents who influence others through role-modeling, peer-to-peer communicating, and networking. When a need is identified, an innovation may go through change mechanisms, resulting in adopting the innovation and providing a solution to the problem (Figure 2).

Figure 2

Diffusion of Innovation Theory Causal Pathway



Note. Innovation-decision process, adapted from *Diffusion of Innovation*, by E. M. Rogers, 2003, p. 170. Copyright 2003 by Free Press.

The first step of the innovation-decision process is knowledge. Moderators of the knowledge process are the individuals' and groups' unique characteristics, and persuasion is the next step of the causal pathway. The perception of the characteristics of the innovation are moderators to the persuasion stage. The decision stage is the next stage of the adoption process; there are adopters and rejectors of the innovation. Confirmation is the final stage, in which the innovation adopted and implementation continued. Time, communication channels, and societal context moderate the diffusion of the innovation process (Rogers, 2003).

Diffusion of innovation is one of the chosen theoretical frameworks for this doctoral project because it provides a framework for how new ideas spread. Considering the identified gap in early identification and EI of infants and toddlers under school age, innovation to support identification and connection to appropriate support services is needed. The diffusion of innovation theory supports the steps to evaluating and implementing the innovation of occupational therapists' role in primary pediatric care to support early identification and referral to EI services for infants and toddlers with more subtle developmental differences prior to school age.

According to the diffusion of innovation theory, innovation attributes are categorized as effective, simple, compatible, observable, and triable. It is proposed that parents' likelihood of adopting the intervention will increase if an intervention considers cost, time, and these attributes. The diffusion of innovation theory provides a framework within a microsystem to promote adoption: In this case, it connects to a specialized OT program innovation.

In Phase 1 of this doctoral project, implementing the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children***,** the researcher will facilitate opportunities for parents to learn about developmental milestones, their children's unique development, tools to advocate for their children, OT services, areas that OT practitioners (OTPs) support, and the value of OT in EI. They will be provided with knowledge on the usefulness of standardized screenings during routine pediatrician visits and how those screenings support progress towards developmental milestones because research has shown that standardized

screening tools are underutilized, sometimes contributing to a gap in early identification of developmental differences and decreased referral to EI (Chödrön et al., 2019; Pizur-Barnekow et al., 2010).

The researcher's goal is to offer tools to support parents through collaboration, education, and, when appropriate, early identification of subtle developmental differences and guidance through the referral to EI. The diffusion of innovations persuasion stage occurs when the innovation, *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*, is adopted by parents who use the tools learned to assist their children in reaching developmental milestones through activity, advocacy, and pursuit of needed supports.

The *PlaySpace* innovation will include educational playgroups offering brief screenings upon intake so that group sessions can be individualized and tailored to meet unique and diverse needs. The decision stage for parents would occur when parents decide to participate in educational playgroups and reach out for additional OT consultation when there is a concern, even if the concern is mild. During the implementation stage, parents will increase their knowledge of OT and the importance of early identification and intervention. The implementation stage will occur when parents sign up to participate in playgroups. The confirmation stage for parents within this program will occur when they adopt participation in educational playgroups and seek support from an OTP, pediatrician, or other support services when they have concerns about their children's development.

Phase 2 of *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* aims to provide pediatricians with available options to increase collaboration with an occupational therapist to enhance the identification of developmental delays, as well as increase their awareness of resources available to provide families. Phase 2 is an innovation for pediatricians by providing information and support to collaborate on screening, identification, and referral, as appropriate, to EI processes. Through occupational therapists and pediatrician collaboration, pediatricians can offer parents access to consultation by OTPs at well-baby visits, participation in educational playgroups, or review of videos on parents' perspectives of observable concerns they have for their child. The decision stage would occur when a pediatrician or pediatric group agrees to try the innovation of OTPs having a role in well-baby visits/screenings to support the early identification of more subtle developmental delays. The implementation stage for pediatricians would involve a pediatrician or a group of pediatricians agreeing to offer parents access to occupational consultation, choosing to participate and collaborate with an OTP at any level of collaboration. The program's confirmation stage will occur if a pediatrician or group of pediatricians are interested in adopting the innovation of OTPs having a role in consultation during well-baby visits and screenings.

Social Innovation Theory

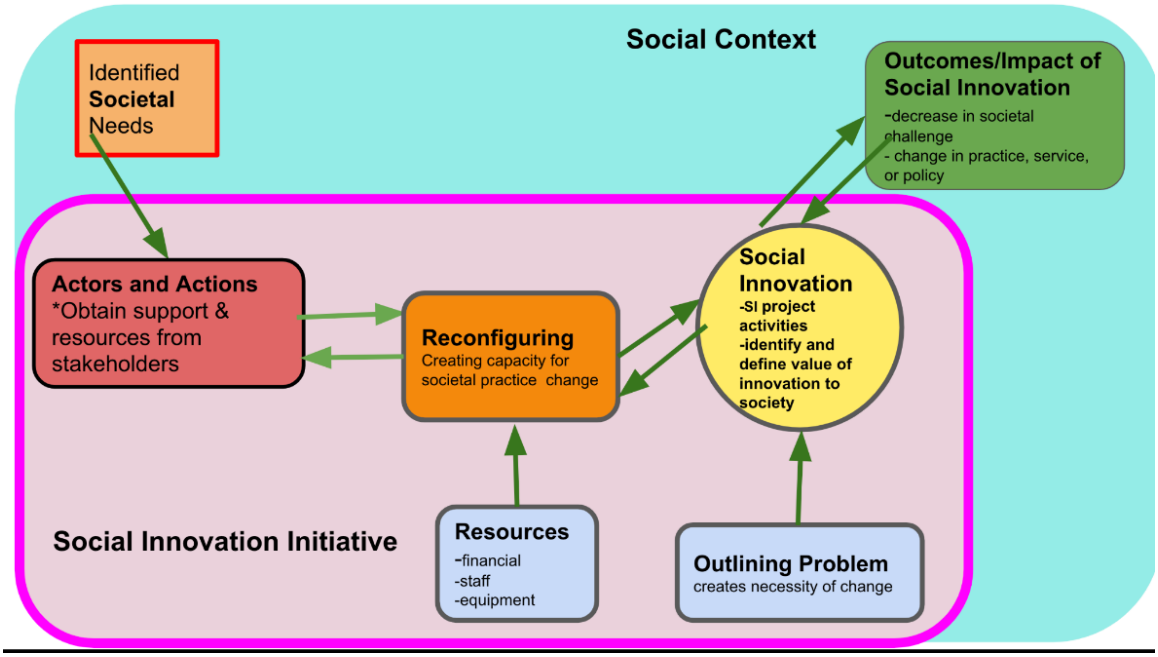
Social innovation theory was developed from Gabriel Tarde's theory, which identified novel social relations that lead to social innovations (Farmer, 2018). Social innovation theory complements the diffusion of innovation theory for the proposed

program, *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* This theory is unique, offering insight into how to respond and create solutions to critical societal problems such as inequality, poverty, and climate change and supporting the development of economic and social progress (Logue, 2020). The core assumptions of the social innovation theory are that social innovations (a) can support marginalized groups by addressing social problems and needs that are not met and (b) should be sustainable and have a beneficial impact on society rather than focusing on the novelty of the innovation (Loogma et al., 2012).

Figure 3 displays the steps of the causal pathway for social innovation. Identifying societal needs is the first step of the social innovation process. Actors and actions are the next step of the pathway; at this stage, when resources and support are secured from stakeholders. Reconfiguring is the process of developing the capacity for change. Social innovation project activities are then implemented, and the value of the innovation is identified and defined. Lastly, the social innovation's outcomes and impact contribute to decreased societal challenges and changes in practice, service, or policy (Ravazzoli et al., 2021). Another uniqueness of the social innovation theory is the fluidity within the causal pathway to support sustainable change.

Figure 3

Social Innovation Theory Causal Pathway



Note. From "Can Social Innovation Make a Change in European and Mediterranean Marginalized Areas? Social Innovation Impact Assessment in Agriculture, Fisheries, Forestry, and Rural Development," by E. Ravazzoli et al., 2021, *Sustainability*, *13*(4), p. 1823 (https://doi.org/10.3390/su13041823).

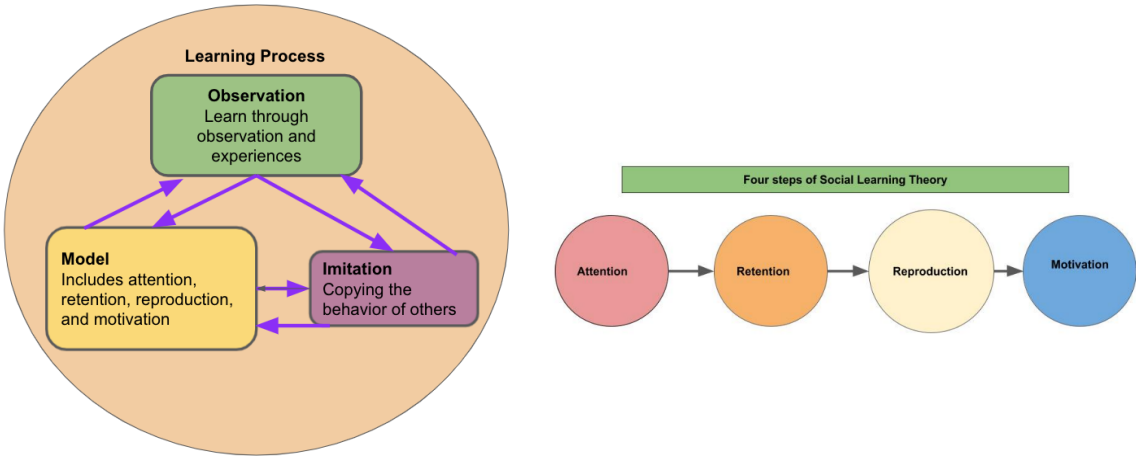
Social Learning Theory

Social learning theory provides a framework for understanding knowledge acquisition and how to support the learning process (Figure 4), as developed by Albert Bandura (1977). It combines behaviorism and cognitivism. This theory enhances elements of this doctoral project because it explains human behavior as continuous reciprocal interactions between behavioral, cognitive (e.g., self-perception, attitudes,

beliefs, expectations), and environmental influences. The core assumptions of social learning theory are that humans are social beings who learn by observing others, and the outcomes are associated with that behavior. When reinforced behaviors are observed, those behaviors will be repeated. Learning may occur without behavioral changes, may occur later, or may never occur. Social learning is a cognitive process that includes attention, retention, reproduction, motivation, and expectation of reinforcement or punishment.

Figure 4

Social Learning Theory



Note. Adapted from *Social Learning Theory*, by A. Bandura, 1977, p. 27. Copyright 1977 by Prentice Hall.

Evaluation of Evidence to Support the Proposed Project

The following guiding questions were generated to structure the search for evidence and support the proposed explanatory model of the problem:

Question 1: Is there robust evidence supporting the importance of EI?

Early intervention positively affects children's developmental outcomes (McManus et al., 2019). The literature review revealed that EI is essential in supporting developmental gains for children at risk for, or identified with, developmental delays (Kohlhauser et al., 2000). The brain's neuroplasticity decreases with age, so there is validity in the early identification of children with developmental differences (Ismail et al., 2017). Individuals who encounter infants and toddlers (e.g., parents, caregivers, pediatricians, and educators) must be empowered to know the validity and importance of EI services to support children in reaching their full potential.

Question 2: Is there evidence of a gap in the early detection of developmental differences?

The various prohibitors to early detection of developmental differences described in the evidence literature are reviewed in the following sections.

Lack of Universal Screening

A study performed by Pizur-Barnekow et al. (2010) found that the barriers to developmental screenings included time, funding, family instability, physician values, parent–physician communication, parental values, staff or professional values, and parent–provider communication. Increases in developmental screening rates occurred within states where the early periodic screening, diagnosis, and treatment reimbursement shifted to include nonphysician providers (U.S. Department of Health and Human Services, 2009).

Lack of Education

Knowledge empowers parents, pediatricians, and educators to ask questions and gain tools to support children and seek intervention if needed. “The intervention rated as most important to improve developmental screening was providing education on community resources to providers” (Pizur-Barnekow et al., 2010, p. 327). A study by Jimenez et al. (2017) found that a patient-decision aid that educated parents about facilitated referrals from primary care effectively improved participation in EI. Educating parents improved agreement between service providers and parents regarding various values and decisions, increased knowledge about treatment options, and improved patient participation and communication. All these change mechanisms promoted shared decision-making. Shared decision-making between parents and clinicians regarding the best treatment supports agreement on the best course of action. Jimenez et al. (2012) found that “effective communication between pediatricians and families, including addressing families’ perceptions of their child’s development and EI, practical logistics of referral, and motivation to address developmental concerns, is likely to improve the success of referrals” (p. 556).

> Early detection and intervention for developmental disabilities may be most effective when a range of early childhood professionals contribute to developmental monitoring and screening particularly since universal developmental monitoring and developmental screening are not uniformly adopted in pediatric primary care. (Chödrön et al., 2019, p. 22)

Occupational therapy practitioners can provide valuable information to parents and pediatricians to support early childhood development. They can identify developmental differences through screening feeding skills, fine and gross motor skills, visual–motor skills, sensory processing, praxis, executive functioning, and social skills and can support parents in creating optimal play environments to support development. Clark and Kingsley (2020) outlined the practice guidelines for EI:

> The foundation for play, self-care, social interactions, academics, and self-regulation is built during the early childhood years as cognitive, motor, social-emotional, and self-care skills are developing. When young children and their families lack opportunities to participate in these essential daily habits and routines, they may experience limitations in their overall health, well-being, or quality of life. Barriers to participation may be associated with health conditions (e.g., asthma), disabilities (e.g., cerebral palsy), or environmental or social determinants of health (e.g., lack of accessible and safe neighborhood playgrounds, poor access to health care). Early identification of developmental delays and conditions is essential to intervene early to produce positive effects on development, academic skills, social interactions, and employment. (p. 4)

When children present with challenges in development, this often impacts their ability to participate in occupations. A child can experience difficulty in one or various domains of social participation, education, play, work, activities of daily living (ADL), leisure, instrumental ADL, rest, and sleep.

Lack of Attention to Risk Factors and Parent Education

Preterm births can lead to a variety of potential developmental challenges or delays. Demaster et al. (2018) reported that although the plasticity of a preterm infant's brain can be more susceptible to injury, it can also be supported to make positive changes. They highlighted that early preventative programs targeting increased positive play, parent responsiveness, and use of rich language were surprisingly uncommon despite the knowledge that the first 3 years of life are the most critical and sensitive for brain development. Programs administered in early childhood "show improvements to cognitive, language, and emotional outcomes in the preterm infant populations" (p. 174).

Spittle et al. (2018) found that children of families with elevated social risk (e.g., low family income) who participated in parental intervention groups demonstrated improved motor, cognitive, and language scores compared to the control group after 7 years of the intervention. This finding further supported the importance of early identification and intervention. When parents are educated and aware of their child's unique development, they can act as catalysts and advocates for improving their child's long-term cognitive, language, emotional, and psychological outcomes. "One reason that such parenting programs are not ubiquitously offered may be that the majority of early intervention services (i.e., physical therapy and OT) are traditionally centered on physical needs of the child" (Demaster et al., 2018, p. 171). It is vital for OTPs to recognize, support, and educate parents in their ability to be agents of change for their preterm infants and all infants' optimal overall health and development.

Question 3: Is there evidence that parents have knowledge of OT's role in EI services?

