

**Improving Student Outcomes and Teacher Perceptions Through Pre-Referral  
Occupational Therapy Consultation**

A Doctoral Capstone Project

Submitted to the School of Graduate Studies and Research

Department of Education

In Partial Fulfillment of the  
Requirements for the Degree of  
Doctor of Education

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July 2023

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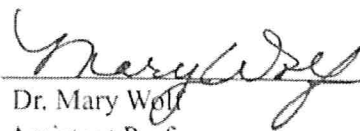
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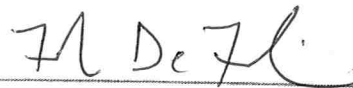
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### **Dedication**

To my children, Abigail and Benjamin. Thank you for your love and inspiration. May you follow your dreams and continue to grow and learn. I am proud of you both.

### **Acknowledgment**

Thank you to everyone who helped me to complete the Pennsylvania Western Doctor of Education program. Thank you to my family, Daniel, Abigail, and Ben, for supporting me and giving me the time to accomplish this goal. Thank you to my parents, Ken and Carol Harryn, for supporting me throughout my education and encouraging me to pursue my doctorate.

Thank you to Dr. Mary Wolf, Faculty Capstone Committee Advisor, for your guidance and support. Your suggestions and feedback were instrumental in allowing me to successfully implement and complete my capstone project.

Thank you, Dr. Frank DeFelice, for serving as my external committee chair. I appreciate your willingness to support me in this endeavor. I am grateful for your support and for providing me with the opportunity to conduct this research project at Colonial Intermediate Unit 20.

Thank you to Dr. Jack Silva for allowing me to conduct my intervention within the Bethlehem Area School District. Thank you to Jonathan Horvath, Principal of Asa Packer Elementary School for participating and welcoming me into your building. Thank you to all the teachers who participated in the study.

Thank you to my colleagues at Colonial Intermediate Unit 20 who supported me throughout this process. Thank you, Allison Hubbs, Rebecca Miller, and Stephen Rupp for your encouragement and feedback. I owe special thanks to Tiffany Smith for her participation as the consulting therapist. Tiffany, without your willingness to participate and your ongoing commitment, I could not have completed this project.

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### **Abstract**

Each year, Colonial Intermediate Unit 20 conducts a large number of at the request of school districts. The current action research plan investigated the impact of providing professional development and collaboration from an occupational therapist in the regular education setting. Regular education teachers in the intervention group received classroom-based occupational therapy consultation visits over five months. Participants in the intervention group and a control group completed pre and post surveys to analyze their own perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting and the teachers' perceptions of the value of school-based occupational therapy services. The occupational therapist and building principal participated in post-intervention interviews to gather insight on their perceptions regarding the impact of OT services. In addition, referral data was analyzed to determine whether the provision of pre-referral professional development and class wide consultation could impact the number of initial referrals for kindergarten occupational therapy evaluations. Overall, the survey data and interviews provided some support that the provision of pre-referral professional development and class wide consultation can impact the teachers' perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting and the value of IU OT services. The results also showed that the intervention was associated with a decrease in referrals for OT evaluations for the teachers in the intervention groups when compared to the prior year.

## **CHAPTER I**

### **Introduction**

#### **Capstone Focus**

Each year, Colonial Intermediate Unit 20 (CIU20) receives many referrals for occupational therapy evaluations of regular education students, particularly kindergarten students. District administrators have expressed concerns regarding the cost of related services provided by the Intermediate Unit (IU) and are looking for ways to decrease costs while still meeting the needs of all students. Because the IU Occupational Therapy (OT) staff only provide services to students identified with a disability, there is often little collaboration between regular education teachers and IU therapists regarding students in the general population. This lack of collaboration may result in teachers being ill equipped with strategies to address issues prior to moving to an occupational therapy evaluation. Increasing occupational therapists' presence and involvement in pre-referral general education interventions would provide an opportunity to intervene earlier to meet students' needs. Expanding these efforts could reduce the number of special education referrals and equip regular education teachers to better address occupational therapy issues in the regular education setting.

#### **Background**

CIU20 covers 1200 square miles in Northampton, Monroe, and Pike Counties. The IU provides services for 13 school districts, three career centers, four charter schools and 65 non-public schools. CIU20 employs more than 1400 employees with annual budgets exceeding \$226 million. Overall, the IU impacts over 86,000 public school students, which equals approximately 4.7% of the public-school students in the state. Over 9,000 students are served in IU programs. CIU20 is the eighth largest IU based on the public-school student population served. As an

intermediate unit, CIU20 serves a diverse student population with great variability in demographics and socioeconomic variables across districts and counties.

CIU20's mission statement is to develop and maintain positive relationships that support student growth, are responsive to stakeholders' crucial needs, and demonstrate effective results through services and programs for students. CIU20's vision is to be a vibrant, vital, influential, and innovative child-centered organization serving children, families, and the people who serve them wherever they might be and whatever they may need.

CIU20 provides some level of occupational therapy services for 13 school districts within its geographical catchment area. Ten of the districts use the IU for all OT services provided to students in both district and IU classrooms. Over the past several years, three districts have made the decision to use outside agencies rather than the IU due to concerns with the cost of services. During the 2020-2021 school year, the IU occupational therapy department conducted 544 evaluations of students across the kindergarten through twelfth grade continuum. The length of time to complete an evaluation ranged from one hour to nine hours. The average amount of time required to conduct an evaluation was 3.23 hours. Overall, 1,759 hours of therapist time were devoted to the evaluation process for the 2020-2021 school year. During the 2021-2022 school year, the IU occupational therapy department conducted 706 evaluations of students across the K-12 continuum. The length of time to complete an evaluation ranged from one hour and ten minutes to eight hours. The average amount of time required to conduct an evaluation was three hours. Overall, 2,124 hours of therapist time were devoted to the evaluation process for the 2021-2022 school year. This time includes report writing, data analysis, and face to face evaluations. Travel time, scheduling, and follow-up meetings are not included but require extra time from each therapist.

Multi-Tiered System of Support (MTSS) is a comprehensive framework that includes a continuum of evidence-based supports and services to meet the needs of all students. Over half of the school districts in Pennsylvania implement an MTSS system as a school improvement measure. IDEA requires that schools provide students with appropriate instruction in the general education settings. However, as independent service agency staff, Intermediate Unit representatives are rarely involved in the MTSS process or general education intervention. Currently, the main roles of school based Occupational Therapists are conducting evaluations to determine eligibility for special education services and the provision of direct services to identified students. Traditional MTSS models have not incorporated Occupational Therapists as a pre-referral resource in providing regular education interventions. Increasing OT involvement in the pre-referral intervention process has the potential to increase teacher competencies, decrease wasted resources on unnecessary evaluations, and decrease the number of students requiring higher levels of specialized intervention.

### **Research Questions**

The following research questions will be explored through the implementation of the proposed action research project:

1. How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting?
2. How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of the value of IU OT services?

3. How does the provision of pre-referral professional development and class wide consultation impact the number of initial referrals for kindergarten occupational therapy evaluations?

### **Summary**

Through the implementation of the proposed action research plan, the researcher hopes to achieve several outcomes. First, providing more support from occupational therapists in the regular education setting can decrease the number of referrals for occupational therapy evaluations for kindergarten students. By providing professional development and collaboration in regular education, teams can better meet the needs of students through the least restrictive methods. Finally, increasing the involvement of IU therapists in pre-referral processes can create more awareness of the CIU20's occupational therapy department and improve collaboration and communication with district partners. A review of the literature provides supporting evidence as to the value of the involvement of occupational therapists in MTSS and the regular education environment.



## CHAPTER II

### Review of the Literature

Over the past 50 years, the role of the occupational therapist has continued to expand and evolve in the school setting. Historically, school-based occupational therapy services have been primarily accessible to students with disabilities. Students who exhibit weaknesses that impact their ability to access the classroom environment and curriculum are frequently referred for formal occupational therapy evaluations. Following a formal evaluation, eligible students typically receive direct occupational therapy services, either individually or in a group, to target identified areas of need. Based on this service model, a significant percentage of therapist time in the educational setting is devoted to evaluations and the provision of direct services.

Although more recent legislation has supported the use of early intervening services for non-identified students, occupational therapists have not had a significant role in these initiatives. Expanding the role of the occupational therapist through consultation and collaboration with general educators can provide effective ways to meet the needs of struggling students in the general education setting.

### IDEA and Related Services

The Education for All Handicapped Children Act (Public Law 94-142) was first signed into effect in 1975 by President Gerald Ford. The act was considered a civil rights landmark and opened the door for students with disabilities in public school settings. In 1990, the act was reauthorized and officially renamed the Individuals with Disabilities Education Act, or IDEA. IDEA mandated the right of students with disabilities to receive a free appropriate public education (FAPE) in the least restrictive environment (LRE). Individuals who meet criteria under the identified disability categories, and demonstrate the need for specially designed instruction,

are eligible to receive special education services and related services. Legally, it is the IEP team's decision on whether occupational therapy is needed as a component of the program to support the student in attaining goals and objectives (U.S. Department of Education, 1990). While the role of the occupational therapist in the school setting varies from state to state, therapists generally work at the individual, classroom, and school level to address issues that impact a student's successful participation in the general education curriculum.

According to IDEA, a student's IEP must outline the related services and supplementary aids and services to be provided in order for a student to participate with nondisabled peers (U.S. Department of Education, 1990). Related services include many services such as transportation and other supportive services that are necessary to allow a student with a disability to benefit from special education. These services include speech-language pathology and audiology services, interpreting services, psychological services, physical therapy, and occupational therapy (U.S. Department of Education, 1990).

IDEA further defines occupational therapy as the services provided by an occupational therapist with appropriate credentials, with the goals of:

improving, developing, or restoring functions impaired or lost through illness, injury, or deprivation; improving ability to perform tasks for independent functioning if functions are impaired or lost; and preventing, through early intervention, initial or further impairment or loss of function. (U.S. Department of Education, 1990, p. 10)

Within the school setting, practitioners work with the school team to evaluate a student's needs, determine what behaviors are expected within the school environment, and develop interventions to address deficits. "As children with disabilities moved into public schools,

occupational therapists were challenged with the task of developing alternatives to the medical model of practice, a barrier experienced by many OTs today” (Ball, 2018, p. 264).

### **Section 504 and School-Based Occupational Therapy**

In some cases, a student with a disability may not meet eligibility for special education services under IDEA. Because schools receive federal funds, they must comply with both the Americans with Disabilities Act (1990) and Section 504 of the Rehabilitation Act of 1973. Section 504 provides another opportunity for certain students to receive school-based occupational therapy services in the educational setting. Students with impairments which severely limit major life activities may also be eligible for school-based occupational therapy. The purpose of Section 504 is the protection of students with disabilities from discrimination. Students who do not qualify for special education under IDEA may be eligible for protections under Section 504. A 504 plan can provide students with reasonable accommodations that allow them to benefit from and participate in the educational environment (U.S. Department of Labor, n.d.). For some students, occupational therapy services are provided through a 504 plan. These services can be provided individually or in a group setting and may include direct service and consultation.

### **ESSA and School-Based Occupational Therapy**

President Obama signed the Every Student Succeeds Act (ESSA) on December 10, 2015. This act reauthorized the Elementary and Secondary Education Act (ESEA) and upheld the nation’s longstanding commitment to equal opportunity for all students. ESSA replaced the previous version of the law, the No Child Left Behind (NCLB) Act, which was enacted in 2002. Primary focuses of ESSA were to close the achievement gap for disadvantaged or high-need students and to increase accountability at the state and local levels.

The terms "specialized instructional support personnel" and "related services" are defined in the Every Student Succeeds Act (U.S. Department of Education, 2015). Instructional support personnel include school counselors, school nurses, psychologists, school psychologists, social workers, and school social workers; occupational and physical therapists; art, dance/movement, and music therapists; and, speech language pathologists, and audiologists. ESSA requires that state and local education agencies engage in meaningful consultation with specialized instructional support personnel to best meet the needs of students in the educational setting.

### **Occupational Therapy Licensing and Regulations**

The American Occupational Therapy Association (AOTA) is an organization that represents over 230,000 occupational therapists and students throughout the United States. The organization is dedicated to occupational therapy advancement with a focus on education and research. The mission statement of the organization is to “advance occupational therapy practice, education, and research through standard setting and advocacy on behalf of its members, the profession, and the public” (American Occupation Therapy Association [AOTA], 2023, para.2). The ability to practice as an occupational therapy is regulated by state law. All 50 states require that both occupational therapists and occupational therapy assistants obtain licensure to practice in both medical and educational settings. In Pennsylvania, the State Board of Occupational Therapy governs the certification process for individuals seeking to obtain licensure. To be licensed as a registered occupational therapist in Pennsylvania, an individual must complete a four-year program in occupational therapy. In addition, all applicants must have successfully completed a supervised fieldwork experience in an approved educational institute or training program. Finally, applicants must obtain a passing score on an Occupational Therapist

Registered (OTR) licensure examination or qualify for a waiver of the licensure examination administered by the National Board for Certification in Occupational Therapy (NBCOT).

The Pennsylvania Department of State also oversees licensure for Certified Occupational Therapy Assistants. This certification requires completion of a two-year degree program in occupational therapy, completion of two months of supervised fieldwork experience, and a passing score on the Certification Examination for Occupational Therapy Assistant prepared and administered by the National Board for Certification in Occupational Therapy (NBCOT).

Maintenance of both OTR and Certified Occupational Therapy Assistant (COTA) licensure requires ongoing professional development and documentation of continuing education credits.

### **School-Based Occupational Therapy: Roles and Responsibilities**

According to the 2019 AOTA Workforce and Salary Survey, 18.8% of occupational therapists and 15.4% of occupational therapy assistants work with students in school-based environments in the United States (AOTA, 2020). AOTA developed several documents that provide an overview of occupational therapy (OT) services in the school setting (AOTA, 2012). Across all settings, occupational therapists assist individuals in meaningful activities in the natural environment. Targeted activities may include education, work, play, socialization, and activities of daily living. In a 2017 brochure developed for school administrators, AOTA further clarified the continuum of services that occupational therapists can provide under the Individuals with Disabilities Education Act (IDEA), Every Student Succeeds Act (ESSA), and Section 504 of the Rehabilitation Act of 1973. These activities include individualized special education services, training for families and school personnel, participation on collaborative teams, participating in district initiatives, and providing assistance for students who need additional support in regular education. AOTA provides examples of early intervening services an

occupational therapist can provide; these measures include periodic screenings, teacher training, modeling whole classroom interventions, working with small groups, and assisting with team problem solving.

For students who receive occupational therapy services as a component of an Individualized Education Plan, services can be delivered directly or through a consultation model. Hasselbusch and Penman (2008) interviewed teachers and occupational therapists to gain insight into consultative practices used to support students with autism in regular education environments. The researchers identified the development of relationships with school staff as a key factor in the provision of successful consultation services in the school setting. Engagement with the staff and developing a presence as a part of the school community required sufficient time and varied across teachers and buildings. In addition, therapists who delivered effective consultation were characterized by the ability to problem-solve on the spot and demonstrate flexibility (Hasselbusch & Penman, 2008).

According to the American Occupational Therapy Association, the goal of occupational therapy is to help an individual to achieve well-being and health, and to allow for participation and engagement in occupation and life (AOTA, 2010). Although occupational therapy services differ in certain settings, the evaluation process includes certain fundamental components regardless of the environment. Through the evaluation process, the therapist determines the need for service, identifies problems that need to be addressed, develops goals and interventions, and develops a plan for assessment of progress (AOTA, 2010). Occupational therapy services in schools can be delivered directly, indirectly, or through a consultation model. Direct service can be provided in a separate environment or in the classroom but typically disrupts the student's participation in classroom activities. Indirect service involves a therapist teaching another adult a

strategy which can then be implemented with a student. Consultation involves the identification of strategies that can promote student success in the educational setting and focuses on environmental changes that support student success (Villeneuve, 2009).

Benson (2013) conducted a study to better understand the views of school-based therapists regarding conceptual models and current practice trends related to occupational therapy. The researcher conducted interviews with 16 occupational therapists working in educational settings with students across the K-12 continuum. Therapists reported working with students using both pull-out and push-in methods. Pull-out instruction refers to working with students outside of the classroom either individually or in small groups. Push-in instruction refers to the provision of therapy within the naturally occurring classroom environment and routine. “The relationship with the teacher often dictated the type of services. For example, some teachers expect the child to be removed from the classroom, and others expect the support in the classroom” (Benson, 2013, p. 169).

Therapists reported that they typically met informally with the teacher at the start of sessions. Many therapists noted that they preferred push-in services as the best way to address real-life issues in the natural environment. However, the therapists expressed some frustration with the push-in model with certain individuals, and noted it was at times seen as a disruption to the classroom routine. Overall, therapists reported better relationships and interactions with special education teachers than general educators and expressed that the relationship with the teacher was a critical factor in the successful implementation of services (Benson, 2013).