Comprehensive EI programs can "help prevent the substantial decline in the intellectual development that generally occurs across the early childhood period for children with developmental delays" (Guralnick, 2017, p. 211). Parents have a role in supporting their child's development, working with and learning from professionals, and advocating for their child (Guralnick et al., 2017). Occupational therapy practitioners have the knowledge to support and collaborate with adults in creating optimal learning environments for infants and children. They can support participation in opportunities that arise while engaging in their daily routines and activities (Clark & Schlabach, 2013). However, there is a gap in the literature regarding parental understanding of OT's role for their children with subtle developmental delays, suggesting that future measurement of parental awareness and perhaps additional education on OT's EI role is needed. This doctoral project will incorporate this need into its programming.

Conclusion

Although the American Academy of Pediatrics recommended screenings to identify developmental delays and support referral to EI, there continues to be variation and no accepted best practice (Jimenez et al., 2017). This project will use stakeholders' essential and valuable involvement, gathering insight into their opinions on the proposed innovation through survey and follow-up qualitative interviews with parents and pediatricians, to contribute to increasing consistency with these screenings. The social innovation theory provides a macro approach to the innovation of occupational therapists

providing parent education on development milestones and options to support them and increasing OTPs' role in pediatric primary care. The intervention will incorporate the social innovation theory, focusing on evaluating policies that affect the identified problem of underidentification of children with developmental delays. The intervention will address this need at a systemic level to support families within marginalized communities to access screenings that support the identification of children with developmental delays. When evaluating the gap in early identification and EI services for children prior to school age, it is essential to understand how we can support and implement change to improve the early identification of children with developmental delays. As the project evolves, the researcher will evaluate the intervention using this framework, which supports policy change.

CHAPTER THREE – Overview of Current Approaches and Methods

Introduction

Early intervention has a significant impact on preventing developmental decline and enhancing skills for children with developmental delays (Guralnick, 2017). During this early developmental period, increased neuroplasticity creates "windows of opportunity" for the developing brain (Demaster et al., 2018). Therefore, children must be identified early. However, research indicated underidentification of children with more subtle developmental differences (Chödrön et al., 2019). Although the American Academy of Pediatrics did not recommend the "wait-and-see" approach, there appear to be inconsistencies in what occurs (Bright et al., 2019). Elansary and Silverstein (2020) reported that approximately one third of pediatricians did not use formal screening tools. Even when there were positive screening results, more than one third of pediatricians reported not referring to early intervention (EI). Guralnick (2017) highlighted the importance of parents' roles in supporting their child's development by working with and learning from various professionals and advocating for their child.

This investigator developed a program, *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*, that increases collaboration among parents, pediatricians, and occupational therapists to identify more subtle developmental delays early. Phase 1 implements a parent-education playgroup to increase knowledge of and support their children's development and increase their ability to advocate and navigate barriers to achieving needed services. Phase 2 will implement strategies to increase collaboration with pediatricians to support

the early identification of more subtle developmental delays. The evidence literature was reviewed using the following guiding questions. These questions structured the investigation of previous efforts to address the issue at hand and create rich program content.

Question 1: Is there evidence that efforts or programs have attempted to increase parental understanding of developmental milestones and risk factors to promote the acquisition of needed support services?

Parents can play an essential role in identifying developmental delays and implementing strategies to improve development.

> With numerous sources indicating that quality parenting is one of the best predictors of one's developmental trajectory across the lifespan, it has become increasingly necessary to identify the most effective programs and tools for supporting parenting skills and promoting positive child development. (Morris et al., 2020, p. 520)

Raspa et al. (2015) found that parents reported concerns about their children's development as early as 7 months and as late as 3 years of age; most reported concerns at around 7 months. Parents reported that comparing their children to other children facilitated their awareness that their children may have a delay. Raspa et al. (2015) found two groups of health care providers: those who asked questions and supported further assessment and EI and those who took more of a "wait-and-see" approach. Many parents reported delays in receiving services and intervention ranging from 1 to 7 months after identifying the need. Most also reported being unaware of available resources.

Raspa et al.'s findings supported the need for greater focus on outreach to parents with low socioeconomic backgrounds and improved use of the materials for this target audience. Groups that provide parents with information about development, available resources, and opportunities to observe and interact with other parents and children can improve parents' knowledge of child development and early identification of developmental delays.

There are many benefits of developmentally appropriate playgroups to support parent knowledge of child development. Jeong et al. (2018) highlighted the benefits of programs focused on promoting positive parenting and enhancing developmentally appropriate and effective learning opportunities for children through stimulation, such as playing, singing, and teaching. McKee et al. (2021) reported empirical evidence demonstrating that parenting knowledge correlated to positive parenting practices. Evidence supported that parenting knowledge was a significant intervention target (McKee et al., 2021). Jeong et al. (2018) completed a systematic literature review of stimulation intervention studies and identified three ways through which early childhood interventions can promote optimal caregiving practice. They found that these programs

- strengthen parents' knowledge, attitudes, practices, skills, and behaviors to provide children with care for development, feeding, health, security, and opportunities for early learning;
- foster an enabling environment to support parenting (e.g., reducing parenting stress, building social support, and managing conflict in the home); and

- increase access to quality services that support families with young children to provide optimal care. (p. 13)

This review found medium to large effects of stimulation interventions on improving the home caregiving environment, mother–child interactions, and maternal knowledge of early childhood development (Jeong et al., 2018). Hooge et al. (2014) evaluated pretest and posttest findings of a prevention-focused parenting program to improve maternal and infant health through education and support. They also found significant increases in parental knowledge after participating in the program.

Increasing parenting knowledge and supporting optimal parenting practices promote positive child development (McKee et al., 2021). These findings can support the benefits and implementation of parent–infant/toddler playgroups. This review supported that an intervention of a developmentally appropriate parent–infant/toddler playgroup can support parents' knowledge of early childhood development.

Question 2: Is there evidence that efforts or programs have attempted to increase recognition of developmental milestones and risk factors within marginalized communities, resulting in increased support of EI in these communities?

There is limited research on whether parents are aware of programming options for facilitating developmental milestones. Rowe et al. (2015) identified variation in the availability of parent-education resources dependent on parent education, race, and ethnicity. Little et al.'s (2015) review revealed that current attempts to identify children with developmental challenges were not effective: "Studies assessing physicians' effectiveness in identifying developmental problems suggest that only severe or obvious

disabilities are likely to be identified" (p. 36). This identified gap translates to missed identification of children with more subtle developmental delays. When parents are unaware of available programs to support their knowledge of child development, they may be unequipped to obtain tools to identify delays and advocate for their children's needs. The lack of available research on parents' awareness of available resources also supports the gap in these types of programs. Little et al. identified that physicians do not always have the most effective methods of identifying developmental problems. Therefore, it is essential that parents are provided with resources to advocate for their children's needs.

Knowledge of infant development was uniquely related to both maternal education and race/ethnicity (Rowe et al., 2015). Rowe et al. (2015) identified variation in the availability of parenting information/advice based on parent education and race/ethnicity.

> [Parenting knowledge] partially mediated the relation between parent education and child language and pre-literacy skills, and this relation differed by race/ethnicity. Some studies have found a direct association between parental knowledge and child outcomes, including reduced behavioral challenges and improvements on measures of cognitive and motor performance. (p. 198)

Parenting knowledge positively affects child health and wellness, but disparities exist. It is crucial to focus on parents' knowledge of child development to decrease socioeconomic-status achievement gaps (Rowe et al., 2015).

Question 3: Is there evidence that EI with suspected subtle milestone delays yields increased acquisition of future skills and parents' ability to advocate for their children?

There is limited evidence that participating in parenting programs specifically improved parents' ability to advocate and receive clinical intervention for developmental delays. However, this merely indicates a gap in the research. The Learn the Signs Act Early program has had a statistically significant impact on increasing parents' awareness of milestones (Gadomski et al., 2018). Increasing parents' knowledge and understanding of milestones improved their developmental surveillance and confidence to discuss concerns with their pediatrician and advocate for their child. "Because parent education empowers parents to be advocates for their children, parents can be viewed as frontline public health workers critical to promoting health and well-being from the earliest years" (Morris et al., 2020, p. 536).

Question 4: What components included in previous parent-education efforts yielded positive outcomes for the promotion of reaching developmental milestones?

Parents have a role in supporting their children's development, working with and learning from professionals, and advocating for their children. Comprehensive EI programs can "help prevent the substantial decline in the intellectual development that generally occurs across the early childhood period for children with developmental delays" (Guralnick, 2017, p. 211). It is important to take a developmental-systems approach and consider the various levels, components, and interactive relationships and how they affect child development (Guralnick, 2017).

The literature on parent intervention highlighted four domains or tiers that enhance a program's effectiveness: (a) sharing information, (b) self-awareness/belief-insight change, (c) learning new skills, and (d) applied problem-solving (Morris et al., 2020). Programs may vary in their emphasis on each domain; however, there are positive outcomes when intervention goals align with these domains. Morris et al. (2020) suggested that the critical elements of a parent-education program include

- in vivo practice of parenting skills;
- minimizing barriers to parent engagement by doing parent-home visits, community location, providing transportation, and providing childcare;
- leader certification and training,
- built-in evaluation by pre- and posttest surveys and obtaining parent feedback throughout the program; and
- programs with an effective evaluation history.

Morris et al. also recommended that to ensure the programs' accessibility, effectiveness, and longevity, it is vital they are

- cost-effective,
- supportive of parents of children with disabilities,
- supportive of the needs of minority communities,
- supportive of various family-structure types,
- inclusive of fathers,
- developing alternative and novel ways to disseminate knowledge about child development within marginalized communities,

- universally accessible and have strong research evidence, and
- branded to highlight the positive impact of the group as supporting their children versus calling it a "class," which busy parents may avoid.

Literature reviews supported the benefits of EI programs in improving academic achievement, behavior, educational progression and attainment, and labor-market success while reducing delinquency and crime (Karoly et al., 2005). Like Morris et al. (2020), Karoly et al. (2005) discovered that the staff's level of training and the student-to-staff ratio had an impact on the program's effectiveness. Better trained staff and lower student-to-staff ratios led to improved results. Blanch et al. (2016) identified the key components of programs, including parental training, intensive programs, low student-to-adult ratios, short interval interventions, and ongoing assessment of the children's development to track changes and progress. Early interventions programs must have a systematic assessment of development and sensory processing. Skilled staff can educate parents, which has a positive impact on EI outcomes (Karoly et al., 2005). Karoly et al. (2005) highlighted the importance of skilled staff providing the intervention. Occupational therapists are well equipped with knowledge of child development and could have a vital role in EI programs.

Question 5: What specific contributions has occupational therapy (OT) made to improving the achievement of developmental milestones in EI?

Occupational therapists have a role in education, collaboration, and intervention to promote the achievement of developmental milestones in EI. Blanch et al. (2016) conducted a retrospective chart review of 63 children aged 18–36 months who

participated in an interdisciplinary sensory enriched EI (ISEEI) group program. Significant improvements were seen in all development areas for children identified as having developmental delays. The children showed improved cognitive skills, expressive and receptive language, gross motor skills, and fine motor skills. Those children identified as having sensory-processing difficulties demonstrated significant improvements in all areas except fine motor skills. Developmental delays can be ameliorated when children and caregivers participate in ISEEI programs (Blanch et al., 2016), but it is essential that the programs are child-focused, parent-focused, and parent/child-focused. Occupational therapists have in-depth knowledge of sensory-processing effects on development, which is critical for EI. "Occupational therapists need to be part of the teams that identify these children" (p. 6).

Occupational therapists have a role in supporting cognitive development because cognition limitations affect daily life. Clark and Schlabach (2013) stated, "Early cognitive development includes attention (and joint attention), memory, object relations, causality, imitation, problem-solving, and sorting objects" (p. 425). They performed a systematic review of OT interventions to support cognitive development in children aged birth to 5 years and discovered improved cognitive outcomes during infancy and preschool years. There are strong associations between children's cognitive functioning before beginning kindergarten and achievement levels in elementary and high school.

Occupational therapists have the knowledge to support and collaborate with adults in creating optimal learning environments for infants and children. When parents are trained, they can support participation in opportunities that arise while engaging in their

daily routines and activities. Clark and Kingsley (2020) performed a systematic review of 196 articles and found that a variety of OT interventions supported the development of cognitive, social-emotional, motor, and self-care skills in children aged 0 to 5 years. These findings also supported the role of OT in EI.

Handling skills are important to facilitate proper positioning, movement patterns, and overall development. Byrne et al. (2019) evaluated the effectiveness of teaching handling skills to parents of children within the newborn intensive care unit. Groups that received direct and video instruction performed significantly better on two handling activities than did the written-pictorial group. Parents perceived all instruction options (direct, video, and written-pictorial) as effective and welcomed the instruction. Occupational therapists have the tools to support and teach parents appropriate handling techniques to facilitate optimal development for their children.

Play is a primary occupation and means to promote child development. Occupational therapists' in-depth understanding of the importance of play allows them to support children and their caregivers in enhancing play skills. "Children participate in the world around them through play, a spontaneous or organized activity that provides enjoyment, entertainment, amusement, or diversion. Play contributes to a child's growth, development, socialization, communication and creativity" (Fabrizi et al., 2016, p. 1).

The literature supported that improved play positively influenced all development areas. As an intervention technique, play within a group setting increases playfulness and can assist families in integrating into the community. Children receiving EI can benefit from participating in community playgroups. Fabrizi et al. (2016) found that children

who participated in playgroups exhibited more playfulness than children who did not participate in playgroups. When comparing the three playgroups, the occupational-therapist-led playgroups were significantly more effective (Fabrizi & Hubbell, 2017). Occupational therapists are equipped to collaborate with families to promote play, playfulness, and play participation as positive outcomes for themselves and their children.

Summary of Evidence

In summary, the research supported that parenting programs have a significant positive impact on parents' knowledge, skills, and confidence (Guralnick, 2017; Hooge et al., 2014; Jeong et al., 2018; McKee et al., 2021; Raspa et al., 2015). Cuomo et al. (2021) evaluated the missing pieces to EI:

> When asking parents about child development, professionals need to listen for both bolder "aha moments" as well as more subtle "niggling" comments as indicators of parental concerns. Building baseline parental knowledge of developmental milestones may facilitate noticing atypical development. Encouraging parents to engage in social opportunities with other children promotes both positive child development and enables developmental monitoring through use of comparison. (p. 2663)

Fabrizi and Hubbell (2017) found that playgroups led by occupational therapists were significantly more effective. Through participation in infant/toddler developmental playgroups, parents can learn about child development, adapting to the environment, and developing handling skills to promote optimal skill development.

Parent-education programs effectively provide parents with the knowledge to support their children's development (Guralnick, 2017; Hooge et al., 2014; Jeong et al., 2018; McKee et al., 2021; Morris et al., 2020; Raspa et al., 2015). Research showed that marginalized communities experienced disparities and had limited access to programs that support parental knowledge (Raspa et al., 2015). It is essential to develop programs that provide outreach and are accessible to all communities, especially marginalized ones (Morris et al., 2020; Raspa et al., 2015). To ensure these programs' effectiveness, they should be developed and run by trained professionals (Karoly et al., 2005; Morris et al., 2020). Occupational therapists' training and holistic views make them well equipped to design and implement parenting programs that increase parents' knowledge of child development to support proactive, preventative care that optimizes a child's development, health, and wellness.

CHAPTER FOUR – Description of the Proposed Program

Basis of the Proposed Program

The proposed doctoral project is entitled, *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* The development of this program incorporated evidence-based guidelines and strategies for understanding, navigating, and successfully facilitating an occupational therapy (OT) practitioner (OTP)-led parent–child playgroup. This chapter includes specific session titles and topics, as well as a description of the program's participants, goals and objectives, implementation plan, and potential barriers to implementation. Key factors for success from the evidence of previous intervention efforts to promote development milestone achievement are included. Additionally, results from an institutional review board (IRB)-approved survey of parents who have lived experience with concerns related to achieving developmental milestones are included.

The main goal of *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* is to facilitate opportunities for education, participation, and collaboration with parents, children, and pediatricians that will increase awareness of developmental milestones and promote milestones and strategies to pursue needed supports when concerns about milestone achievement exist. The *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative is designed to promote these experiences for parents and provide OTPs with the training necessary to incorporate or advocate for developmental-milestone awareness in their practice successfully. This initiative

addresses a gap in information, awareness, understanding, and experience with developmental-milestone achievement and pursuit of needed support for parents, OTPs, pediatricians, and children.

Practice Scenario

The practice scenario for *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* is a community-based initiative the author is developing to enhance proactive, preventative health and wellness for infants, children, and families. Increased collaboration among pediatricians, parents, caregivers, and occupational therapists will support the early identification of subtle developmental differences before school age. The program's future efforts will include seeking grant funding to offer the program free of charge to families living in underserved communities.

Program Details Incorporating Findings From an Original IRB-Approved Survey

The *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children,* designed to improve the identification of more subtle developmental differences in infants, toddlers, and young children before entering school (Chödrön et al., 2019), provides education and intervention while recognizing that parents, pediatricians, and occupational therapists are educators and learners collaborating to support children's health and wellness. The program is designed to be facilitated by an occupational therapist because OTPs take a holistic approach and recognize the importance of interprofessional collaboration and patient/family-centered care.

There are two phases to the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative. Phase 1 is the individualized, developmentally appropriate playgroups. The playgroups serve to educate and proactively support children's health, wellness, and development. Participation in the group empowers parents with knowledge about their children's development, how to support their development, and tools to advocate for their children. Phase 2 aims to provide pediatricians with options for various levels of collaboration with an occupational therapist to support the early identification of subtle developmental delays and resources to provide families. Both program phases incorporate key elements from the evidence literature, as well as findings from a 2021 IRB-approved parent survey conducted by this author. Details of this study are included in the following sections.

Methods for Parent Perceptions With Suspected Developmental Delays Survey

Boston University Charles River Campus Institutional Review Board granted an exemption for the pilot research study, the *Parent Perceptions with Suspected Developmental Delays Survey,* for enrollment of up to 30 participants for the parent survey. The systematic, mixed-methods survey used included a questionnaire with structured and open-ended questions, allowing participants to enter responses anonymously at their convenience.

Participants

Participants for the *Parent Perceptions with Suspected Developmental Delays Survey* were recruited from a convenience and snowball sample available to the author through OT service delivery in a private practice in Los Angeles, California. Seventeen

participants responded. Survey respondents ranged from middle to high socioeconomic status. Of them, 81.25% identified as White, 12.50% as Asian, and 6.25% as other nonspecified.

Data Collection Tools

The survey questionnaire incorporated key themes identified in the evidence literature related to the problem description in Chapter 2. Quantitative survey questions were scored on a 5-point Likert scale from 1 (*strongly agree*) to 5 (*strongly disagree*). The survey also included items that collected participants' demographic information, and open-ended questions explored participants' perceptions of lived experiences with identifying developmental milestones, concerns with perceived delays, and sharing those concerns with pediatricians. (See Appendix A for parent and Appendix B for pediatrician questionnaires.)

Data Collection Procedures

Phase 1 focused on collecting survey data from parents with lived experience with suspected delays in achievement of developmental milestones. A link to the survey was shared via email to a convenience sample including past and current families within the author's clinic in Los Angeles, CA. Qualtrics^{XM} software was used to collect survey data during this phase.

Data Analysis

Descriptive statistical analysis was used to analyze outcomes of the piloted Parent Perceptions with Suspected Developmental Delays Survey quantitative data, and qualitative content analysis for qualitative data. Findings revealed four themes. The open-

ended questions ensured that responses were not limited by the survey and, thus, too narrowly described the perceptions. Narrative, open-ended responses were analyzed for patterns and themes, then categorized and tallied according to the number of times the themes appeared in open-ended responses.

Results

In total, 17 parents responded to the pilot of the *Parent Perceptions with Suspected Developmental Delays Survey.* Most (52.94%) participants reported the school/daycare staff as the primary group to identify potential delays in their children's development. According to these parent reports, parents (41.18%) were the second-most common group to identify potential concerns, and pediatricians (5.88%) were the least likely. Many (17.65%) parents reported not discussing their concerns about their child with their pediatricians. Over half (62.5%) of the parents reported that their pediatrician was not involved enough in identifying their children's more subtle developmental delays. Parents ranked their own parents and teachers as the primary individuals they reached out to discuss concerns about their children's development. They ranked online research next and regarded pediatricians last. Less than half (47.06%) of the parents reported feeling extremely comfortable sharing their concerns with their pediatricians. There was variation in thoughts about how comprehensive the pediatric assessment process was: 20% of the parents believed the assessment was comprehensive, and 20% neither agreed nor disagreed, 18.75% somewhat disagreed, and 6.25% strongly disagreed that there was a comprehensive assessment process. Over half (56.25%) were unsure whether their pediatricians administered standardized assessments, 25% reported that

standardized assessments were administered, and 18.75% reported they were not administered.

Results from the piloted *Parent Perceptions with Suspected Developmental Delays Survey* are summarized in Table 1.

Table 1

Participant Demographics and Survey Responses

Answer	Count	%
Ethnicity/Race		
White	13	81.25
Black or African American	0	0
Native American or American Indian	0	0
Asian	2	12.50
Native Hawaiian or other Pacific Islander	0	0
Two or more ethnicities	1	6.25
Some other race (please specify)	0	0
Hispanic or Latino	0	0
Yearly income		
$100,001–$250,000	7	43.75
$250,001–$500,000	3	18.75
$500,001–$1,000,000	2	12.50
Prefer not to answer	4	25.00
First person to identify potential delay in child's development		
School/daycare staff	9	52.94
Self	7	41.18
Pediatrician	1	5.88
Friend	0	0
Family member	0	0
Comfort level sharing concerns with pediatrician		
Extremely comfortable	8	47.06
Somewhat comfortable	5	29.41
Neither comfortable nor uncomfortable	4	23.53
Somewhat uncomfortable	0	0
Extremely uncomfortable	0	0
My child's pediatrician has a comprehensive screening process I complete before my child's appointment.		
Strongly Agree	0	0

Answer	Count	%
Somewhat Agree	4	25.00
Neither agree nor disagree	8	50.00
Somewhat disagree	3	18.75
Strongly disagree	1	6.25
Did your pediatrician ever administer a standardized screening assessment on your child?		
Yes	4	25.00
Unsure	9	56.25
No	3	18.75
Fear or denial affected my decision to seek additional support for my child.		
Strongly agree	2	11.76
Somewhat agree	2	11.76
Neither agree nor disagree	4	23.53
Somewhat disagree	2	11.76
Strongly disagree	7	41.18
Before receiving a referral to occupational therapy, I was familiar with it and the areas it addresses.		
Strongly agree	5	33.33
Somewhat familiar	1	6.67
Somewhat agree	3	20.00
Somewhat disagree	2	13.33
Strongly disagree	4	26.67

Discussion

Given the small sample size ($N = 17$), there are no robust numbers for the quantitative themes. However, the themes, indeed, align with the qualitative responses. Parents reported school/daycare staff (52.94%) or themselves (41.18%) as the first people to identify potential developmental delays in their children; only a small percentage (5.88%) reported pediatricians as the first. Parents perceived pediatricians' screening processes as not comprehensive and often (56.25%) were unaware whether they had administered a standardized screener or assessment. More than half (62%) of parents reported that pediatricians were not involved enough. Although a high percentage (77%) of parents stated they were comfortable or extremely comfortable discussing concerns with their pediatrician, only a low percentage (6.25%) reported seeking out their pediatrician to discuss their concerns about their children's development. The researcher hypothesized that parents might need to feel more knowledgeable and versed in the potential developmental concerns prior to discussing them with pediatricians.

Participants ranked the primary person/source they consulted for learning about their concerns regarding their child's development (Table 2 presents the mean rankings). Upon examination of the rankings, parents ($M = 2.19$) and teachers ($M = 2.50$) were ranked highest, whereas researching the concerns online ($M = 3.69$) or with pediatricians ($M = 3.75$) were ranked lowest. Friends ($M = 3.19$) were ranked in the middle of the five possibilities.

Table 2

Primary Consultant With Whom Parents Discussed Child Development Concerns

Primary consultant	***n***	***M***
Parent	16	2.19
Teacher	16	2.50
Friend	16	3.19
Research concerns online	16	3.69
Pediatrician	16	3.75

Participants responded to Likert-scale items regarding which factors would help them increase awareness and acceptance of potential developmental delays. Education on early intervention (M = 4.07) and access to OT consultation (M = 4.07) tied for the highest mean score, indicating that participants felt these factors were most helpful in increasing awareness and acceptance of potential developmental delays. Access to an education infant/toddler playgroup (M = 3.58) had the lowest mean score. Given that all mean scores were above the neutral response (M > 3.00), participants indicated that each factor was helpful to some degree. Table 3 presents the mean scores for each factor.

Table 3

Factors Most Helpful in Increasing Awareness and Acceptance of Potential Developmental Delays

Factor	***n***	***M***
Education on risk factors	15	3.93
Education on child development	15	4.00
Education on early intervention	15	4.07
Access to standardized screening results	15	3.60
Access to occupational therapy consultation	15	4.07
Access to educational infant/toddler playgroup	15	3.58

In addition, participants responded to Likert-scale items regarding how they believe pediatricians and occupational therapists could better support the early identification of children with developmental differences (Table 4). The factor they rated highest was "provide access to consultation with a developmental specialist" (M = 4.13). The lowest-rated factor was "provide standardized screening result" (M = 3.87). Given that the mean scores were all above the neutral response (M > 3.00), participants indicated that each factor was helpful to some degree.

Table 4

Factors Parents Most Helpful for Pediatricians and Occupational Therapists to Increase Awareness and Acceptance of Potential Developmental Delays

Factor	***n***	***M***
Provide standardized screening result	15	3.87
Provide access to consultation with a developmental specialist	15	4.13
Referral to early intervention	15	3.93
Information about occupational therapy	15	4.07

The *Parent Perceptions with Suspected Developmental Delays Survey* also asked participants to describe perceived experiences narratively. Themes from these experiences are listed in Table 5.

Table 5

Narrative Themes

Theme	Frequency (*n*)
Physicians perceived as nonproactive relative to developmental delays	2
Physicians not viewed as best source for observing children or processing concerns about child's development	3
Physician as dismissive	2
Screening is less comprehensive and generic	6
Screening process is uncommon/infrequent	1

Quantitative and qualitative data revealed that parents would like more education and information on child development to support identification, health, and wellness for their children and themselves. Parents and teachers were ranked as the primary individuals with whom parents consulted when they had concerns about their children's development. Online research ranked third, and pediatricians and friends ranked fourth as ways to seek information about their children's development. Qualitative data revealed that parents did not identify pediatricians as the optimal individuals to identify concerns regarding their children's development.

Together, these findings preliminarily suggested there is value in parents receiving education to understand developmental milestones, measurement of milestones, realistic assessment options with pediatricians, and proactive ways to discuss with the pediatrician how to improve outcomes. Developmental playgroups provide an opportunity for OTPs to observe children and for parents to observe other children's

development and compare them to their own children. Occupational therapists arm parents with revised developmental milestone lists and address the quality, symmetry, or asymmetry of movement versus solely looking at the milestone achievement. Parents receive hands-on experience in ways to adapt the environment to promote development and handle a child to facilitate appropriate movement patterns when needed. Qualitative and quantitative outcomes from this survey helped guide this lead investigator/program designer's development of content and features for future implementation of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative.

Limitations of the Survey Research

Outcomes of the piloted *Parent Perceptions with Suspected Developmental Delays Survey* are limited by the small sample size ($N = 17$) and the convenience and snowball sampling methods. The sample size does not represent a wide range of ethnic, cultural, educational, or socioeconomic criteria. The results may not be the same if calculated for a larger number of participants or randomly sampled from a larger geographical area. However, notable themes in the outcomes indicate areas for future research.

Recommendations from the Study Research

Future research to support the importance of addressing subtle developmental delays to promote optimal development is important to validate the value of providing education, supporting collaboration, and intervening early. Outcomes from the *Parent Perceptions with Suspected Developmental Delays Survey* align with information from

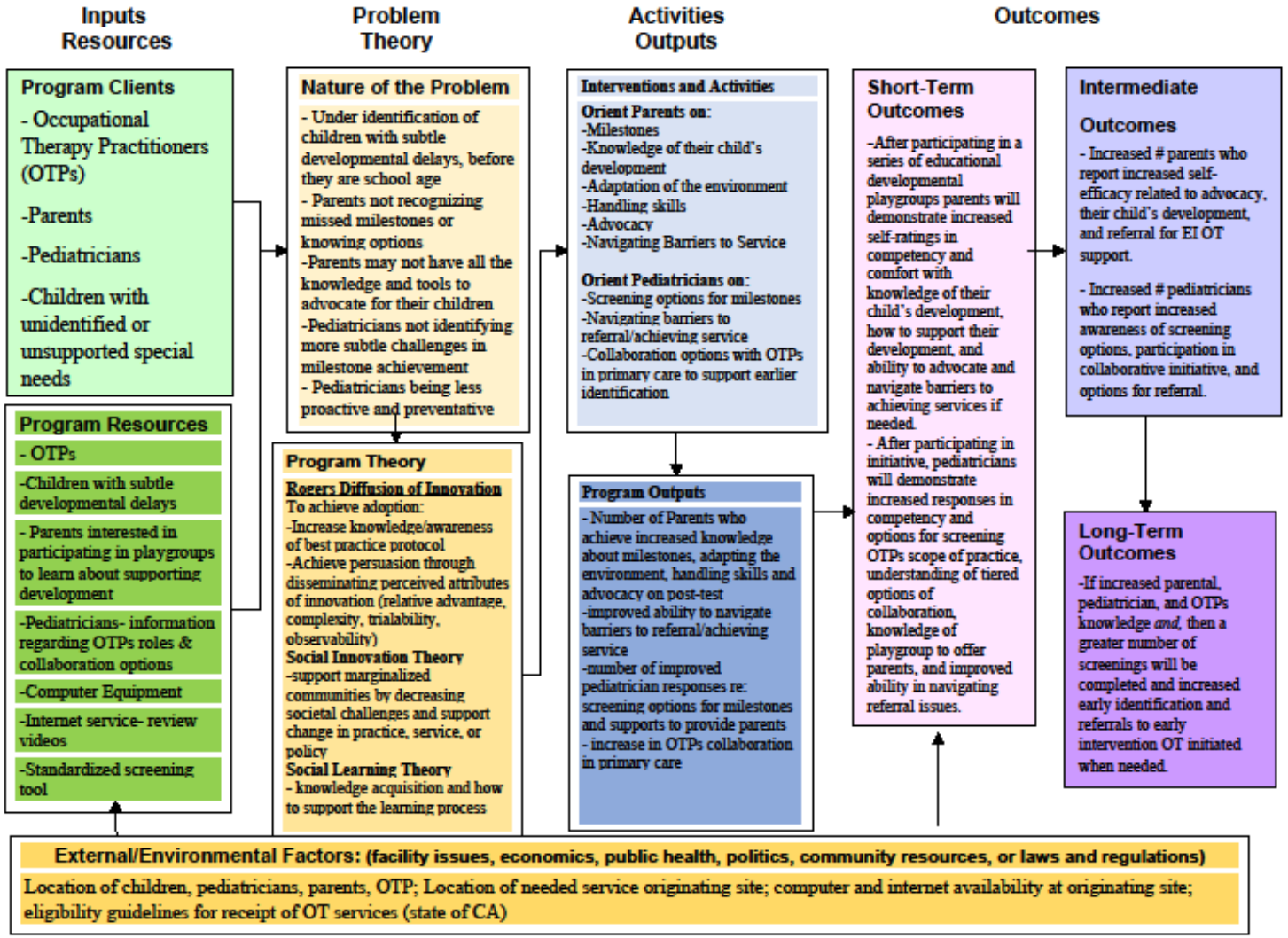
the evidence literature on parental experiences regarding concerns related to suspected subtle developmental milestone achievements or delays. (See Appendix C for an outline of the educational training program.) Additional details of the program logistics and evaluation plan are described in the next section.