I enjoy it when I have a good working relationship with the teacher in the classroom. We [OT and teacher] are working collaboratively...the teacher sees me as an asset rather than

a nuisance. I have had teachers treat me both ways, so when something we do makes a difference and the teacher notices [it's a good thing]. Special educators are much more educated in what we do and are much more open to our suggestions. Regular education teachers have a much harder time. (Benson, 2013, pp. 171-172)

### **Medical Model Versus School-Based Occupational Therapy**

In the school setting, occupational therapy's main goal is to allow a student to participate in the school environment, including naturally occurring activities and routines. Therapists consider the expectations across all school environments, including not just the classroom but all educational settings. Transitioning in the hallways, accessing transportation, participating in physical education, and eating in the cafeteria are examples of school-based activities that an occupational therapist can consider when assessing a student's needs (Cantu, 2003).

Occupational therapy services offered in the school setting differ from those offered outside of school through a medical model. Private therapists may identify and target skill deficits that do not impact a student's ability to participate educationally. Due to these differences, it is common for parents to question the differences between therapies offered in outside medical settings. When parents do not understand these differences, it can create conflict with school administrators regarding eligibility for school based occupational therapy. Unless a student is found eligible as a child with a disability, he or she may not have access to occupational therapy services in the school setting. Once a student is deemed eligible, occupational therapy is only provided if it is determined necessary to meet identified goals and objectives (Cantu, 2003).

Unlike occupational therapy services delivered through a medical model, school-based services cannot be delivered in isolation. Best practice requires that school-based services be



delivered through a collaborative, transdisciplinary approach. This approach necessitates participation from general and special education teachers along with occupational therapists and other related services providers such as speech therapists and physical therapists. Collaboration on assessment, planning, and the implementation of interventions characterizes a truly transdisciplinary model. A transdisciplinary model of service delivery has been associated with improved student outcomes, positive teacher perceptions, and increased collaboration with families (Mu & Royeen, 2004).

“Effective provision of services in schools is highly dependent upon the practitioner’s ability to both collaborate interprofessionally *and* understand/plan for the provision of services in the Least Restrictive Environment, per IDEA” (Friedman et al., 2022, p. 3).

### **Occupational Therapy Consultation for Identified Students**

In the school setting, occupational therapy consultation is regularly provided for students with special needs as a related service in IEPs or through a 504 plan. Wehrmann et al. (2006) conducted a 2-year study to investigate the perceived benefit of school-based occupational therapy for students with identified fine-motor issues. The consultation model of OT service delivery was introduced in the 1990’s (Dunn, 1990). Since that time, this service delivery model has grown in prevalence and acceptance. Occupational therapy consultation is typically based on an identification of a student’s needs as determined through the evaluation process. The goal of consultation is to educate the teacher and staff on how to best meet a student’s needs through strategies and resources that can be implemented or accessed in the classroom setting. Through this collaborative process, a classroom teacher can gain the skills to accommodate the needs of diverse learners. The frequency of consultation visits is based on the student's needs but often

occurs weekly or monthly. The results of the study supported OT consultation as a beneficial intervention for identified students with fine motor difficulties (Wehrmann et al., 2006). This result is consistent with findings of previous studies supporting occupational therapy consultation as a preferred method of school-based service delivery (Dunn, 1990).

Villeneuve and Hutchinson (2015) examined the impact of collaboration between occupational therapists and teachers on the outcomes of students with developmental disabilities. The authors used two case studies to investigate the workplace practices that support collaboration across educators and related services providers. The authors found that collaboration could be facilitated through the focus of educational programming, communication, and educational leadership. Occupational therapists' collaboration on the development of meaningful goals and demonstrations on integrating practices into a student's daily routine prepares teachers to effectively implement recommendations. Providing formal opportunities for teachers and OTs to collaborate interactively is recommended to promote meaningful multidisciplinary instruction. Leadership and accountability measures were also identified as critical components necessary to support a collaborative multidisciplinary model.

Villeneuve (2009) synthesized literature on the use of collaborative consultation by school-based occupational therapists. The review was guided by two main questions; first, how consultation can contribute to meaningful outcomes for students with disabilities, and second, what factors can influence the effectiveness of collaboration between therapists and teachers. The findings of the literature review support two conditions that are essential in effective collaboration between occupational therapists and teachers. First, all parties must have a clear understanding of each member's function. Teachers must clearly understand the roles and responsibilities of the OT for the consultation process to be effective. In addition, therapists must

be knowledgeable regarding the curriculum, classroom procedures, and school policies to ensure the services they provide are educationally relevant.

Second, effective consultation and collaboration is dependent on sufficient time and opportunities to work together and share information. Program administrators have a responsibility to provide teachers and therapists with time within the school day to engage in collaborative consultation to support students with disabilities in an inclusive setting (Villeneuve, 2009).

### **Handwriting Instruction and School-Based Occupational Therapy**

Occupational therapy interventions for students with writing issues typically consist of activities targeting the development of motor skills. A variety of fine-motor, visual perception, visual motor, gross motor and postural strategies can be effective in improving handwriting. Numerous studies have supported the use of occupational therapy to improve the legibility of handwriting in the educational setting (Case-Smith, 2002; Feder & Majnemer, 2007).

Case-Smith (2002) studied the effectiveness of handwriting interventions delivered by occupational therapists on the in-hand manipulation, visual-motor, visual-perception, speech, and legibility of students between the ages of seven and ten. When compared to students who did not receive direct service from an occupational therapist, the group showed significant improvements in legibility. While the therapists in the study reported that they frequently collaborated with teachers, there was no data collected on how the teacher carried over or supported the interventions in the classroom setting (Case-Smith, 2002).

Taras et al. (2011) studied the effectiveness of a 14-week handwriting program incorporating occupational therapy strategies on promoting handwriting skills with children in a

general education kindergarten program. The program targeted hand skills, the awareness and directionality of letter formation, and visual motor skills. The researchers reported that general education kindergarten teachers were not implementing structured handwriting programs as class wide interventions. In addition, teachers frequently referred students for occupational therapy evaluations without having ever implemented interventions themselves (Taras et al., 2011). The researchers conducted pre-and post-intervention handwriting assessments on students in 14 kindergarten classrooms. While students in the intervention received handwriting instruction from occupational therapists, students in the control groups received handwriting intervention from their general education teachers. The results of the study showed a significant difference in post-test results between students receiving instruction incorporating occupational therapy strategies and the control group (Taras et al., 2011). This study supports the use of occupational therapy strategies in the general education environment and suggests that expanding the role of the occupational therapist in the general education kindergarten setting can have positive outcomes for all students while reducing referrals for OT evaluations in later years.

### **IDEA and Early Intervening Services**

IDEA permits local education agencies to use a portion of funds to support the development and implementation of services “for students in kindergarten through grade 12 who are not currently identified as needing special education or related services, but who need additional academic and behavioral support to succeed in a general education environment” (U.S. Department of Education, 1990, p. 34). The 2016 IDEA regulations established mandatory requirements for Comprehensive Coordinated Early Intervening Services (CCEIS). One such requirement is the mandate that funds be used to identify and address issues that contribute to

significant disproportionality. Early intervening activities should include professional development, educational and behavioral evaluations, services, and supports.

### **Workload Versus Caseload Models**

Seruya and Garfinkel (2020) analyzed trends in service delivery models related to school-based occupational therapy. Traditionally, occupational therapists have used a caseload model to provide services in the school setting. This model is based solely on the number of students each therapist treats. Conversely, a workload model considers all activities an individual engages in to support students, either directly or indirectly. A caseload model, “provides more opportunities for occupational therapy practitioners to implement occupation-based interventions in natural environments” including “engagement in programs that promote positive student outcomes in the larger community” (Seruya & Garfinkel, 2020, p. 76) such as multi-tiered systems of support (MTSS). The researchers surveyed over 300 school-based occupational therapists and found that while most students received OT services through an IEP or 504 plan, approximately 38% of respondents reported participating in their school’s MTSS program.

### **Occupational Therapy Referral Process**

Bolton and Plattner (2019) gathered survey data from teachers and occupational therapists regarding the most common reasons for occupational therapy evaluation referrals. The most common reasons for referrals identified were fine motor skills related to classroom activities, handwriting, and sensory issues. Occupational therapy evaluations typically consist of observation in the school setting, parent and teacher input and standardized assessment measures. The Beery-Buktenica Developmental Test of Visual-Motor Integration (Beery et al., 2010) is a tool frequently used to determine eligibility for school-based occupational therapy services. The

VMI assesses an individual's integration of visual and motor skills and can help guide treatment recommendations to assess areas of weakness. The VMI is a standardized norm-referenced measure that can be used with individuals of all ages and has been shown to have high person and content reliability (Pfeiffer et al., 2015).