Full Logic Model

The logic model (Figure 5) describes the relationship between the program components and the anticipated program resources, activities, and outcomes. The model is fluid and will support implementation and necessary adjustments for success and evaluation efforts.

Figure 5

Logic Model



Participants and Resources

The intended participants of this initiative are parents, pediatricians, OTPs, and children with unidentified or unsupported special needs. Parents' key characteristics include having a child under the age of 3 years and an interest in participating in a developmental playgroup. Pediatricians' key characteristics will be their willingness to participate in the collaborative initiative and professional interest in decreasing the identified gap in the early identification of subtle developmental differences. The OTPs interested in participating in a collaborative initiative to improve early identification through education and collaboration will participate in this through supporting outreach, running the developmental playgroups, and collaborating with pediatricians. The OTPs can educate parents and pediatricians about OT's scope of practice, discuss collaboration options, and demonstrate how OTPs can support the early identification of developmental delays. Parents, pediatricians, OTPs, and children with unidentified or unsupported special needs who are willing to participate in a collaborative initiative are needed to support the growth and development of this initiative. Resources required include standardized screening tools, internet service to review videos submitted by pediatricians and parents, computer equipment, and informational materials to educate pediatricians on the OTPs' roles in primary care and collaboration options.

Intervention and Activities

This initiative will address the problem of underidentifying children with subtle developmental delays before they are school-aged. Parents cannot always recognize missed milestones or subtle differences in milestone achievement and do not always

know the options for supporting their children's development or have the knowledge and tools to advocate for their children. Pediatricians are not consistently identifying more subtle developmental differences and may be less proactive and preventative, which affects the benefits of early intervention. The diffusion of innovation theory, social innovation theory, and social learning theory supported the development of this initiative.

Phase 1 of the initiative, the developmental playgroups, will be provided primarily in person through experiential learning. However, some written materials, pictures, and interactive questions throughout the sessions also will be embedded within the program. Throughout the six sessions, parents will receive individualized information on developmental milestones and learn about their children's development. They will gain skills through observation and experiential learning about setting up and adapting the environment to support their children's development. Specific handling techniques and positioning also will be reviewed. Parents and their children will participate in various sensory-motor play-based activities that promote development. Occupational therapists also will provide parents with information on advocacy and navigating barriers to service.

Phase 2 of the initiative provides pediatricians with screening options for developmental milestones and navigating barriers to referral and service delivery. The OTPs will meet with pediatricians to discuss collaborative options to support earlier identification of more subtle developmental delays.

Program Outputs and Outcomes

When considering the implementation of this initiative, program outputs within Phase 1 may include the number of parents who achieved increased knowledge about milestones, adapting the environment, handling skills, and advocating, as shown on their posttests. Parents will demonstrate an improved ability to navigate barriers to referral and achieve services for their children when needed. Within Phase 2, program outputs may include the number of improved pediatrician responses regarding screening options for milestone achievement and support options to provide parents. Another output would be increased OTP collaboration in primary care, as demonstrated by the number of pediatricians who collaborate with OTPs.

Short-term outcomes from Phase 1 will be measured at the end of the 6-week program. Parents will demonstrate increased self-ratings on competency and comfort with knowledge of their children's development, how to support their development through adapting the environment and handling skills, and their ability to advocate and navigate barriers to achieving services if needed. Short-term outcomes from Phase 2 will be measured by increased responses in pediatricians' knowledge of screening options, increased awareness and understanding of tiered collaboration options, knowledge of playgroups to offer parents, and improved ability to navigate referral issues.

The intermediate outcomes will be measured in Phase 1 as the increased number of parents who report increased self-efficacy related to their children's development, advocacy, and referral to early intervention (EI) OT support when needed. The Phase 2 intermediate outcome will be measured as an increased number of pediatricians who

report increased awareness of screening options, participation in the collaborative initiative, and options for referral to support families and their children. The author is striving for an increase in both outcomes. An overall long-term outcome is an increase in early identification and referral to EI for infants, children, and toddlers with more subtle developmental delays. The author seeks to increase parental, pediatrician, and OTPs knowledge through a collaborative process, leading to a more significant number of completed screenings and then increased referrals to EI OT initiated when needed.

Anticipated Barriers and Challenges

One potential barrier is the cost of OTPs who run the parenting groups. It is essential to keep the implementation cost down to make this initiative accessible to marginalized communities. However, to ensure the program's efficacy, it also is essential to have it run by highly skilled OTPs, who tend to require higher rates of payment to run the groups. Another potential barrier is creating awareness among parents and pediatricians that the group exists. Timing of the group and accessibility due to various time conflicts such as work schedules, feeding schedules, and nap schedules may be another barrier to parents accessing and participating in the groups. Flexibility and open communication with participants to learn what is most important to them are essential to facilitate participation and access. A potential barrier in Phase 2 is finding pediatricians available to begin exploring increasing collaboration with OTPs. It will be essential to find pediatricians who are open to collaborating and learning what OTPs can offer to support their practices' screening process and families.

Summary and Conclusion

The need to improve the early identification of developmental differences before children go to school is evident, and various barriers contribute to this problem. When parents are provided with knowledge and tools to support their child's development, they are empowered to advocate for their children if needs are identified.

Pediatricians are a critical resource available to parents. This initiative proposes that OTPs work with pediatricians to support the screening process, provide consultation to families, and provide information regarding the developmental playgroups. Through this initiative, parents, pediatricians, and OTPs can collaborate to support proactive preventative care to support infants, toddlers, and children's overall development, health, and wellness.

CHAPTER FIVE – Program Evaluation Research Plan

Program Logistics and Stakeholders

The stakeholders of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative include pediatricians, parents, occupational therapy (OT) practitioners (OTPs), and children with unidentified or unsupported special needs. Phase 1 consists of the individualized developmentally appropriate playgroups, Baby Steps, which will be offered for children of various age groups. The author will initially lead them, and then colleagues will lead the groups. Groups will be held once a week for 6 weeks, 50 minutes each session. There will be formative analysis during and at the end of each group through a questionnaire to elicit the group's needs for subsequent sessions. The groups will be held at local parks within the community, outside in families' yards, and at PlaySpace Pediatrics, a pediatric clinic in Los Angeles, California.

Phase 2 will consist of the author piloting the initiative with two to three pediatricians. The author will initially present the initiative to pediatricians via scheduled in-person or Zoom meetings. The meetings will provide information on the identified area of need (the lack of early identification of developmental delays), the proposed program initiative, and options for collaboration levels. A discussion will occur to learn and determine the pediatricians' needs within their practices and communities. Once the provider–therapist collaboration begins, follow-up round table discussions will be conducted to determine what is working and what needs to be adapted.

Professional Implications of the Program

The initial users of the research findings on *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* include pediatricians, parents, children, and occupational therapists. Long-term implications of the program include the increased role of OT in pediatric primary care and increased interdisciplinary care among pediatricians and OTPs to support the health and wellness of children and their families. Potential funding sources and policymakers may consider the benefits of implementing this initiative within marginalized communities to support health literacy, early identification, and early intervention (EI) to reduce disparities experienced within these communities.

Vision for Program Evaluation Research

The vision for the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* evaluation research is to demonstrate the impact and effectiveness of the program in supporting the early identification of developmental delays and empowering parents with knowledge and tools to support their child's development. The data will also be used to inform ongoing program improvement and development. The short-term results from the evaluation may demonstrate that one to two pediatricians participated in increased collaboration with occupational therapists to support increased early identification of subtle developmental differences and that parents increased knowledge to support child development after participation in developmental playgroups. The long-term results from the evaluation may demonstrate increased referrals to EI and increased referral and participation in the

developmental playgroups.

After implementing the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*, the author intends to continue making adjustments based on quantitative and qualitative data results to improve the initiative's effectiveness to support early identification of developmental delays. There is strong evidence that there is underidentification of developmental delays before school age (Broder Fingert et al., 2019; Chödrön et al., 2019). There is also strong evidence linking the importance of early identification and intervention to promote positive outcomes (Ismail, 2017). An extensive systematic review conducted by Broder Fingert et al. (2019) revealed that there needs to be a systems-based innovation to improve access to early screening, diagnosis, and treatment for children. Halle et al. (2018) and Roberts et al. (2020) recognized that OT's holistic approach and perspectives on health and wellness allow occupational therapists to be effective providers and interprofessional team members to support clients, families, and communities within primary care delivery models. Metzler et al. (2012) identified the importance of conceptualizing a comprehensive primary care approach for occupational therapists to be viewed as key members of primary care teams. *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* creates a family-centered, proactive, collaborative approach to support the health and wellness of children and their families.

Short-Term Goals

Short-term goals for parents participating in the playgroup would be that after participating in a series of educational, developmental playgroups, parents will demonstrate increased self-ratings on competency and comfort with knowledge of their children's development, how to support their children's development, and an increased ability to advocate and navigate barriers to achieving services if needed. The short-term goal for Phase 2 will be for one to two pediatricians to agree to try the initiative within their practices.

Long-Term Goals

The long-term goal is for findings to support that collaboration and interdisciplinary care leads to an increased number of children identified with developmental disabilities and referrals to EI or increased referrals to developmental playgroups.

Engagement of Stakeholders

Key stakeholders of this initiative include parents, pediatricians, caregivers, and occupational therapists. An initial survey was distributed to parents and pediatricians to develop the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* That was conducted to understand parents' perceived knowledge of early childhood development, their experiences with early identification of developmental delays, and their thoughts on improving the referral process. The initial study intended to explore the referral and timing of OT EI services to gain further information regarding parents' perspectives on early identification and

referral.

The results of this survey were intended to be utilized to support the development of best practices. Parents were asked whether they agreed to participate in a follow-up interview, which would take approximately 5 to 15 minutes. Survey results indicated that parents recognized gaps in early identification of subtle delays and the potential benefits of a program that supports parents' knowledge of their children's development, how to support their children's development, and available resources. A mixed-method survey including quantitative and qualitative questions will be administered before participation within the individualized developmental playgroup to ensure parents' continued engagement. After each session, a brief formative interview will be conducted to determine adjustments and future goals for the group. Posttests will be administered after six sessions.

Pediatricians also are key stakeholders. This initial research study intended to explore the referral and timing of EI OT services to gain further information regarding pediatrician perspectives on early identification and referral. Questions addressed pediatricians' use of standardized assessments, their experiences with early identification of developmental delays, and their thoughts on ways to improve the identification and referral process. The results of this survey were intended to be utilized to support the development of best practices and incorporate them into the development of *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* The author plans to reach out to one to two pediatricians of current OT clients to offer a joint visit with the family during a well-baby visit. The

author will follow up with a brief 10- to 15-minute Zoom call to inform the pediatricians of the initiative, learn what is vital to their practice, and determine their willingness to participate.

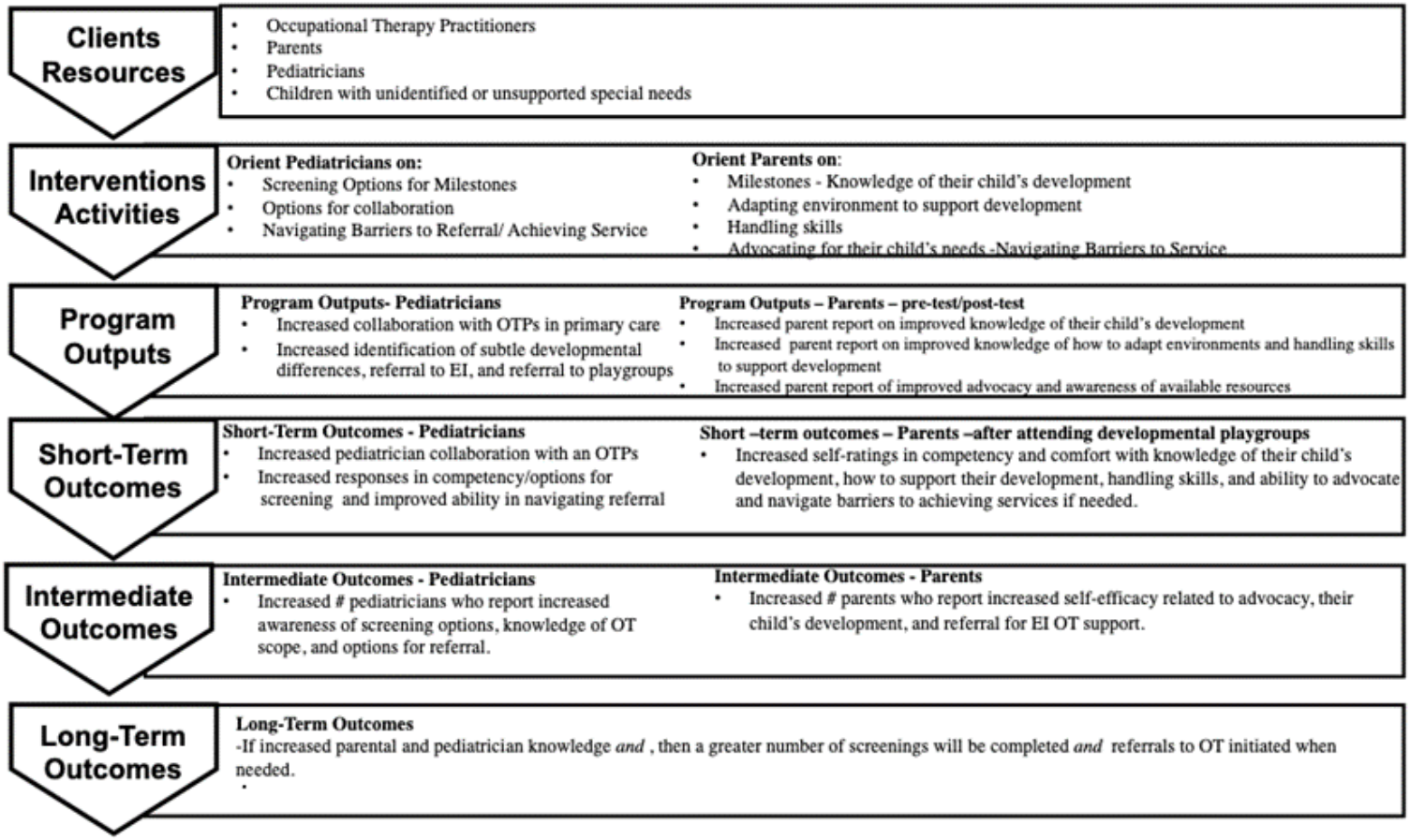
The author is connecting with occupational therapists who work within her private practice. The occupational therapists at PlaySpace are stakeholders interested in participating in the initiative to further their interests and goals in supporting this population. Although they anticipate additional employment opportunities, their primary goal is to support outreach and knowledge to enhance the health and wellness of children and their families.

Simplified Logic Model

The author will present a simplified version of the logic model (Figure 6) to stakeholders to better understand why they should support and implement the initiative. The specific gains vary for each stakeholder; however, they all support the overarching goal of improving the early identification of children to promote optimal health and wellness for children and their families. The simplified logic model provides a visual representation of the outcomes of the implementation of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*.

Figure 6

Simplified Logic Model Demonstrating Connections Among Resources, Activities, and Expected Results



There is a relationship between the program activities and the expected outcomes. The pediatricians are stakeholders who benefit from implementing this initiative because it supports proactive, preventative, family-centered health care. Implementation of this initiative will lead to increased identification of subtle developmental delays, increased referrals, increased awareness of parents' concerns about soft signs, and increased resources to offer families to support the health and wellness of children and their families. Parents also are stakeholders in this initiative. Participation in developmental playgroups will support their increased knowledge of their children's development and how to set up the environment to support their child's sensory, physical, social, and emotional needs and empower them with knowledge and tools to advocate for themselves and their children.

Preliminary Exploration and Confirmatory Process

During initial meetings to introduce the program and proposed evaluation plan, stakeholders will be provided with information about the identified gaps and why the research initiative was developed. This initiative aims to facilitate collaboration between all stakeholders to improve the health and wellness of children and their families. All stakeholders will be made aware that their participation in the initiative, survey results, and qualitative information will be utilized to adjust the current initiative.

The initial meeting with pediatricians will occur via phone call, Zoom meeting, or in-person meeting, depending on the pediatrician's request. Before the meeting, a brief electronic handout will be emailed to the pediatrician to provide background information on *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for*

Infants, Toddlers, and Children, including a short literature review that supports the need for this program, the program's significance, the logic model, and information on the developmental playgroup. Information provided will include current research about the identified gap in the early identification of children with developmental delays and how this gap is disproportionate in marginalized communities.

Although not a universally adopted practice, the author would provide information from the American Academy of Pediatrics regarding the importance of utilizing standardized assessments and screening tools. Barger et al. (2018) conducted a systematic review of Individuals with Disabilities Education Act (2004) Part C (Lipkin & Okamoto, 2015) EI studies and found a need to develop systems to improve the tracking and identification of young children needing EI services. Additional research highlighted OT's role in primary care as part of an interdisciplinary team. I propose that enhanced collaboration between pediatricians and OTPs would assist in the screening and identification process to support the early identification of subtle developmental differences before school age.

The significance of this program is in supporting the shift towards preventative and proactive health care and intervention for all performance areas through increased collaboration between pediatricians, parents, occupational therapists, and improved screenings. There also needs to be improvements in occupational engagement for parents and their children to access developmentally appropriate activities that promote health and wellness. The first meeting aims to develop rapport, review the information sent describing the initiative, and facilitate discussion to learn about the interests and needs

within their practice and how the initiative can be adapted to be most compatible with their practice.

Parents are another critical group of stakeholders. Family engagement is identified as a valuable aspect of early identification. However, there are challenges in having families participate in early screening, diagnosis, and treatment (Broder Fingert et al., 2019). Lack of family engagement is seen more in minority families and families who live within marginalized communities. Information about the playgroup will be disseminated to pediatricians and low-income family community centers and posted on social media. The families will be provided with a brief electronic handout that includes information about the developmental playgroup's goals. A registration form will be emailed to parents who express interest in participating. An open-ended question regarding their goals for participating in the group will be provided on the intake form. A follow-up phone call will be made to confirm enrollment in the group and gather unique personalized information regarding group-participation goals.

Program Evaluation Research Questions by Stakeholder Group

As previously mentioned, the program evaluation will consist of qualitative and quantitative research to gain insight into the needs and benefits of implementing the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative. Research findings will answer questions (Table 6) regarding whether the initiative supports identified outcomes.

Table 6

Types of Research Questions Users Might Ask of the Program Evaluation Data

Stakeholder/ Stakeholder Group	Type of Program Evaluation Research Question
Researcher	**Quantitative:** • Did parents report increased knowledge of their children's development? • Did parents report increased knowledge of how to adapt their environment to support their children's development? • Did implementing *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* lead to increased number of children identified early and referred before school-aged? • Did pediatricians report an increased number of children identified and referred to early intervention (EI) services? • Do pediatricians report increased ease in calming parents' concerns about their child's development by offering participation in developmental playgroups? **Qualitative:** • Was the initiative's content sufficient for participating occupational therapy (OT) practitioners (OTPs), pediatricians, and parents to adopt the program and enhance collaboration and confidence to increase early identification and referral?
OTPs actively involved in program delivery	**Quantitative:** • Did OTPs increase collaboration with parents by facilitating developmental playgroups? • Was the playgroup's proposed length/duration optimal to create change? • Did OTPs increase collaboration with pediatricians? **Qualitative:** • What additional information is needed to more easily implement the playgroups? • What should be changed to improve the playgroup's content and delivery? • What changes can be made to improve collaboration with pediatricians and parents? • How could you improve the way you present information about the program to pediatricians? • How could you increase the number of pediatricians who choose to collaborate in the initiative?

Stakeholder/ Stakeholder Group	Type of Program Evaluation Research Question
Pediatricians	**Quantitative:** • Did pediatricians increase their rate of early identification and referral by adopting the collaborative initiative? • Did pediatricians increase collaboration with OTPs? • Did pediatricians report increased awareness of soft signs reported by parents? • Did pediatricians increase the number of referrals to developmental playgroups when parents expressed concerns about their child's development? • Did pediatricians report it was helpful to have a developmental playgroup resource to offer their patients? **Qualitative:** • What did pediatricians report as most beneficial about collaborating with OTPs to support the developmental screening process? • What did pediatricians report as beneficial in having a resource of developmental playgroups to offer if families had concerns?
Parents	**Quantitative** • Did parents gain knowledge about their children's development consistent with program goals? • Did parents gain knowledge about setting up their environment to support the children's development? • Did parents gain knowledge of how to advocate for their children's needs? • Did parents report increased knowledge of their children's development? • Did parents report increased understanding of OT and OTPs' scope of practice? • Did parents demonstrate increased confidence in setting up their environment to support their children's sensory, physical, social, and emotional development? • Did parents report increased knowledge about resources to support their concerns and confidence to advocate for their child when needed? • Were parents more aware of available resources if they had questions or concerns about their children's development? • Were parents more aware of available resources to support their children's development? **Qualitative:** • How did parents feel participation in developmental playgroups added to their knowledge of their children's development and their abilities to advocate for their needs?

Stakeholder/ Stakeholder Group	Type of Program Evaluation Research Question
Facility, educational institution, or organization administration or management	**Quantitative:** • Did the research results show the intervention implementation led to the desired change in dependent variables (interest, pediatrician identification, referral, and parent knowledge and ability to advocate for the child)? • Did the research data demonstrate how increased collaboration between OTPs and pediatricians improves the quality of care by improving the identification of more subtle developmental differences? • Did research data demonstrate how increased collaboration between parents and OTPs can improve early identification, referral, and health and wellness? • What was the rate of continued participation in the collaborative program? **Qualitative*:*** • How did the presented content of the initiative match (or not) the pediatricians' goals? • What did pediatricians report as positive, neutral, and negative aspects of collaborating with OTPs? • What did pediatricians report as reasons they would not offer the developmental playgroup resource to their families? • Did community centers report any benefits of offering developmental playgroup resources to the community?
Funding agencies, advocacy organizations (including AOTA), policymakers	**Quantitative:** • Did research data show the initiative increased the number of children identified with developmental delays and referred to EI,leading to lowered costs and improved outcomes for children and their families? • Did research data support the benefits and role of OT in pediatric primary care? • Did research data support outcomes of participating in developmental playgroups to community centers to be provided as a resource to all families free of charge to support the health and wellness of children and families? • Did initiative results address the identified gap in early identification, encouraging policymakers to facilitate collaboration and free access to developmental playgroups to support child development and their families? **Qualitative:** • Did child and family advocacy organizations support a collaborative initiative and the importance of providing resources to families within the community? • Did policymakers value the importance of providing resources to families to support their knowledge and tools to support health and wellness? • Did pediatricians report benefits in collaborating with OTPs to support early identification? • Did pediatricians report increased understanding of OT's role in the early identification of developmental delays? • Did pediatricians value providing resources to families to support the parents' knowledge of their child's development?

Research Design and Methods

The study design is a mixed-methods, nonexperimental, single-group design. The author will conduct a summative evaluation to examine the effects of education and collaborative engagement on physician referral and the effectiveness of a playgroup towards parents' knowledge and abilities to set up the environment to support optimal development and advocate for their children. Additionally, the research design will include a formative approach to identify pediatricians' and parents' perspectives on the initiative's effectiveness and benefits in creating a family-centered, proactive, collaborative approach that supports the health and wellness of children and their families.

Formative/Qualitative Design

The formative qualitative design will be initiated at the beginning, middle, and end of the playgroup series to support the development, implementation, and evaluation of *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* Once adoption of the initiative has occurred, a follow-up semistructured interview and survey including open-ended qualitative questions will be used to determine themes that identify what is working, what is not working, and aspects that would enhance the program. A questionnaire with open-ended questions will be administered to gain an understanding of parents' goals for participating in developmental playgroups. The parents' qualitative data will be gathered in person during and at the end of the groups. The surveys, including closed- and open-ended questions, will be completed on a computer utilizing Qualtrics at the beginning of the playgroups

and end of 6 weeks.

Summative/Quantitative Design

The summative survey content will be gathered through pretest and posttests administered to pediatricians and parents before implementing *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children.* Most summative survey data will use ordinal multiple-choice answers to facilitate timely completion and higher response rates. The summative survey data from parents will attempt to identify the effects of participation in the developmental playgroup on parents' perceived knowledge of child development, how to arrange an environment to support development, and confidence to advocate for their children's needs. The summative data from pediatricians will attempt to determine the effects of the collaboration on pediatricians' identification of developmental delays and referrals to EI services or developmental playgroups.

Methods

The author obtained institutional review board (IRB) approval for the initial surveys by completing the mandatory training on human subject protection and received acceptance from the Boston University Research Compliance Department. The survey data will be anonymous. It is intended to provide information from pediatricians and parents regarding their experiences with early identification and referral to EI services. A follow-up IRB submission will be initiated for the additional pre- and posttests administered before and after implementing the collaboration initiative (collaboration with pediatricians and parents' participation in developmental playgroups). Participants

will acknowledge that their participation is voluntary and that the data collected will be confidential. Online surveys conducted through Qualtrics will use nonidentifiable identities and pseudonyms later. When a participant agrees to participate in a follow-up qualitative interview, only the research team will match the nonidentifiable identity to the participant's name. Reports from qualitative data will be reviewed to ensure names are not inadvertently revealed. Participants will complete surveys on their personal laptops. No paper data will be collected. All survey data and audio recordings will be stored on a secured laptop.

Formative/Qualitative Data Collection Methods

There are two aspects of the formative data collection: data collected from parents and data collected from pediatricians.

- Parents will be recruited through advertising and word-of-mouth with current clients and families. Inclusion criteria will be parents with children between 4 and 36 months who expressed interest and registered to participate in the developmental playgroup with their children. Prior to participating in the group, parents will complete an online registration form and pretest survey through Qualtrics. The qualitative questions in the pretest will include "What is your primary goal in participating in this group?" and "Do you have any developmental concerns for your child?" These responses will assist in tailoring the group objectives. The posttest survey will be completed after participation in six 50-minute playgroups over 6 weeks. Posttest qualitative questions will include "Were your goals and concerns addressed within the group?" and "What would you like

included in future groups?"

- Pediatricians will be recruited through shared clients and families. The author will reach out to two to three pediatricians and speak with office staff to set up in-person or Zoom meetings. Before the meeting, information about the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative will be emailed. Inclusion criteria will be a practicing pediatrician willing to participate in research and practices in Los Angeles, CA. After 3 months of implementing the collaboration, the open-ended research question will ask pediatricians through Qualtrics, "In what ways did participation in collaboration increase identification and referral of more subtle developmental delays?" and "In what ways did participation in collaboration and the ability to provide the resources of a developmental playgroup support families who expressed concerns with their child's development?" The measured indicators are pediatricians' awareness of parents' concerns with soft signs, frequency of referral to OT, and frequency of referral to developmental playgroups.

Formative Data Management and Analysis Methods

Data will be compiled and analyzed using Qualtrics. The closed-ended Likert-type questions will be analyzed using descriptive statistics, and the open-ended questions by reading the transcripts to identify common themes. The author will use NVivo software to analyze data from semistructured interviews and open-ended questions. The themes and results will be compared to the outcome hypothesis, and alternative

explanations for the results will be considered. Survey results will be compared to hypothesized findings. The use of triangulation by implementing different forms of research measures will assist in understanding the program performance, help ensure accurate measuring of constructs, and reduce bias. Different researchers will analyze data to reduce potential bias from the author.

Summative/Quantitative Data Collection Methods

All summative data will follow a quasi-experimental format. Summative data will include parents and pediatricians.

- Parents will be given a pretest and posttest survey to assess how participation in Baby Step, the developmental playgroup associated with the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative, increased their knowledge of their children's development and how to adapt the environment to support their children's sensory, physical, social, and emotional development, available resources, and empower them to advocate for their child's needs. The survey will be conducted online through Qualtrics.
    - Independent variables: Participation in the developmental playgroup, Baby Steps, once a week for 6 weeks (50-minute sessions).
    - Dependent variables: (a) knowledge about their children's development; (b) confidence in setting up the environment to support their children's sensory, physical, social, and emotional development; (c) knowledge about available resources to address concerns they may

have about their children's development; and (d) confidence in advocating for their children if needed.

    - Indicators: Dependent variables will be operationalized using results of the pretest and posttest 5-point (1–5) Likert scale assessing parents' perceived knowledge of their children's development; confidence in setting up the environment to support their child's sensory, physical, social, and emotional development; knowledge about available resources to address concerns they may have about their children's development; and confidence in advocating for their children if needed.

- Pediatricians will be given a pretest and posttest survey to assess how participation in the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative increased their awareness of subtle developmental differences, soft signs of parents' concerns, and increased resource and referral options to provide resources to families who express concern about their children's development. The survey will be conducted online.
    - Independent variable: The independent variable is the implementation of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative, which includes the ability to consult with occupational therapists, refer to an occupational therapist, or refer parents who express concerns to

participate in the developmental playgroup.

- Dependent variables: (a) awareness of soft signs presented by parents, and the author will ask to count the (b) number of referrals to EI, (c) number of referrals to OT, and (d) number of referrals to developmental playgroups
- Indicators: Dependent variables will be operationalized using results of the pretest and posttest 5-point (1–5) Likert scale assessing their perceived awareness of soft signs, number of referrals to EI, number of referrals to OT, and number of referrals to developmental playgroups to support parents who expressed concerns about their children's development.

Methods for Summative Data Management and Analysis

Data will be collected through online surveys using Qualtrics. Initial results and pretest and posttest data analysis will be completed using descriptive and inferential statistics. Statistical analysis will assist in establishing a degree of causality of implementation of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative on the dependent variables for pediatricians and parents.