The administration of the VMI involves the presentation of a developmental sequence of geometric forms. Individuals are provided with verbal directions to copy each form using pen and paper. The authors state that the VMI "can be used to identify, through early screening, children who may need special assistance, to obtain needed services for them, to test the effectiveness of educational and other interventions, and to advance research" (Beery et al., 2010). The administration of the 30-item full form can typically be administered in 10 to 15 minutes (Beery et al., 2010).

Based on the results of standardized assessments, observation data, and input from team members, the Occupational Therapist will make an eligibility determination regarding the need for school-based services. In the event a student qualifies for service, an IEP or 504 plan will be developed to incorporate identified goals, recommendations for accommodations and modifications, and any other appropriate supports identified to assist the student in successfully participating in the school setting. For students who do not qualify for services, the process may result in recommendations that can be implemented in the regular education setting without individualized intervention.

### **Class Wide Interventions**

Research supports the use of class wide interventions to support regular education students in a variety of ways. The use of class wide interventions has been shown to have a

positive impact on student teacher interactions and promote learning and engagement (Conroy et al., 2008).

RTI and other early childhood screening efforts in schools are very often limited to reading and math assessments, such as assessments of phonemic awareness. Important as such measures are, they are not sufficient. Schools need to attend to the whole child, including physical and other factors that affect academics as well as other important aspects of a child's life. (Beery et al., 2010, p. 19)

Reeder et al. (2011) developed a case report of an elementary school in Texas that piloted a Response to Intervention (RTI) program incorporating occupational and physical therapists. As a component of the RTI process, OT's conducted screenings, educated and supported teachers, provided teachers with resources and strategies, and referred students to special education when appropriate. The OTs reported that support most frequently requested by teachers were strategies to address sensory regulation, posture, bilateral integration, pre-writing, and writing skills. The OT's provided intervention resources and ongoing class wide consultation and collaboration. The researchers identified sufficient time for collaboration and to build trust as key components to the success of the occupational therapist's role in the RTI model. Through participation in the RTI model, the therapists developed a flowchart to describe participation in each tier of the RTI process.

## **Occupational Therapy as a Component of RTI**

School-based occupational therapists are in a unique position to integrate their profession into all levels of a multi-tiered system of support. The AOTA developed a practice advisory paper to address the inclusion of occupational therapy in a Response to Intervention Framework (AOTA, 2012). The paper provides examples of services that may be provided by an occupational therapist at each tier of the RTI model. At the first level, therapists can work to educate and train teachers, conduct screenings, and implement a population-based approach in the general education setting. A population-based approach involves interventions applied to an entire classroom rather than with individual students. Examples of this could include professional development on sensory processing, making recommendations on classroom management, or assisting teachers to develop routines. At the tier two level, occupational therapists may review student data to determine the need for more targeted interventions for struggling students. Examples of tier two interventions may include interventions relating to seating for small groups of students, targeted handwriting interventions, or recommendations for adapted materials. Finally, tier three interventions are implemented with less than five percent of students who do not respond to lower levels of intervention. For these students, therapists may recommend individualized interventions, more frequent data collection, and consider the possibility of a referral for formal evaluation (AOTA, 2012).

### **Examples of the Inclusion of OT in the RTI Process**

Shifts in educational policy have led to higher expectations for kindergarten readiness with increased demands related to fine motor skills and handwriting. To prepare students for more structured, academic-focused kindergarten classrooms, occupational therapists have used



collaborative approaches in the preschool setting to promote kindergarten readiness. Martino and Lape (2020) piloted a six-week program to address fine motor and sensory issues with students in a general education preschool program. The program was implemented with typically developing students and included both fine-motor and sensory activities embedded into the classroom routine. During the intervention, the occupational therapist developed and implemented center-based activities multiple times per week. The classroom teachers carried over the activities by implementing the centers on the days the therapists were not in the classroom. Pre- and post-test measures were administered to determine the effectiveness of the intervention. The results of the study supported the use of this collaborative integrated approach to improve fine motor skills and kindergarten readiness for students in regular education preschool (Martino & Lape, 2020).

Occupational therapists can play a vital role to increase awareness of the feasibility of integrating occupational therapy services within preschool classrooms, collaborating with teachers to help children improve fine motor and visual motor skills necessary for participation in early literacy curricula. (Martino & Lape, 2020, p. 148)

Cahill and Lopez-Reyna (2013) conducted semi-structured interviews with occupational therapists participating in problem solving teams through a Response to Intervention framework in Illinois. The results of this study indicated school personnel lacked an understanding of the scope of school based occupational therapy as well as the ways in which an OT might contribute to the school team. Therapists reported that they were more frequently asked to informally observe a student rather than participate in a problem-solving team process. The authors identified collaborative consultation with active involvement from both the teacher and therapist as a potentially effective RTI intervention in the school setting. To expand the role of the

occupational therapist in the RTI model, it may be necessary to educate school teams on the role of the occupational therapist and the support they can provide. Expanding the role of the occupational therapist to include pre-referral collaboration and consultation could significantly impact the performance of general education students (Cahill & Lopez-Reyna, 2013).

Hintz and Fletcher (2022) conducted a qualitative study to gather information on the experience of teachers who received support from occupational therapists through a MTSS framework. The researchers used surveys and semi-structured interviews to gain insight into the experiences of 13 teachers employed in public schools within the United States. The results of the study indicated teachers had positive experiences when collaborating with OTs through the MTSS framework. Teachers reported that OTs provided consultation, recommended strategies and that they felt the collaboration was an “efficient use of their time with effective solutions which led to student progress” (Hintz & Fletcher, 2022). The study identified the lack of documentation and the teachers’ lack of understanding regarding the role of the OT in the schools setting. In addition, the teachers reported that high caseloads were one impediment to increasing the role of the OT in the MTSS framework (Hintz & Fletcher, 2022).

For elementary students, handwriting is a critical skill that impacts a student's success across all academic areas. Asher and Estes (2016) explored the implementation of handwriting interventions through a Response to Intervention (RTI) framework. Asher and Estes (2016) surveyed kindergarten through sixth grade teachers in a Midwestern school district to gather information related to handwriting interventions in regular education classrooms. The results of the survey indicated that teachers rarely sought out RTI supports for students solely due to handwriting issues. Teachers reported that the occupational therapist was a valued resource in the school community. The teachers identified the OT’s participation in RTI meetings,

recommendations for intervention, and direct student service as the most meaningful contributions. In addition, the teachers reported that there is a greater demand for OT support that can be met due to the therapists' availability. However, only 12% of the survey respondents stated that they utilized occupational therapy support and services to address handwriting concerns through the RTI process (Asher & Estes, 2016).

Asher and Estes (2016) also reported that while teachers had favorable views of OT services, they did not always have a clear understanding of the tiers of support an occupational therapist might provide through the RTI framework. In the general education classroom, therapists can provide universal interventions to support effective handwriting instruction and benefit the entire class. At a tier two level, therapists may offer more targeted interventions that can be implemented and monitored by the regular education staff. Finally, if these efforts fail, individualized interventions can be provided at the tier three level. Therapists can assist teachers in better understanding this scope of practice to ensure appropriate interventions are available across the continuum. Through the use of tier one and tier two interventions, teachers can decrease the number of inappropriate or unnecessary referrals and help keep OT workloads at a reasonable level (Asher, 2006). According to Asher and Estes (2016), "related to RTI programs, therapists should educate school personnel about potential occupational therapy services related to handwriting instruction, continue to contribute to problem-solving processes, and build their roles as consultants."

Ohl et al. (2013) conducted a study to determine the effectiveness of an RTI intervention to address visual-motor integration and fine motor skills at the tier one level. The intervention was implemented with over 100 general education kindergarten students across six elementary schools. The primary research question investigated was whether the occupational therapy based

RTI initiative would produce significant improvements in the fine motor and visual motor skills of the participating kindergarten students. The students' skills were assessed using several standardized OT assessments prior to the intervention and following the 10-week period.

During the intervention phase, occupational therapists collaborated with the general education kindergarten teachers to implement a program specifically developed for the study. The program included direct intervention involving ten 30-minute weekly lessons delivered by the OT along with the teacher, visual aids such as posters that were made available in the classroom, skill modeling by both the teacher and therapist, the integration of a fine motor center into the classroom routine, and ongoing consultation for struggling students (Ohl et al., 2013).