Anticipated Strengths and Limitations

In conclusion, this innovation provides education and collaboration among parents, pediatricians, and occupational therapists. A strength of this program is that it provides parents with an opportunity to participate in programming that addresses an area

of identified need, increasing knowledge to support child development. A strength of the program is its individualization, which occurs through an initial intake survey conveniently provided on intake forms. Ongoing adaptation and individualization of the program occur at the beginning, during, and end of the group as OTPs informally assess their needs for subsequent sessions.

By participating in individualized educational developmental playgroups led by OTPs, parents will learn about child development, tools to promote development, and confidence to advocate and discuss concerns with pediatricians. Pediatricians will increase collaboration with OTPs and be aware of an evidenced-based developmental playgroup to support the identification of subtle developmental differences to promote optimal health and development. Another noted strength of this initiative is that it engages multiple stakeholders: This initiative is valuable to parents, pediatricians, OTPs, and children.

A noted limitation within Phase 1 of this initiative in the initial findings from the *Parent Perceptions with Suspected Developmental Delays Survey* is the small sample size. However, it reveals themes that warrant further research. It is essential to gain insight into moderators of the problem to improve the early identification of more subtle developmental differences. Another limitation of this sample is that it is not representative of marginalized communities. A challenge and limitation of Phase 2 is finding pediatricians willing to complete the surveys and increase collaboration with occupational therapists.

CHAPTER SIX – Dissemination Plan

Early intervention (EI) is most effective in promoting positive outcomes and remediating deficits (Little et al., 2015, Shahidullah et al., 2020). McManus et al. (2019) found that children with less severe disabilities were less likely to receive EI services. There is a gap in the identification and support of children with more subtle developmental differences before entering school (Chödrön et al., 2019). This gap can have long-term effects on a child's health and wellbeing. *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* focuses on proactive, preventative, transdisciplinary health care. This initiative aims at enhancing early identification by providing education and facilitating collaboration among parents, caregivers, pediatricians, and occupational therapists. Phase 1 of the initiative focuses on individualized, developmentally appropriate playgroups that provide parents with the knowledge to actively support their children's development and tools to advocate for their children's health and wellness. Phase 2 aims to give pediatricians options to enhance collaboration with occupational therapists to increase the identification of developmental delays and provide additional available resources to provide families. The overall goal of this initiative is to increase collaboration to improve identification, health, and milestone achievement for infants, toddlers, and children.

Dissemination Goals

Phase 1: Developmentally Appropriate Playgroups

- Long-term goal: The initiative will increase parental knowledge and increase pediatrician screenings and referrals to EI when needed.

- Short-term goal: Participation in the group will increase parents' self-ratings of competency and comfort with knowledge of their children's development.
- Short-term goal: Participation in the group will increase parents' confidence in setting up the environment to support their children's sensory, physical, social, and emotional development.
- Short-term goal: Participation in the group will assist parents in learning basic handling skills to promote optimal development.
- Short-term goal: Participation in the group will lead to parents' increased knowledge about available resources to address concerns they may have about their children's development.
- Short-term goal: Participation in the group will increase parents' confidence in advocating for their children if needed.

Target Audiences

Primary Audiences

The primary audience for disseminating information on the program's evaluation results will be parents and caregivers of infants, toddlers, and children. Parents will assess the effectiveness of participating in the group and share experiences with other parents, caregivers, and pediatricians. The goal is to increase parental knowledge of child development, developmental differences, environmental adaptations, and advocacy to support optimal development, health, and wellness for infants, toddlers, and children.

Secondary Audiences

Secondary audiences for disseminating information on the program evaluation results include pediatricians, occupational therapy (OT) practitioners (OTPs), other allied health professionals, and community centers.

Pediatricians may assess the evidence-based literature and then recommend parents and caregivers who may benefit from additional knowledge and support. They can make recommendations to families whose children have risk factors for developmental delays. Occupational therapy practitioners may assess the evidence-based literature and evaluation results and provide programming to support accessibility to parents and caregivers participating in specialized developmental playgroups that proactively facilitate collaboration to support identification, health, and milestone achievement for infants, toddlers, and children. Community centers may assess the evidence and support implementation and programming within their centers to increase access to evidence-based programming within marginalized communities. Participation will promote knowledge, proactive identification, and support to parents and caregivers to facilitate optimal developmental outcomes, health, and wellness for infants, toddlers, and children.

Spreading the Key Messages to Influential Stakeholders

Primary Audience: Parents and Caregivers

Key Message 1

Participation in developmental playgroups designed by the initiative *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants,*

Toddlers, and Children will provide parents with increased knowledge of their children's development and ways to support their development through environmental modifications and handling techniques to promote optimal outcomes for all children, especially those with subtle developmental differences.

Key Message 2

Parents and caregivers will have access to an occupational therapist who will provide education on available resources to address concerns about their children's development, increasing their confidence in proactively advocating for their children's health and wellness.

Secondary Audience: Pediatricians, Occupational Therapy Practitioners, and Community Centers

Key Message 1

Pediatricians will provide parents and caregivers recommendations for an evidence-based program that proactively provides education and experiential activities to promote development, health, and milestone achievement for infants, toddlers, and children.

Key Message 2

By providing developmental playgroups designed by PlaySpace: Collaboration *for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children,* occupational therapists will support the early identification of more subtle developmental differences and provide parents and caregivers with an evidenced-based

program that educates them about child development, ways to adapt the environment, handling techniques, and advocacy to ensure optimal outcomes.

Key Message 3

Community centers can provide evidence-based programming for marginalized populations. Parents and caregivers will have access to trained occupational therapists who will support the proactive identification of subtle developmental differences. Occupational therapists will educate them on child development, environmental modification, handling techniques, available resources, and tools to advocate for their child to support optimal outcomes.

Sources/Messengers

For Parents

First 5 Los Angeles, part of the First 5 California Children and Families Act, is a nonprofit child-advocacy organization that provides resources to families. First 5 Los Angeles is a respected, established organization to disseminate information about the program. Donna Holloran, MSW, child development specialist, and owner of Baby Group, is well respected in the Los Angeles community. As an advocate for proactive parenting, Donna Holloran is valuable in disseminating the developmental playgroup, BabySteps. Dr. Marilyn Price-Mitchell founded *Roots of Action* in 2011 to support parents, schools, and communities to nurture positive youth development. As an innovative leader who promotes evidence-based programming, she would be valuable in disseminating information about the program.

For Pediatricians

The American Academy of Pediatrics is a credible source to disseminate evidence-based programming to support parent and caregiver knowledge, increase early identification of subtle development differences, and provide tools to advocate for the proactive, optimal development of infants, toddlers, and children. Positive feedback from parents who participate in the developmental groups designed by *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* also can assist pediatricians in disseminating information about the program to others within the community.

For Occupational Therapists.

Occupational therapists look to the American Occupational Therapy Association (AOTA), American Journal of Occupational Therapy, and World Federation of Occupational Therapists to gain reputable information on programming and best practices. These sources would be ideal spokespersons for disseminating program evaluation results to the community of OTPs to support the program's implementation.

For Community Centers

The Center on the Developing Child at Harvard University is a comprehensive resource that provides scientific information accessible to a wide range of readers. The Center disseminates information on early child development, parenting, and proactive health and wellness through science-driven innovations, current research information, and global collaboration.

Dissemination Activities

Person-to-Person Contact

Participation in Professional and Community Presentations. Information regarding *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* and the results of parent participation within the playgroup will be presented at national conferences and locally, at parenting groups and community centers. A poster and PowerPoint presentation will review current research evidence. There will be a review of how participation in occupational-therapist-led developmental playgroups improves the identification of subtle developmental differences. Parents are given tools to advocate for optimal developmental outcomes by proactively enhancing parent knowledge of developmental milestones, adapting the environment to support development, and handling techniques.

Face-to-Face Interactions. Outreach will be provided to parenting groups, pediatricians, community groups, and OTPs in an informal meeting to provide information about *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* to improve early identification of more subtle developmental differences. A brief handout with an infographic (Appendix D) will be provided, listing key findings to facilitate the dissemination of implementation and participation in the program to support proactive identification, health, and milestone achievement for infants, toddlers, and children.

Electronic Media

Social Media. Occupational therapy connections via AOTA, other OT groups, Facebook pediatric groups, Facebook parenting groups, YouTube, LinkedIn, and Instagram will be utilized to disseminate information and initiate conversations about the developmental playgroup. Conversation threads on Facebook, LinkedIn, and Instagram will lead to discussions that will bring awareness of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative, promoting early identification, health, and wellness.

Summary Sheet of Findings with Infographic. Relevant research on the gap in early identification of developmental differences, the importance of EI, and the role of parent education on development will be provided. Evidence from Phase 1 of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative supports that participation in occupational-therapist-led developmental playgroups improves the identification of subtle developmental differences and facilitates advocacy by educating parents and caregivers about developmental milestones, adapting the environment, and handling techniques to proactively support optimal developmental outcomes.

Podcasts. The author will create a podcast that will provide an overview of the current research, outcome measures, and goals and objectives of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative.

Budget

The dissemination activities require primarily the author's time to prepare. The financial implications include travel to and from and lodging during conferences for the Occupational Therapy Association of California and the AOTA.

Dissemination Plan Expenses

Table 7 lists planned dissemination expenses for Years 1 and 2 by the categories described in the previous section.

Table 7

First- and Second-Year Dissemination Plan to Target Audience of Parents, Pediatricians, and Occupational Therapy Practitioners

Category	Item	Year 1 cost	Year 2 cost
Participation in professional presentations	Present research/findings at local/national conferences Travel, lodging	COTA $319	AOTA $450 600
Participation in community presentations	Present research, goals, objectives, results of developmental playgroups	0	0
Face-to-face interactions	Informal meetings to provide key points and research findings	0	0
Social media	AOTA, OT groups, Facebook pediatric / parenting groups, LinkedIn, Instagram	0	0
Summary sheet/ infographic	Resource brochure outlining current research on initiative	0	0
Podcasts	Overview of current research, outcome measures, program goals and objectives	0	0
		$319	$1,050

Note. AOTA, American Occupational Therapy Association; COTA, California Occupational Therapy Association; OT, occupational therapy; OTP, occupational therapy practitioner.

Evaluation

Evaluation of the dissemination efforts will come from multiple sources according to the dissemination category:

- *Participation in professional conferences* will be measured by feedback from attendees.
- *Participation in community presentations* will be measured as an increase in the number of community centers that provide access to and implement playgroups designed by *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* and by an increase in the number of referrals from pediatricians those playgroups.
- For *face-to-face contact*, the number of informal meetings held to disseminate information to parents, pediatricians, occupational therapists, and community centers will be tracked. Another indication could be increased interest in attending meetings to disseminate information.
- For *social media*, the number of subscribers and views of outlined information will be evaluated.
- The *summary sheet of findings/infographic* will be evaluated by tracking the number of times the information is shared.
- The number of times the *podcast* is accessed will assist in tracking the effectiveness of dissemination, as will the number and types of comments from listeners or viewers.

Conclusion

Dissemination is essential to the development and growth of a program. This chapter outlined a 2-year plan for sharing *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* to improve the early identification of subtle developmental differences. The dissemination plan aims to increase awareness and implementation of this developmental playgroup to support early parental knowledge and identification of subtle developmental differences.

CHAPTER SEVEN – Funding Plan

Program Description

Early identification and early intervention (EI) are critical to support the optimal development of children who have or are at risk for developmental delays (American Academy of Pediatrics [AAP] Committee on Children with Disabilities, 2020). Bick and Nelson (2017) found that the timing of intervention affects its effectiveness, with more significant remediation seen in children who receive intervention earlier. Chödrön et al. (2019) found that children are often underidentified before entering school. The early identification and intervention services gap is disproportionately observed within marginalized communities. McKee et al. (2021) found that improving parenting knowledge and practices promote positive child development. Research findings support the importance of innovative programs that enhance learning, participation, and collaboration with parents about developmental milestones, ways to support development through handling and adapting the environment, and strategies to pursue and advocate for needed support if there are concerns about milestones achievement.

The author's initiative, *PlaySpace: Collaboration for Health and Milestone Achievement for Infants, Toddlers, and Children*, is developed to enhance proactive, preventative, transdisciplinary health and wellness for infants, children, and families through increasing collaboration among pediatricians, parents, caregivers, and occupational therapy practitioners (OTPs) to improve early identification of subtle developmental differences before school age. Phase 1 of this project utilizes evidence-based guidelines and strategies to facilitate an OTP-led parent/child playgroup. The

author aims to increase parental knowledge of developmental milestones and their ability to advocate for their children's overall health and wellness.

Funding Plan Introduction

The funding plan includes available and needed resources. It provides a general list of equipment and materials required to implement and disseminate the program. Additionally, there is a list of potential funding sources to assist in implementing and disseminating the program.

Available Local Resources

A variety of local resources will assist in implementing and disseminating this program. Occupational therapy student volunteers working on their master's and doctoral degrees will be recruited to help with outreach to the community and utilize research and information to create resources for parents and caregivers. The OT student volunteers also will assist with outreach to local community centers and hospitals to make them aware of our program. Some skilled occupational therapists may implement the program for lower pay rates if they are aware the program will be provided at a reduced rate to assist with access for families who live within marginalized communities. An OTP employed by PlaySpace who is familiar with web design will help set up the website at a reduced administrative rate. This individual also can assist with marketing and creating a fundraising program to provide services at a reduced rate.

Needed Resources

Program Implementation Cost

Tables 8 and 9 summarize the budget for the program playgroups.

Table 8

Budget Items for Supplies Needed for Playgroups

Item/ Activity	Expendable (E)/ Nonexpendable (N)	Link	Year 1 Expense	Year 2 Expense
Bayley screener/full evaluation tool	Kit (N) Forms (E), 50	Bayley	$366.20	$97.20
SPM-P	Manual (N), 25 forms Forms (E), 75 Forms (E), 50	SPM-P 2	309.00 75.00	 150.00
Outdoor mat[a]	(N)	Outdoor mat	15.00	0
Bouncy balls, medium[b]	(E) and/or (N) 12 balls 6 replacement	Bouncy Balls	 32.00	 16.00
Ball bag carrier	(N)	https://tinyurl.com/8szrypyz	16.99	0
Weighted balls	(N)	https://tinyurl.com/3xd2pzn2	10.99	0
Pop tubes	(N)	https://tinyurl.com/2p8kbzxw	5.99	5.99
Blanket	(N)	https://tinyurl.com/e92v6see	15.98	0
Floor chairs	(N), 7 @ $61.68	https://tinyurl.com/5n7ju4bs	431.76	0
Baby doll	(N)	https://tinyurl.com/bdzzcrrf https://tinyurl.com/2p9h2nk3	79.00 22.94	0 0
Large trays	(N)	https://tinyurl.com/n69nb8rt	26.13	0

Item/ Activity	Expendable (E)/ Nonexpendable (N)	Link	Year 1 Expense	Year 2 Expense
Ball rattle	(N)	https://tinyurl.com/ym2j3f6c	8.99	0
Water floor mat	(N)	https://tinyurl.com/2rydc32x	15.97	0
Portable speaker	(N)	https://tinyurl.com/yxx5y9fj	29.99	0
Portable ball pit	(N)	https://tinyurl.com/4h3zj9d7	19.99	0
Bubble gun	(N)	https://tinyurl.com/5dyfkm2j https://tinyurl.com/mr3u9ket	21.99 17.49	 17.49
Soft stacking blocks	(N)	https://tinyurl.com/mpj3zbfz	19.99	0
Musical instruments	(N)	https://tinyurl.com/2p8f67af	29.99	0
Cause-and-effect toys and manipulatives	(N)	https://tinyurl.com/2ynrv8pr https://tinyurl.com/2mkunjdy https://tinyurl.com/2p9x7w83	25.95 24.99 29.99	0 0 0
Soft zone climbing	(N)	https://tinyurl.com/4fum93zc	206.69	0
Handouts	(E), $10 per group series	Printed at clinic	180.00	180.00
Program supplies, total costs			**$2,039.00**	**$466.68**

Note. [a]Mat protects surface, allows messy play, easily washed; [b]teaches parents positioning/play activities to provide vestibular and tactile input, strengthening activities for infants/toddlers); [c] allow parents to keep the balls and bring them to each class and as gift to them at program start.