The results of the study indicated that the intervention group showed statistically significant gains in both fine motor and visual-motor skills. Most of the teachers in the study reported that they continued to implement components of the intervention following the completion of the 10-week period. In addition, most teachers also reported they continued to collaborate with the OT after the intervention was concluded. While the study did not investigate the impact on occupational therapy referrals in the intervention group, the authors listed this as a possible area for future exploration. Overall, the study supported the inclusion of occupational therapy in an RTI framework and provided evidence that short-term, collaborative class wide intervention can positively impact students' pre-handwriting skills (Ohl et al., 2013).

### **Therapist Perspectives on School-Based OT Services**

“Although there has been much discussion about the importance of collaboration between professionals who work in inclusive classrooms, limited research is available on the actual process of collaboration, particularly from the point of view of occupational therapists” (Bose &

Hinojosa, 2008, p. 290). Bose and Hinojosa (2008) explored the perceptions of occupational therapists regarding their interactions with early childhood educators in pre-kindergarten through second grade classrooms in New York City. The researchers identified four major themes through the analysis of interviews conducted with occupational therapists. The therapists had a positive view of collaboration but provided few specific examples of the collaborative process or resulting outcomes. The therapists identified the major barriers to effective collaboration as the lack of time available to meet, a lack of support from administrators, and teachers' receptiveness to participating in the process.

The therapist's perceived role in the school setting was another issue identified as a contributing factor to successful collaboration. Several respondents indicated that teachers frequently did not attend to their suggestions. In addition, whether the therapist was viewed as a part of the school staff, or an outsider influenced their abilities to successfully collaborate with teachers. Finally, the main activities therapists reported engaging in with teachers were not truly collaborative in nature. Therapists viewed themselves as experts in their field, and this expert role may have impeded their ability to participate as an equal team member in the collaborative process with teachers (Bose & Hinojosa, 2008).

Cahill et al. (2014) surveyed 1,000 practitioners by randomly sampling individuals from an AOTA database of early intervention and school-based therapists. The purpose of the survey was to gather data on therapists' involvement in the RTI process and attitudes towards that involvement. Respondents indicated that over 75% of their school districts participated in an RTI process. While most participants supported OT participation in the RTI process, they also indicated the school personnel do not fully understand how OTs can contribute to it. While practitioners reported participating in RTI across grade levels, most of the participation in RTI

was reported at the K-3 level. Survey results indicated that participating in problem-solving teams, coaching, consultation, and individual intervention were the activities therapists reported to most frequently participate in.

While many therapists are open to participating in an RTI process, there can be significant barriers impeding their involvement. Cahill et al. (2014) found that most surveyed therapists identified limited resources, including time, personnel, and finances, as the main barrier to their participation in RTI. In addition, they reported teachers' lack of understanding regarding the scope of school-based occupational therapy, and the possible ways a therapist might participate in class wide initiatives. Therapists also noted that there was often no precedent within their districts for the participation of the OT in the RTI process.

Campbell et al. (2012) interviewed occupational therapists regarding their implementation of collaborative classroom-based intervention. In this study, therapists implemented Partnering for Change (P4C), a service delivery model that focuses on teacher and therapist collaboration to enhance participation through environmental modifications and adaptations. During the implementation phase, therapists spent one full day per week in the school to allow for relationship building opportunities and consistent service delivery.

Within the P4C project, the therapists' role included helping the teachers to recognize children with motor difficulties and those at risk; making adaptations to classroom furniture, work space, tools, and materials; working with the teacher to trial and monitor instructional strategies; modeling strategies and techniques for a single student, for a group of students, or for the whole class, sharing information and resources with families; providing brief "lunch-and-

learn” in-services on topics chosen by teaching staff; liaising with school resource staff; and acting as a bridge between the education and health care systems (Campbell et al., 2012, p. 53).

### **Professional Development and School-Based OT Services**

Students with fine motor deficits can have trouble with common classroom activities throughout the school day. “When performing these tasks, these students are often seen as being sloppy with their work, unable to work independently, or lazy in getting the task completed” (Chiu et al., 2008, p. 30). If not addressed, fine motor deficits can lead to secondary issues such as academic problems, low self-esteem, and behavioral issues. Chiu et al. (2008) noted that a lack of teacher awareness regarding occupational therapy can impede students’ access to appropriate services. The provision of professional development is one method that can increase awareness of how occupational therapy can improve student outcomes in educational settings. General educators who participated in the workshops rated the areas in which they perceived the most need for growth. Increasing awareness of factors that can lead to effective changes for students, developing the ability to explain the needs of students with fine motor issues, and understanding how to collaborate with OTs to promote student growth were the primary areas identified for growth. The study's results provide evidence that improved awareness of fine motor issues and occupational therapy can help teachers meet the needs of students in the general education classroom. Collaboration between teachers and therapists can result in effective early intervention that prevents students from experiencing more significant issues as they progress in the educational system (Chiu et al., 2008). “To improve general health and well-being of all students, occupational therapists must move beyond a direct service model approach and explore alternate service delivery models” (Ball, 2018, p. 263). Christner (2015) also found that

professional development was effective in enhancing educators' awareness of school based occupational therapy.

### **Teacher Perspectives on School-Based OT Services**

Bolton and Plattner (2019) investigated the perceptions of occupational therapists and teachers regarding the role of occupational therapy in the school setting. The researchers surveyed elementary teachers and school-based occupational therapists to gain an understanding of the perceived value of OT services, the most common reasons for OT referrals, and the characteristics of OT service delivery in the school setting. The survey results indicated that while most teachers value OT services in the school setting, not all teachers fully understand the full spectrum of OT services available. Occupational therapists reported that they frequently provide services to individual students but rarely provide class wide consultation or interventions.

Benson et al. (2016) collected data on teacher's perceptions of the role of occupational therapists in school through a 31-question survey. Both general and special education teachers were included in the survey, and respondents were all full-time teachers working in Pennsylvania public schools. The results of the study identified four main themes representing teacher's perceptions. In general, occupational therapists were viewed as being student-focused, offering valuable support, and being effective team members. Most respondents reported no negative interactions with school-based occupational therapists and 77% of the respondents identified the occupational therapist as a valuable member of the school team.

Despite the mostly positive perceptions, teachers did report a lack of collaboration and communication with occupational therapists as evidenced by a lack of daily support and non-



attendance at team meetings (Benson et al., 2016). Participants indicated that caseload demands and itinerant status resulted in the OT not being a fully integrated team member. In addition, teachers reported a need for therapists to have more direct interaction with teachers to allow students to succeed in the classroom environment. Overall, teachers stated there was a need for more participation and involvement from the therapist with additional time allocated for classroom visits and teacher and student interactions (Benson et al., 2016).

Occupational therapy strategies cannot be successfully implemented in a school setting without the classroom teacher's support (Benson, 2013). Benson et al. (2016) supported this finding and the need for ongoing collaboration and communication between teachers and therapists. If teachers do not fully understand the role of the school-based occupational therapist, the therapist's role as an effective member of the educational team can be negatively impacted. To enhance their role in the school setting, therapists must work to educate teachers regarding their role, establish effective communication, improve collaboration, contribute as an active member of educational teams, and ensure adequate time to support the teacher, student and team (Benson et al., 2016).

School-based occupational therapists will be utilized more effectively if their colleagues are aware of their entire scope of practice. The roles of occupational therapists working in a school setting have been developing to meet the students' ever-growing needs. It is crucial that teachers are aware of these expanded roles, as they cover all areas of the school environment. (Edick et al., 2022, p. 2)

Edick et al. (2022) conducted a study to explore elementary teacher's perspectives on occupational therapists in the school setting. The researchers investigated the perceived value of collaboration with the occupational therapist as well as gauged how well teachers understood the

roles of the occupational therapist. The researchers used an anonymous survey to gather information from k-6 general and special education teachers working in the public school system. The findings indicated that most teachers believe they understand the role of the occupational therapist and view therapists as an asset to the educational team. One of the main needs identified to improve collaboration between therapists and teachers is the need for formal time to collaborate. To offer preventative consultation to students in the general education setting, therapists must have adequate time to develop a working relationship with teachers and the flexibility in scheduling to allow for ongoing consultation and collaboration (Edick et al., 2022).

### **Promoting Effective Consultation and Collaboration**

While numerous examples of collaboration between teachers and therapists can be found in the literature, there is a lack of information on the actual strategies that have a positive impact on this collaboration. Friedman et al. (2022) conducted a quantitative quasi-experimental study to determine the effectiveness of a training and coaching intervention on improving collaboration between teachers and therapists. The researchers identified the teacher and therapists' self-reported ability to communicate, understand each other's roles, and resolve conflicts at the dependent variables in the study. Following the intervention, both teachers and therapists reported improvements in their skills across all three areas. The results of the study support the effectiveness of ongoing training and coaching to assist teachers and therapists in improving their ability to collaborate in the school setting (Friedman et al., 2022).

The success of a collaborative consultative model of occupational therapy services has been linked to several key characteristics. First, therapists need adequate time to participate in the school community and to develop strong relationships with educators and other school staff.

Secondly, services need to be provided in a consistent and responsive manner. Finally, services should be delivered in an inclusive manner designed to benefit all students, with therapists and teachers working alongside each other as equal team members (Campbell et al., 2012). Through successful collaboration, therapists had the ability to “reach children who were struggling with motor coordination at an early age and to provide teachers with strategies to help children before academic or socio-emotional difficulties had developed (Campbell et al., 2012, p. 57). In addition, therapists participating in this collaborative classroom-based approach reported improved personal growth and job satisfaction and felt a higher level of inclusion in the school community (Campbell et al., 2012).

### **Summary**

Traditionally, school-based occupational therapy services have been primarily accessible for students identified with special needs and eligible for services under IDEA or Section 504 of the Rehabilitation Act. School-based therapists spend much of their workday conducting evaluations to determine eligibility or in the provision of direct services for identified students. While IDEA mandates early intervening services for students in general education, occupational therapists have had very little participation in regular education initiatives such as RTI or MTSS. Limited examples in the literature support the inclusion of the occupational therapist in pre-referral collaboration in the general education environment. The expansion of this role provides an opportunity for school-based occupational therapists to expand their role in the school community, reach at-risk students in a timelier fashion, and better meet the needs of students in the least restrictive environment.

## CHAPTER III

### Methodology

A comprehensive review of the literature provides supporting evidence as to the value of the inclusion of occupational therapists in pre-referral interventions in the general education setting. In the school setting, occupational therapy services are primarily available to students with disabilities who are found eligible when deemed necessary to meet identified goals and objectives (Cantu, 2003). Despite the traditional model of delivering OT services through 504 plans and IEPs, the literature contains a small but growing basis for the expansion of school based occupational therapy in regular education initiatives (Reeder et al., 2011).

### Purpose

The role of school-based occupational therapy services for students identified with special needs has been well-established in the literature. The use of re-referral interventions such as RTI and MTSS to meet the needs of students in the regular education setting are also well supported as effective research-based interventions. The purpose of the current study is to determine the potential impact of incorporating the occupational therapist as a pre-referral regular education resource for teachers and students in the regular education classroom.

Each year, Colonial Intermediate Unit 20 receives a large number of referrals for occupational therapy evaluations of regular education students, and in particular kindergarten students. District administrators have expressed concerns regarding the cost of related services provided by the IU and are looking for ways to decrease costs while still meeting the needs of all students. Because the IU OT staff only provide services to students identified through IDEA or Section 504, there is often little collaboration between regular education teachers and IU therapists regarding students in the general population. This lack of collaboration may result in

teachers being ill equipped with strategies to address issues prior to moving to an occupational therapy evaluation.

Through the use of pre-referral consultation services, an occupational therapist could achieve multiple outcomes. Consultation services can assist teachers in developing skills to better meet the needs of students with fine motor deficits in the classroom. When teachers are better equipped to meet the needs of diverse learners, the need for further evaluation and individualized services may be lessened. In addition, collaboration with occupational therapists and teachers may impact the teacher's perspectives regarding the effectiveness of the Intermediate Unit as a district partner and improve the overall reputation of the IU as a service provider.

Through the implementation of the proposed action research plan, I hope to achieve several outcomes. First, by providing more support from occupational therapists in the regular education setting, I hope to decrease the number of referrals for occupational therapy evaluations for kindergarten students. The CIU20 occupational therapy department employs 11 full-time master's level clinicians. Much of their work time is devoted to conducting evaluations. A large percentage of the evaluations result in referred students not qualifying for occupational therapy service. By providing professional development and collaboration in regular education, I hope to better meet the needs of students through the least restrictive methods and enable teachers to meet the needs of students with minor issues without the need for direct therapy. Finally, my overall goal is to create more awareness of the Colonial Intermediate Unit's occupational therapy department and improve collaboration and communication with the district partners who utilize our services.

***Fiscal Considerations***

Based on the board approved contract rates for the 2022-2023 school year, member districts pay \$136.93 per hour for occupational therapy services. During the 2021-2022 school year, Colonial Intermediate Unit charged a rate of \$132.94 per hour for occupational therapy services. The average salary of a CIU20 registered occupational therapist is \$61,902. The current project will require an initial visit and five monthly visits to four regular education classrooms. Each visit will require approximately one hour of therapist's time plus 30 minutes of travel to and from the location. The estimated total amount of required therapist time for the duration of the project is 30 hours. The prorated salary for the average OTR is \$47.29. The total budgetary impact based on salary is estimated at \$1,419.00.

Over the past four years, the districts' cost for occupational therapy services has increased by 54%. This increase is the result of a steady rise in the number of students CIU20 evaluates and treats on an annual basis. In 2019, an additional occupational therapist was added to the department to meet the increased demand for evaluations and services. Although this cost is not directly related to the impact of the current intervention on the CIU20 budget, the long-term goal of the project is to reduce costs for member districts utilizing the IU for occupational therapy services. Table 1 provides information on the annual costs of OT services for the Bethlehem Area School District over the past four school years.

**Table 1***Annual Cost of OT Services in Bethlehem Area School District*

<b>Bethlehem Area School District Annual Occupational Therapy Cost</b>	
School Year	Total District Cost for OT Services
2018-2019	\$495,441.76
2019-2020	\$584,811.91
2020-2021	\$628,710.40
2021-2022	\$767,633.33

The proposed project will entail minimal indirect costs for the district and the intermediate unit. The consultation visits will not be billed to the district but provided as a component of the indirect time allocated for the district's therapist. Full-time employees are reimbursed for mileage at the IRS rate of \$0.585 per mile. The estimated mileage for each trip is 36 miles, with an estimated total cost of \$126.36. All training materials will be modified by the program supervisor based on existing materials that were previously developed as a part of the program's professional development time. An additional \$100.00 is included in the supply line of the projected budget. This amount may be used to cover any materials recommended by the therapist as a result of the consultation process. For example, modified paper and pencils are frequently recommended as accommodations for students with fine motor needs.

Multi-Tiered System of Support (MTSS) is a comprehensive framework that includes a continuum of evidence-based supports and services to meet the needs of all students. Over half of the school districts in Pennsylvania implement an MTSS system as a school improvement measure. IDEA requires that schools provide students with appropriate instruction in the general education settings. Currently, the main roles of school based occupational therapists are conducting evaluations to determine eligibility for special education services and the provision of direct services to identified students. Traditional MTSS models have not incorporated

occupational therapists as a pre-referral resource in the provision of regular education interventions. Increasing OT involvement in the pre-referral intervention process has the potential to increase teacher competencies, decrease wasted resources on unnecessary evaluations, and decrease the number of students requiring higher levels of specialized intervention. The proposed project will evaluate whether the provision of pre-referral consultation services will impact the number of evaluations requested by regular education teachers. On a larger scale, this type of consultation model could reduce the overall cost of CIU20 occupational therapy services for our member districts while empowering district teachers to meet the needs of diverse learners in the least restrictive environment.

### **Setting**

#### ***Colonial Intermediate Unit 20 Occupational Therapy***

As the eighth largest IU in Pennsylvania CIU20 provides related services for students in school districts across Northampton, Monroe and Pike Counties. The related services offered by the intermediate unit include physical therapy, speech therapy, vision services, audiological services, orientation and mobility services, and occupational therapy services. The occupational therapy department is a component of the larger Pupil Personnel Services department. Within the department there are currently 11 masters level clinicians (Occupational Therapists, Registered) and over 35 Certified Occupational Therapy Assistants (COTAs). Each of these individuals maintains licensure with the American Occupational Therapy Association as well as the Pennsylvania State Board of Occupational Therapy Education and Licensure.

#### ***Bethlehem Area School District***

Bethlehem Area School District is the sixth largest school district in Pennsylvania. The district is in Northampton County within the Colonial Intermediate Unit #20 catchment area. The



district encompasses approximately 42 square miles (about the area of Manhattan) and has an enrollment of just over 13,000 students. According to the Future Ready PA Index (Pennsylvania Department of Education, 2023), 54.7% of the student population is Economically Disadvantaged, 7.3% of students are identified as English Language Learners, and 17.5% of the student population receives Special Education services. The ratio of male to female students is 52% to 48%. The district is fairly diverse regarding race and ethnicity; Table 2 provides information on the race and ethnicity of the student body according to current data provided on the PA Future Ready Index (Pennsylvania Department of Education, 2023):

**Table 2**

*Bethlehem Area School District Percent Enrollment by Race/Ethnicity*

Percent Enrollment by Race/Ethnicity	
American Indian/Alaskan Native	0.2%
Asian	2.8%
Black	11.1%
Native Hawaiian or other Pacific Islander	0.2%
Hispanic	44.4%
White	39.3%
2 or more races	2.0%

*Note.* Adapted from the 2023 Future Ready PA Index, by Pennsylvania Department of Education, 2023 (<https://www.futurereadypa.org/>).