Table 9

Additional Budget Items and Total Implementation Costs

Additional item	Justification	Year 1	Year 2
Personnel	**6 groups per year** 1 OTP + 1 volunteer Two 6-week series (1 hr/session) each at 2–6 months, 7–14 months, and 15–24 months = 18 hours @ $70 an hour	$1,260.00	$1,260.00
Consultants	Supervisor OTP to ensure continued program integrity, review intake screeners Minimum 1 hr/ 6-week series @ $100/hr	600.00	600.00
Instruction	Training: Provided free of cost	0	0
Communication	OT student volunteers create communication flyers regarding concepts/pictures from the group	0	0
Materials preparation	Create handouts that can be given to parents as a resource reviewing developmental concepts	150.00	0
Evaluation	Initial screening (Bayley and Sensory Profile): Student volunteers conduct and score	0	0
	OTR/L to review/consult $100/hr at the start of each of the six 6-week series	600.00	600.00
Total program budget costs. additional items		**$2,610.00**	**$2,460.00**
Dissemination costs (Table 7)		**319.00**	**1,050.00**
Supplies cost (Table 8)		**2,039.00**	**466.68**
Total annual costs, Years 1 and 2		**$4,968.00**	**$3,976.68**
Total costs for both years		**$8,944.68**	

Potential Funding

Potential funding sources are listed in Table 10.

Table 10

Potential Funding Sources: Grants

Funding	Funding source and description
Dr. Gary Kielhofner Doctoral Research Scholarship in Occupational Therapy	**Support**: $5000 **Deadline:** Sept. 1, 2022 **Requirements:** • Be an occupational therapist enrolled in a research doctoral program (PhD, ScD, DrPH, and other doctoral research degrees will be considered) • Completed all department and institutional coursework requirements (writing and defense of the dissertation-exempted) • The dissertation research plan was approved by a faculty committee at their institution • Have institutional review board approval at the time of completing the application • Scholarship funds during their time as a doctoral candidate/student without carryover thereafter (if awarded)
American Occupational Therapy Foundation **"**Implementation Research Grant**"**	**Support**: Option 2: $50,000 for 1 year **Deadline:** 2022/2023 dates to be determined **Requirements:** Implementation of an evidence-based program into a practice setting
Community Grants	**Support:** Unspecified **Deadline:** Unspecified **Requirements:** Implementation of evidence-based programs to support child development
Go Fund Me	**Support:** Unspecified **Deadline:** Unspecified **Requirements:** Donations will depend on individuals' interest and ability to donate to the initiative

Summary

Early brain neuroplasticity allows increased opportunities to support and enhance development. Research by McManus et al. (2019) supported the positive impact of earlier intervention with greater intensity. Historically, subtle developmental differences are underidentified before children enter school (Chödrön, 2019). Demaster et al. (2018) found that early childhood programs support improvements in preterm infants' cognitive, language, and emotional outcomes. Occupational therapists take a holistic approach, which has a role in primary care to facilitate proactive, preventative care empowering children and families to promote wellness (Dahl-Popolizio et al., 2016). Occupational-therapy-practitioner-led parent–infant playgroups can support positive outcomes. The initial cost of equipment and materials is offset upon subsequent program implementations. The program's overall effectiveness to increase parent/caregiver knowledge about milestone achievement and how to position and adapt the environment to support optimal development will assist in reducing the potential need for intervention later in development.

Conclusion

Early identification and EI significantly affect children's and their families' overall health and wellness. Occupational therapists play an essential role in supporting the early identification of developmental differences. The author proposes providing parents and caregivers the opportunity to participate in developmental playgroups that provide education about milestone achievement, ways to support development, and tools to advocate for their children. The author of *PlaySpace: Collaboration for Health and*

Milestone Achievement will pursue funding sources to support the dissemination and implementation of this program within marginalized communities.

CHAPTER EIGHT – Conclusion

Knowledge about neuroplasticity and the benefits of early identification and intervention is supported by extensive research (Bright et al., 2019; Demaster, 2018; Jimenez et al., 2017; Stoppler, 2018). Although research supports the importance of early intervention (EI), children often are underidentified before they are school-aged (Chödrön et al., 2019; Elansary et al., 2020; Jimenez et al., 2017). This gap in identifying children is seen exponentially within marginalized communities (Rowe et al., 2015).

Various barriers contribute to the problem. Decreased knowledge of child development, risk factors, and how to access EI services contributes to the underidentification of developmental delays. Although the American Academy of Pediatrics validated the importance of early identification and standardized screening tools, these are not universally accepted, contributing to the gap in early identification. Research supported the need to improve systems to identify children who may need EI services (Barger et al., 2018). The role of occupational therapy practitioners (OTPs) in primary care is often underutilized, misunderstood, and overlooked (American Occupational Therapy Association [AOTA], 2014; Donnelley et al., 2013, 2014). There needs to be increased awareness and responsibility of OTPs to advocate and support the early identification of developmental delays in infants, toddlers, and children.

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children is an initiative developed to facilitate and enhance collaboration among parents, pediatricians, and OTPs to improve the early identification of developmental delays. The development of this initiative was guided by the diffusion

of innovation, social innovation, and social learning theories. There are two phases of the initiative. Phase 1 consists of a developmental playgroup, and Phase 2 consists of a collaboration initiative between OTPs and pediatricians.

A systematic, mixed-methods, institutional-review-board-approved survey of parents who had concerns about their children's development was conducted to gain knowledge about parents' experiences to assist in the development of the program. Results revealed that parents perceived pediatricians as not involved enough and not as primary identifiers of suspected delays. Although a high percentage of parents stated they were comfortable speaking with their pediatricians, an extremely low percentage reported seeking out their pediatrician to discuss their concerns. The researcher hypothesized that parents might need to feel more knowledgeable about their children's development to feel empowered to advocate their concerns to their pediatrician. Quantitative and qualitative data revealed that parents were interested in learning more about child development to support identification, health, and wellness for their children and themselves.

Parents' knowledge, skills, and confidence can be positively affected when they participate in parenting groups (Guralnick, 2017; Hooge et al., 2014; Jeong et al., 2018; McKee et al., 2021; Raspa et al., 2015). Research linked child brain development to parenting quality. Therefore, intervening early to enhance parenting knowledge and skills may improve neurodevelopmental outcomes in children (Demaster, 2018). Parenting groups, led by skilled providers, empower parents to support their children's physical, social, and emotional health (Demanster, 2018; Morris et al., 2020). The parenting groups designed by *PlaySpace: Collaboration for Identification, Health, and Milestone*

Achievement for Infants, Toddlers, and Children provide parents with information on and individualized experiences that support development and knowledge of how to adapt the environment and empower parents to advocate for their children's needs.

Occupational therapy has a role in primary care (AOTA, 2014; Donnelley et al., 2013, 2014). Phase 2 of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative aims to increase collaboration between OTPs and pediatricians. The OTPs can collaborate with pediatricians on their screening process, provide parents within their practice with support, and increase their knowledge on evidence-based programs they can share with their families.

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children is an innovative approach to improving the early identification of more subtle developmental delays. By facilitating collaboration and exchanging knowledge, parents, pediatricians, and OTPs can work together to support optimal health and wellness for infants, toddlers, children, and their families. Ultimately, the goal of the *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* initiative is to be accessible and implemented within marginalized communities to reduce health disparities and support early identification of developmental differences before children start school.

APPENDIX A – Parent Survey Questions

Parent Perceptions with Suspected Developmental Delays Survey

Phase 1: Parent Survey

1. **In your experience, who was the first person to identify a potential delay in your child's development?**
    - You
    - Pediatrician
    - Family member
    - Friend
    - School/Daycare staff
2. **If you suspected a delay in your child's development, did you discuss your concerns with your pediatrician?**
    - Yes
    - No
3. **Based on your experience, please rate your pediatrician's response to your concerns. (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)**

____Validated your concerns about a delay or developmental difference

_____Attempted to calm your fears and concerns

_____Recommended to wait and see to re-evaluate concerns in 2–3 months

_____Other (Please elaborate below)

4. **Please describe your child's pediatrician's role in identifying more subtle delays in your child's development.**
    - Not involved enough
    - Just right
    - Too involved

- Other (Please describe)

5. **Please rank who you primarily speak with when discussing concerns regarding your child's development. (Click and drag your top choice to the number one location at the top of the list.)**
    - Parent
    - Pediatrician
    - Friend
    - Teacher
    - Research concerns online
    - Other (please describe)
6. **Please describe your level of comfort sharing concerns with your pediatrician.**
    - Extremely comfortable
    - Somewhat comfortable
    - Neither comfortable nor uncomfortable
    - Somewhat uncomfortable
    - Extremely uncomfortable

Please elaborate on your answer below.

7. **If you suspected a delay in your child's development, did you discuss your concerns with your pediatrician?**
    - Yes
    - No
8. **Based on your experience, please rate your pediatrician's response to your concerns? (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)**

_____Validated your concerns about a delay or developmental difference

_____Attempted to calm your fears and concerns

_____Recommended to wait and see to reevaluate concerns in 2–3 months

_____Other (Please elaborate below**)**

9. **Please describe your child's pediatrician's role in identifying more subtle delays in your child's development**
    - Not involved enough
    - Just right
    - Too involved
    - Other (Please describe)
10. **Please rank who you primarily speak with when discussing concerns regarding your child's development. (Click and drag your top choice to the number one location at the top of the list.)**
    - Parent
    - Pediatrician
    - Friend
    - Teacher
    - Research concerns online
    - Other (please describe)

11. **Please describe your level of comfort sharing concerns with your pediatrician.**
    - Extremely comfortable
    - Somewhat comfortable
    - Neither comfortable nor uncomfortable
    - Somewhat uncomfortable
    - Extremely uncomfortable

    Please elaborate on your answer below.

12. Please rate the following statement: My child's pediatrician has a very comprehensive screening process that I complete before my child's appointment

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Please elaborate on your answer below.

13. Did your pediatrician ever administer a standardized screening assessment on your child?

- Yes
- Unsure
- No

14. Please rate the degree to which you agree or disagree with the following statements. (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)

__Fear was a significant barrier to seeking early intervention support for my child.

__Denial was a significant barrier to seeking early intervention support for my child.

__Stigma was a significant barrier to seeking early intervention support for my child.

__Guilt was a significant barrier to seeking early intervention support for my child.

__Financial resources were a significant barrier to seeking early intervention support for my child.

__Lack of referral process information was a significant barrier to seeking early intervention support for my child.

__A belief system that child will grow out of it and/or catch up was a significant barrier to seeking early intervention support for my child.

Other (Please elaborate below)

15. Please identify any barriers you experienced in pursuing support that your child may benefit from early intervention support. (1 being the least significant barrier, and 5 being the most significant barrier)

__Fear

__Denial

__Stigma

__Guilt about your role in your child's developmental differences

__Financial implications

__Challenges understanding the process; not knowing where to go for help

__A belief system that they will grow out of it and/or catch up

__Resistant to a label

__Other (Please elaborate below)

16. Please rate the following statement: Fear and/or denial impacted my decision to seek out additional support for my child

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

17. What do you believe would help parents in increasing awareness and acceptance of potential developmental delays? (1 being the least helpful, and 5 being the most helpful)

__Education about risk factors

__Education on child development

__Education on early intervention

__Access to standardized screening results

__Access to occupational therapy consultation

__Access to an educational infant/toddler playgroup

__Other (Please elaborate below)

18. What do you believe would help parents increase acceptance of potential developmental delays? (1 being the least helpful, and 5 being the most helpful)

__Education about risk factors

__Education on child development

__Education on early intervention

__Access to standardized screening results

__Access to occupational therapy consultation

__Access to an educational infant/toddler playgroup

__Other (Please elaborate below

19. Please rate this statement: Before receiving a referral to occupational therapy, I was familiar with occupational therapy and the areas addressed by occupational therapy.

- Strongly agree
- Somewhat agree
- Somewhat disagree

- Strongly disagree

20. In your experience, how do you believe pediatricians and occupational therapists can better support early identification of children with developmental differences? (1 being the least helpful and 5 being the most helpful)

__Provide standardized screening results

__Provide access to consultation with a developmental specialist

__Referral

__Information about Occupational Therapy

__Other (Please elaborate below)

21. What is your ethnicity; what race/s do you identify with?

- Two or more ethnicities
- Black or African-American
- White
- Hispanic or Latino
- Native American or American Indian
- Alaskan Native
- Middle Eastern/Arabic
- Asian
- Native Hawaiian or other Pacific Islander
- Some other race (please specify)

22. What is the annual income range of your household?

- Under $25,000
- $25,000 – $50,000
- $50,001 – $100,000
- $100,001 – $250,000

- $250,001 – $500,000
- $500,001 – $1,000,000
- Above $1 million
- Prefer not to answer

23. Would you be willing to participate in a brief follow-up interview?

- Yes
- No

24. If yes, please provide your email address with no additional identifying information.

APPENDIX B – Pediatrician Survey Questions

Pediatrician Survey on Perception of Methods of Identifying Developmental Delays

Phase 2: Pediatrician Survey

1. **Do you use standardized screening tools to identify whether developmental milestones have been reached?**
    - Always standardized
    - Most of the time standardized
    - About half the time standardized
    - Sometimes standardized
    - Never standardized
2. **If you use standardized tools, which tool(s) do you use?**
    - Ages and Stages Questionnaire (ASQ-3)
    - Ages and Stages Questionnaire: Social-Emotional (ASQ-SE-2)
    - Bayley Scales of Infant Development
    - BITSEA
    - Communication and Symbolic Behavior Scales - Developmental Profile
    - Early Childhood Screening Assessment (ECSA)
    - Income, Transportation, Housing, Education, Legal Status, Literacy, and Personal Safety (IHELLP)
    - Modified Checklist for Autism in Toddlers (M-CHAT-R/F)
    - Parents' Evaluation of Developmental Status (PEDS)
    - Parents' Evaluation of Developmental Status- Developmental Milestones (PEDS-DM)
    - Patient Health Questionnaire-9 (PHQ-9)
    - Pediatric Symptom Checklist (Baby & Preschool)
    - Strengths & Difficulties Questionnaire
    - Survey of Wellbeing of Young Children
    - Other (Please elaborate below)

3. **If you do not consistently use standardized screening tools, please rate the significance of each barrier in relation to the decision not to use standardized tools. (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)**

__Barriers to utilizing standardized screeners

__Administration time required

__Scoring time required

__Financial barriers

__Parent resistance to completing paperwork

__Inefficiency of tools

__Not practical considering the low frequency of parent expressed developmental concerns

__Training required for standardized tools

__Other (Please elaborate below)

4. **If you use non-standardized screening tools, which of the following are assessed by those tools? (Please check all that apply)**
    - Fine motor skills
    - Gross motor skills
    - Speech/language skills/receptive/expressive language
    - Feeding/nutrition
    - Sleep
    - Social-emotional, regulation
    - Sensory processing
    - Maternal mental health

- Caregiver and child ability to simultaneously focus on same object or activity
- Other (Please elaborate below)

5. **If these tools reveal subtle differences in expected milestones or you suspect a developmental delay, what is the next step?**
    - Referral to early intervention
    - Revisit in 3–6 months to determine whether referral to early intervention is necessary
    - Other (Please elaborate below)

6. **To which professionals do you refer the most? Please click and drag the professional you refer to most to the number "1" position, the second most to the number "2" position, and so on.**
    - Behavior intervention
    - Developmental pediatricians
    - Occupational therapy
    - Physical therapy
    - Speech therapy
7. **Who generates concerns more frequently regarding developmental milestones?**
    - Me
    - Parent
8. **Are there barriers that affect your decision to make a referral to early intervention services?**
    - Always
    - Most of the time
    - About half the time
    - Sometimes
    - Never

9. **If yes to #8, what are the barriers? Please rate the degree that each potential barrier affects your decision to refer to early intervention services. (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)**

__Parental denial about potential developmental delay

__Decreased parental understanding of the benefits of early intervention

__Parents overly concerned, and referral may cause undue worry

__Challenges with funding

__Child not having an official diagnosis

__Challenges with communication (Please elaborate below)

__Other (Please elaborate below)

10. **In your experience, do you believe that parents are often overly concerned about their child's development?**
    - Strongly agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Strongly disagree
11. **In your experience, do you find parents to be accurate in their assessment of their children's development?**
    - Strongly agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Strongly disagree

12. **In your experience, how would you describe the majority of parents' assessments of their children's development?**
    - Overly concerned
    - Slightly concerned
    - Accurate/realistic
    - Under concerned
    - Not concerned
13. **How often do you find you need to educate parents about development to alleviate their fears and concerns?**
    - Always
    - Most of the time
    - About half the time
    - Sometimes
    - Never
14. **Please describe how you feel about this statement: I am familiar with occupational therapy and the skill areas the profession addresses.**
    - Strongly agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Strongly disagree
15. **Do you believe there is a gap in early identification of developmental differences prior to children entering school?**
    - Strongly agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Strongly disagree

16. **Regarding the pursuit of services following early intervention referral, research indicates there is a gap between identification of delay, referral, and follow through to early intervention. What factors do you believe would help facilitate understanding of developmental delays and caregiver follow-up when a referral is made?**
    - Providing parents with resources about child development and early intervention
    - Text message reminders providing information about early intervention agencies
    - Providing parents with a brief consult with an occupational therapist to discuss concerns
    - Providing parents with access to a child development specialist do discuss concerns
    - Other (Please elaborate below)
17. **What is your view of a pediatrician's role in the identification and referral to early intervention support of children with developmental concerns?**

18. **In your experience, how can occupational therapists support pediatricians and families in early identification of more subtle developmental differences?**

19. **To learn more about demographics, what ethnic and racial groups do you primarily see within your practice? Please rate the prevalence of ethnic and racial groups seen within your practice (1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; 5 = strongly disagree)**

__Two or more races

__Black or African-American

__White

__Hispanic or Latino

__Native American or American Indian

20. Socioeconomic levels can affect access to resources. How would you describe the socioeconomic level of the families you serve most frequently?

- upper
- upper-middle
- middle
- working
- lower

21. Socioeconomic levels can affect access to resources. How would you describe the socioeconomic level of the families you serve *second* most frequently?

- upper
- upper-middle
- middle
- working
- lower

22. Does your practice accept insurance?

- Yes
- No

23. If your practice accepts insurance, check all that apply.

- Medicaid
- Medicare
- Private third-party insurance
- Self-pay

24. Are you willing to share your developmental screener? If so, please upload. Thank you.

25. Would you be willing to participate in a brief follow-up interview?

- Yes
- No

APPENDIX C – Session Materials

Basic Program Overview

- Phase 1: Playgroups will be individualized depending on age and areas of identified need. Parents will complete an initial intake survey to determine their knowledge about their children's development, areas in which they may have concerns, and information on what they are interested in gaining from participating in the group. Post-tests will be completed at the end of 6 weeks.
- Phase 2: Collaboration with OTPs and pediatricians

Program Structure

- Initial prescreening assessment
- Pretest and posttest: quantitative and qualitative collection
- No more than four children per OTP present
- Skilled OTPs
- 50-minute sessions held once a week for 6 weeks
- Sessions are individualized according to identified needs
- Robust hands-on experience with OTPs
- Overview of previous sessions, check-in with group members
- End of session wrap-up; parents are provided two to three suggestions on how to adapt the environment to support the development and play ideas
- Newsletter overviewing sessions

Program Content

- Parental training

- Experiential learning
- Activities, discussions, and content are uniquely developed and driven by occupational therapy's holistic perspective
- Experiential opportunities to adapt the environment to support development
- Experiential opportunities to practice handling skills to support the most optimal development
- Experiential opportunities to support social-emotional development

Basic Session Outline

Session 1

- Initial introductions
- Review of sensory processing and sensory integration as a foundation for the development of higher level skills
- Review of eight sensory systems
- Benefits and importance of PLAY
- Songs, activities
- Wrap-up

Session 2

- Review of previous session
- Tactile
- Songs, activities
- Wrap-up

Session 3

- Review of previous session

- Vestibular
- Songs, activities
- Wrap-up

Session 4

- Review of previous session
- Proprioceptive
- Songs, activities
- Wrap up

Session 5

- Review of previous session
- Fine motor development
- Songs, activities
- Wrap-up

Session 6

- Review of previous session
- Social-emotional development
- Sharing favorite toy and/or activity
- Question and answers
- Resources

Phase 2

- Increase collaboration with OTPs and pediatricians to identify delays

- Pediatrician surveys regarding experiences, perceptions, and perceived referral options related to suspected delays
- Collaboration on screenings
- Collaboration on facilitating referrals

APPENDIX D – Fact Sheet/Infographic

BOSTON UNIVERSITY

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children

Nathalie Aluisi MA, OTR/L, SWC
OTD Candidate

Introduction to the Problem

- There is an identified gap in the early identification of developmental delays before school age (Chödrön et al., 2019; Elansary et al., 2020).
- The under-identification of developmental delays is observed exponentially greater in marginalized communities of racial and ethnic diversity and lower socio-economic status.
- The American Academy of Pediatrics recognizes the importance of Early Intervention (EI); however, there are inconsistencies and no outlined best practice that supports the identification process through routine surveillance and screenings.
- The role of occupational therapy in primary care is often underutilized, overlooked, and misunderstood (AOTA, 2014; Donnelley et al., 2013).

Importance of Early Intervention

- There is validity in the importance of early identification and early intervention, as the brain's neuroplasticity decreases with age.
- Intervening early reduces the negative impacts of disability and improves child and family outcomes
  More positive gains are observed when children are provided with intervention earlier and with increased intensity (Mcmanus et al, 2019).

Photo found on Pixaby

The solution to the problem: PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children

- Shifting towards preventative, proactive health care and intervention through increasing collaboration among parents, occupational therapy practitioners (OTPs) and pediatricians supports the health and wellness of infants, toddlers, children, parents, and caregivers.
- Phase 1-Developmental Playgroups
  - Parents have a role in supporting their child's development, working, and learning from professionals, and advocating for their child.
  - Extensive research recognizes that interventions are enhanced through increasing parent education and screening programs.
  - OTPs' holistic view makes them effective leaders of playgroups.

Photo by N. Aluisi

    - Participation in developmental playgroup empowers parents with increased knowledge about child development, tools to promote development, and confidence to advocate and discuss concerns with pediatricians.
- Phase 2-OTPs increased collaboration with pediatricians to support the screening process and increase pediatricians' knowledge of available evidence-based resources for families.
    - "Occupational therapy practitioners are well prepared to contribute to the interprofessional care teams addressing the primary care needs of the individuals across the lifespan, particularly people living with one or more chronic conditions" (AOTA, 2014, p. 1)
    - OTPs have a distinct holistic view and scope of practice supporting their valuable role as interprofessional team members to promote preventative, proactive interventions to support health, wellness, and the most optimal quality of life (Dahl-Popolizio et al., 2016).
    - Providing education on community resources to providers was identified as the most important to improve developmental screening.

Theoretical Framework

These theories support the innovation that through increasing education and collaboration among parents, OTPs, and pediatricians, there will be improvements in the early identification.

Diffusion of Innovation

- Research supports the gap in early identification and the need for innovation to increase the identification of developmental delays. DOI theory guides the innovation *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* in identifying the attributes that are effective, simple, compatible, observable, and triable, which is imperative to support disseminating knowledge to key stakeholders.

Social Innovation

- Social innovation theory highlights societal problems such as inequality and poverty, providing guidelines for responding and creating solutions. The author's innovation aims are to increase education, collaboration, and programs to assist with improving the early identification of developmental delays within marginalized communities.

Social Learning

- Human behavior is explained as reciprocal, continuous interactions between behavioral, cognitive, and environmental influences. Social beings learn by observing others.

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APPENDIX E – Executive Summary

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children

Introduction

There is an acknowledged gap in the early identification of developmental delays (Chödrön et al., 2019; Elansary et al., 2020; Jimenez et al., 2017). The American Academy of Pediatrics recognizes the importance of early intervention; however, there are inconsistencies and no outlined best practice that supports the identification process through routine surveillance and screenings (Bright et al., 2019; Jimenez et al., 2017). Early development is a time when there is increased neuroplasticity, which facilitates interventions leading to positive impacts on the developing brain (Demaster, 2018).

Early intervention programs support the physical and cognitive gains of infants, toddlers, and children and the mental health of parents and caregivers. Intervening early when a child has a developmental disability or is at risk for developmental delays improves the child's and family's outcomes and reduces the negative impacts of their disability (Guralnick, 2017; Morgan et al., 2016, Shahidullah et al., 2020). Extensive research supported the importance of early identification and recognized that subsequent interventions are enhanced by increasing parent education and screening programs (Bright et al., 2019; Jimenez et al., 2017; Stoppler, 2018). Rowe et al. (2015) determined that underidentification of developmental delays is observed exponentially greater in marginalized communities of racial and ethnic diversity and lower socioeconomic status.

Shifting towards preventative and proactive health care and intervention will

support the health and wellness of infants, toddlers, children, parents, and caregivers. The role of occupational therapy (OT) in primary care is often underutilized, overlooked, and misunderstood (American Occupational Therapy Association, 2014; Donnelley et al., 2013, 2014). Occupational therapy practitioners (OTPs) have a distinct holistic view and scope of practice supporting their valuable role as interprofessional team members to promote preventative, proactive interventions that support health, wellness, and optimal quality of life (Dahl-Popolizio et al., 2016).

Employing the diffusion of innovation, social innovation, and social learning theories, an initiative *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* program was developed to enhance and facilitate collaboration and education among OTPs, parents, and pediatricians to improve early identification of subtle developmental delays. The diffusion of innovation theory provides a theoretical framework for how new ideas spread. Extensive research supported an identified gap in the early identification and intervention and the need for innovation to increase identification of developmental delays and connections to support services.

Thus, the diffusion of innovation theory guides the innovation *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children*, in which attributes are categorized as effective, simple, compatible, observable, and triable, which are imperative to gain support when disseminating knowledge to key stakeholders (Bandura, 1977). Social innovation theory highlights societal problems such as inequality and poverty, providing guidelines for responding and creating solutions (Logue, 2020). The author's innovation aims are to

increase education, collaboration, and programs to assist with improving the early identification of developmental delays within marginalized communities. Collaboration requires human interaction, engagement, and learning. Human behavior is explained by social learning theory as reciprocal, continuous interactions between behavioral, cognitive, and environmental influences. As humans, we are social beings who learn by observing others and the outcomes associated with that behavior. These theories bolster the innovation of supporting OT's role in primary care and increasing education and collaboration among parents, OTPs, and pediatricians to improve the early identification of subtle developmental delays.

Project Overview

This initiative intends to increase collaboration and education among OTPs, parents, and pediatricians to support improved early identification of developmental differences before school age. *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* consists of two phases. Phase 1 consists of developmental playgroups. A systematic, mixed-methods, institutional-review-board-approved survey of parents who had experience with concerns related to developmental milestone achievement was conducted, and its results assisted in the program development. Phase 2 consists of improving collaboration with pediatricians to support earlier identification of more subtle developmental delays. Surveys of pediatricians will be readministered in Phase 2.

Parenting knowledge is an effective target for intervention and correlates with positive parenting practices (McKee et al., 2021). Occupational therapists take a holistic

approach when evaluating individuals and consider the eight dimensions of health—physical, emotional, environmental, occupational, financial, intellectual, social, and spiritual—that support balance, security, quality of life, and wellness. This holistic approach and their ability to identify potential concerns with a child's development, support the education of parents and caretakers, and provide them with tools to support their children's development and advocate for their needs make OTPs effective leaders of developmental playgroups. Early identification of developmental delays, referral, and early intervention are effective ways to promote positive outcomes. Developmental playgroups facilitated by OTPs empower parents with tools to support their children's development and advocate for their care (Blanche, 2016).

The developmental playgroups will be individualized by including an initial intake questionnaire to learn about the parents' perceptions of their knowledge about their children's development, how to support their children's development, and their comfort in advocating for their child. Parents will also have the opportunity to highlight any concerns they have for their children and explain what they are interested in gaining from participating in the group program.

Key Findings

Several stakeholders may benefit from the implementation of Phase 1 of this initiative. Participation in developmental playgroups designed by *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children* will provide parents with increased knowledge of child development, strategies to support their children's development through environmental

modifications, and handling techniques to promote optimal outcomes for their children. This initiative increases parents' and caregivers' access to OTPs who educate on advocating for their children and provide information on available resources to address identified concerns. Parents and caregivers will learn to advocate confidently for their children's health and wellness by participating in the playgroups.

Pediatricians will have a resource to provide to parents and caregivers—an evidence-based program that proactively provides education and experiential activities to promote development, health, and milestone achievement for infants, toddlers, and children. Developmental playgroups designed by *PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children,* will provide a method for occupational therapists to support the early identification of more subtle developmental differences while empowering parents and caregivers with knowledge about child development, ways to adapt the environment, handling techniques, and tools to advocate for their child to ensure optimal outcomes.

Recommendations

The author plans to continue implementing additional developmental playgroups while administering pre- and posttest surveys to monitor the program's effectiveness, make adaptations, and enhance program development. Revisions to the program will be made as more information is obtained from qualitative and quantitative data gathered through surveys and interviews with participants. Continued education, exploration, and collaboration with parents, pediatricians, and occupational therapists are recommended to enhance the developmental playgroups. Implementation of Phase 2 will begin within

3 months.

Conclusion

PlaySpace: Collaboration for Identification, Health, and Milestone Achievement for Infants, Toddlers, and Children is an innovative approach to address the gap in the early identification of subtle developmental delays before children reach school age. This initiative supports a shift towards preventative and proactive health care and intervention through facilitating increased collaboration between pediatricians, parents, occupational therapists, and improved screenings. This innovation consists of two phases to increase the early identification of developmental delays through enhancing collaboration among parents, occupational therapists, and pediatricians. Occupational therapists' holistic approach makes them valuable interdisciplinary members in primary care to improve the early detection of developmental differences. Research supported the importance and effectiveness of parent and caregiver knowledge on child developmental outcomes. Phase 1 of this initiative is implementing developmental playgroups that increase parents' understanding of their children's development and knowledge of how to adapt the environment and empower them to advocate for their children's needs. Phase 2 consists of OTPs increasing collaboration with pediatricians to identify developmental delays and provide pediatricians with additional evidence-based resources for families. The goal is for OTPs to implement this initiative within marginalized communities to promote social justice, reduce health disparities, and promote health and wellness for all people within communities and worldwide.

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