Bethlehem Area School District is comprised of 16 neighborhood elementary schools which house kindergarten through grade five. The district also includes two middle schools serving sixth through eighth grade students, and two high schools. The district has offered an early childhood education program for eligible pre-kindergarten children through PA Pre-K Counts funding for the past several years. The district's kindergarten program is a full-day program offered to all residents who turn five years old by October first of each year. The district provides laptops for all students to be used during academic programming. All district

elementary students receive instruction in library, art, music, technology, and physical education once a week. The district issues report cards based on academic and social performance to parents four times each academic year. According to the mission statement provided on the district website, Bethlehem Area School District

in partnership with the home and community, is committed to providing a safe and supportive environment in which each student will attain the knowledge, skills, and attitudes necessary to become a productive citizen and life-long learner in our technologically demanding and culturally diverse society” (Bethlehem Area School District, 2019, para.1).

The current study was conducted at two elementary schools located within the Bethlehem Area School District, Asa Packer Elementary School and Governor Wolf Elementary School.

### ***Asa Packer Elementary School***

Asa Packer Elementary School is located just off Stoke Park Road in Bethlehem, PA. The building houses kindergarten through fifth grades, as well as one CIU20 classroom, and has an enrollment of about 400 students. The school’s website identifies 4 key components that are responsible for the school’s strong community. These components include parent partnerships, family events, a focus on technology, and the school’s designation as a Leader in Me building based on Stephen Covey’s 7 Habits (Covey et al, 2014).

Asa Packer differs slightly from the district overall in regard to race and ethnicity. In particular, Asa Packer has a smaller percentage of Hispanic students and a larger percentage of White students. Table 3 provides information on the race and ethnicity of Asa Packer’s student body according to current data provided on the PA Future Ready Index. As of April, of the 2022-2023 school year, 51 kindergarten students were enrolled in this elementary school.

**Table 3***Asa Packer Percent Enrollment by Race/Ethnicity*

Percent Enrollment by Race/Ethnicity	
American Indian/Alaskan Native	0.0%
Asian	2.7%
Black	8.3%
Native Hawaiian or other Pacific Islander	0.0%
Hispanic	21.7%
White	65.5%
2 or more races	1.8%

*Note.* Adapted from the 2023 Future Ready PA Index, by Pennsylvania Department of Education, 2023 (<https://www.futurereadypa.org/>).

According to the school’s website, Asa Packer “is a diverse learning community that fosters student growth and success in a safe and challenging environment. Our goal is to empower children to become life-long learners and responsible citizens” (Bethlehem Area School District, 2023, para. 1).

***Governor Wolf Elementary School***

Governor Wolf Elementary School is located in the northeast section of Bethlehem. Governor Wolf’s website describes the school as an environment that strives to maintain high expectations for students in a cooperative climate. The mission of the school is based on motivating, inspiring, leading, and encouraging all students to support academic and social growth and development (Bethlehem Area School District, 2023). The school is also designated as a Leader in Me building based on Stephen Covey’s 7 Habits (Covey et al, 2014).

Governor Wolf also differs slightly from the district overall in regard to race and ethnicity but shares similar characteristics with Asa Packer. Table 4 provides information on the race and ethnicity of Governor Wolf’s student body according to current data provided on the PA Future

Ready Index. As of April, of 2022-2023 school year, 73 kindergarten students were enrolled in this elementary school.

**Table 4**

*Governor Wolf Percent Enrollment by Race/Ethnicity*

Percent Enrollment by Race/Ethnicity	
American Indian/Alaskan Native	0.2%
Asian	2.7%
Black	10.3%
Native Hawaiian or other Pacific Islander	0.2%
Hispanic	38%
White	47%
2 or more races	2.0%

*Note.* Adapted from the 2023 Future Ready PA Index, by Pennsylvania Department of Education, 2023 (<https://www.futurereadypa.org/>).

## Participants

Eight kindergarten teachers will be invited to participate in the study. All teachers will be sent pre- and post- surveys using Google Forms. Four of the participating classrooms are in Asa Packer Elementary School, located within the Bethlehem School District. The kindergarten teachers at Asa Packer will receive the professional development and consultation training intervention. The remaining four kindergarten classrooms that will be invited to participate in the study are located within Governor Wolf Elementary School, also located in Bethlehem Area School District. The Governor Wolf classrooms will serve as a control group for the study and will not receive the professional development and consultation training intervention.

In addition to the kindergarten teachers, study participants will include the building principal from the elementary school participating in the intervention. The principals provided initial consent for the building faculty members' participation. At the end of the intervention

phase, the researcher will interview the principal to gain qualitative data on his perspective regarding the value of the occupational therapy services provided by CIU20.

The key participant in the current study is the master's level Occupational Therapist responsible for implementing the intervention. The therapist participating in the current study was chosen for multiple reasons. First, she is the most senior therapist assigned to Bethlehem School District. She has been employed by the Colonial Intermediate Unit for 10 years as an OT. Several years ago, this therapist participated in a project to develop professional development for regular education teachers in the district as a strategy to reduce requests for OT evaluations across the district. The therapist has a good rapport with district teachers and administrators, which was a factor that could facilitate the implementation of the intervention.

In addition to the direct participants, the researcher relied on another Occupational Therapist, Registered who is currently employed by CIU20 as a collaborating consultant. This OTR provided input into the design of the study. She also helped the researcher understand state and federal regulations related to the delivery of school-based occupational therapy services.

### **Intervention/Research Plan**

To conduct the proposed action research study, the researcher designed a mixed method design to gather both quantitative and qualitative data related to my research questions. The proposed intervention will involve monthly classroom based occupational therapy consultation visits scheduled during the school day. The therapist will visit each classroom in the intervention group for a 30-minute monthly consultation for six months. Consultation services may include observation, discussion with the teacher, recommendations for class wide adaptations, and modeling of occupational therapy strategies. The consultation visits will not impact instructional time or interfere with class activities. The therapist will be available for assistance if requested

by the teacher but will refrain from disrupting the classroom routine to the greatest extent possible. The visits will be scheduled by the occupational therapist based on the classroom teacher's availability. The therapist will email the teachers at least two weeks prior to the proposed visit to coordinate the date and time of the visit.

Data on teacher perceptions will be collected using pre- and post- survey measures to determine whether the intervention impacts teacher perceptions regarding the role and efficacy of OTs in the school setting. Data will be pulled from the IU referrals database to compare the number of evaluations requested in kindergarten classrooms participating in the intervention to classrooms not participating in the intervention. Interviews will be conducted with the participating occupational therapist and the building principal post intervention to gain information on the perceived effectiveness of the intervention. The post-intervention interviews with the building principal will be included to gather insight on the building administrator's perception of the impact of OT services for classrooms participating in the intervention.

For a period of five months, classroom consultation will be provided on a monthly basis. Following the intervention, interviews will be conducted with the participating occupational therapist.

Data collected for the project will be kept confidential. No identifying information will be collected in the electronic surveys. Participants will be randomly assigned a participant identification number to compare pre and post results and only be identified by this random number. Participant names and random number assignments will be kept in a master list stored separately from the survey data collected. The master list will be destroyed after the data has been coded. All hard-copy data will be kept in a secure office location at the CIU20 main office in a locked file. No personally identifying information will be shared with school personnel. All

electronic data will be stored on a secure server and password protected. Thematic coding will be used to organize and analyze interview responses from principals and the occupational therapist.

### **Research Design, Methods & Data Collection**

The current study includes an analysis of pre- and post- survey measures to determine whether the intervention impacted teacher perceptions regarding the role and efficacy of OTs in the school setting. The quantitative data collected through the pre- and post- surveys will be reported and visually displayed through graphs and tables to determine if the perceptions of the teachers who participated in the intervention changed. The post- survey results of the two groups will be compared through descriptive statistics using an analysis of the means. The researcher will also analyze data on the number of evaluations requested in kindergarten classrooms which participate in the intervention and in the control group classrooms. The total number of evaluations per classroom for each of the participating teachers will be calculated. The mean number of evaluations for the classroom teachers who participated in the intervention will be compared to the mean number of evaluations for the non-participating teachers. These means will be compared to determine if there is a difference between the two groups. Data will be pulled from the IU referrals database to compare the number of evaluations requested in kindergarten classrooms participating in the intervention to the number of referrals in classrooms not participating.

### **Research Questions**

1. How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting?

2. How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of the value of IU OT services?
3. How does the provision of pre-referral professional development and class wide consultation impact the number of initial referrals for kindergarten occupational therapy evaluations?

The first research question will examine whether the provision of professional development and class wide consultation can impact general education classroom teachers' perceptions of their own competency when supporting students with occupational therapy needs in the general education classroom setting. The second question will compare the perceptions of general education teachers who have participated in pre-referral professional development and class wide consultation prior to the intervention and at the conclusion of the intervention. In addition, the researcher will compare the perceptions of the teachers who participated in the intervention to teachers who did not participate. The third research question will use district referral data to determine if the provision of the intervention impacts the number of referrals for students whose teachers participated in the intervention.

Each participating kindergarten teacher completed a pre- and post- survey to collect quantitative data regarding perspectives regarding the effectiveness of school-based occupational therapy services. The survey was designed to collect data to assess the teacher's perspectives on the role and efficacy of OTs in the school setting. Teachers rated each survey item by indicating their agreement with statements using a five-point Likert scale ranging from Strongly Disagree to Strongly Agree (Appendix A). The survey required teachers to answer 10 questions to gain information on their perspectives related to the established research questions. Teachers in the control and intervention groups completed the surveys during the first and sixth months of the



study using a Google Form distributed through email. Participants will include their randomly assigned participant identification number in the survey pre and post results so that the results from the two surveys can be compared.

***Teacher Pre- and Post- Survey Statements***

- As a regular education teacher, I utilize an occupational therapist to support students in regular education.
- Prior to referring a student for an occupational therapy evaluation, I attempt strategies to address fine motor deficits in the classroom.
- The occupational therapist is a valuable resource to me as a teacher.
- If I need assistance from an occupational therapist, my assigned building provider is available and accessible.
- I understand the role of the school-based occupational therapist at the elementary school level.
- I am satisfied with the support I receive from the Intermediate Unit Occupational Therapy Department.
- I believe my regular education students can benefit from classroom consultation from an occupational therapist prior to a referral for evaluation.
- All students who demonstrate fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation.
- I am knowledgeable regarding strategies that can benefit students with fine motor and sensory concerns.
- My school district offers professional development opportunities related to occupational therapy topics.

At the end of the intervention phase during the sixth month of the implementation process, the researcher will interview the occupational therapist who participated in the intervention. The interview will be conducted by the researcher at the Intermediate Unit central office, and responses will be recorded. The interview is expected to take approximately 15 minutes and is composed of open-ended questions in a semi-structured format that may lead to additional follow-up questions.

### ***Occupational Therapist Interview Questions***

- What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?
- What impact did the current intervention have on student performance in the regular education classroom?
- What impact did the current intervention have on teacher's perceptions regarding the value of occupational therapy services in the school environment?
- What impact did the current intervention have on your relationship with the classroom teachers?
- What impact did the current intervention have on your level of participation in the building as a whole?

Also, at the conclusion of the intervention phase during the sixth month of the implementation process, the researcher will conduct a brief interview with the building principal whose kindergarten classrooms participated in the intervention. The interview will be conducted by the researcher in the school building, and responses will be recorded. The interview is expected to take approximately 15 minutes and is composed of open-ended questions in a semi-structured format that may lead to additional follow-up questions.

***Principal Interview Questions***

- What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?
- What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?
- What impact did the current intervention have on student performance in the regular education classroom?
- What impact did the current intervention have on your perceptions regarding the value of Occupational Therapy services in the school environment?
- What impact did the current intervention have on the Occupational Therapists' level of participation in the building as a whole?
- What impact did the current intervention have on your impression of the value of IU related services as a support for your building?

**Validity**

Mertler (2019) states that it is the responsibility of an action researcher to take appropriate measures to ensure that the research is sound. For action research to have rigor, it must be considered in light of its quality, accuracy, credibility, and validity. Data collection and analysis must be conducted in a manner that ensures unbiased results and objectivity. Several techniques can be employed to show evidence of rigor and validity. In the current study, triangulation of data, experience with the process, and prolonged engagement and persistent observation were employed to support the researcher's assumption of validity (Mertler, 2019).

To develop the intervention implemented in the current study, it was necessary for the researcher to have an in-depth knowledge of school based occupational therapy practices. As the

author was neither an experienced researcher nor a registered occupational therapy, it was necessary to enlist the aid of a collaborator. The author relied on collaboration with a doctoral level Occupational Therapist, Registered, currently employed by CIU20, to assist in designing the intervention, developing survey and interview questions, and analyzing the results of the study. This collaborator also provided assistance to the researcher in understanding state and federal regulations related to the delivery of school based occupational therapy services. The expertise of this collaborator provided a higher level of rigor and credibility due to her educational background, training, and experience with the action research process. It also helped to ensure construct validity in that the questions included in the surveys and interviews were designed to elicit meaningful information on the perspectives of the participants related to the value of school-based occupational therapy services.

Triangulation of data involves including multiple sources of data within a research study. Including multiple data sources helps in verifying the accuracy of data and giving credibility to the study's findings (Mertler, 2019). The research design includes three sources of data. The first source will be gathered through the pre- and post- surveys administered to the participating teachers. The second source of data will be gathered through the interviews conducted with the building principal and participating occupational therapist. Finally, data on the number of referrals requested across the control and intervention classrooms will be analyzed to investigate the impact of the intervention on the number of referrals requested throughout the implementation phase of the study. The inclusion of these multiple data sources within the study design will provide further support of the validity of the findings through the established method of data triangulation.

A final means of establishing validity will be the use of prolonged engagement. The classrooms participating in the intervention group will receive classroom consultation for a period of six months. For participants to understand the outcomes of the project, they need sufficient time to fully explore the experience (Mertler, 2019). By extending the intervention over a period of six months, it allows the therapist to develop a rapport with the classroom teachers, gain a better understanding of the classroom dynamics, and have ample time to observe students and make recommendations based on ongoing engagement in the regular education setting.

### **Summary**

The research questions identified for the current action research project were designed to investigate the impact of school-based pre-referral consultation through specific outcome measures. The provision of more support from occupational therapists in the regular education setting may be a method of decreasing the number of referrals for occupational therapy evaluations for kindergarten students. The intervention was designed to better meet the needs of students through the least restrictive methods and empower teachers to meet the needs of students without the need for higher levels of support. Finally, expanding the role of occupational therapists as classroom collaborators and consultants may positively impact the perceptions of school personnel on the value of the occupational services provided by the intermediate unit.

## Chapter IV

### Data Analysis and Results

The focus of this chapter is an analysis of the data collected over the five-month implementation phase of the study. The data collected was aligned to the research questions identified as the focus of this action research project. The first research question “how does the provision of pre-referral professional development and class wide consultation impact teachers’ perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting?” was designed to investigate whether the current intervention would impact the perceptions of regular education kindergarten teachers when compared to teachers not participating in the intervention. The second research question “how does the provision of pre-referral professional development and class wide consultation impact teachers’ perceptions of the value of IU OT services?” was also designed to investigate whether the current intervention would impact the perceptions of regular education kindergarten teachers when compared to teachers not participating in the intervention. The final research question “how does the provision of pre-referral professional development and class wide consultation impact the number of initial referrals for kindergarten occupational therapy evaluations?” focused on an analysis of referral data to further analyze the impact of the intervention.

To conduct the proposed action research study, the researcher implemented a mixed method designed to gather quantitative and qualitative data. The proposed intervention consisted of monthly classroom based occupational therapy consultation visits scheduled during the school day at Asa Packer Elementary School. The visits were conducted by the CIU20 occupational therapist assigned to the building. Each classroom in the control group at Asa Packer was provided a 30-minute monthly consultation for a period of five months. Consultation services

included observation, discussion with the teacher, recommendations for class wide adaptations, and modeling of occupational therapy strategies. The consultation visit was designed so that it did not impact instructional time or interfere with class activities. At the request of the teacher, the therapist provided assistance with student specific concerns. The occupational therapist scheduled each visit via email based on the classroom teacher's availability.

To ensure anonymity, survey participants were randomly assigned participant identification numbers. The numbers were assigned via email by the department secretary and recorded in a master list and stored separately from the survey data collected. The pre and post survey results collected via the Google survey were identifiable only by the random numbers. Following the completion of the intervention phase the master list was destroyed.

At the start of the project, all kindergarten teachers within Asa Packer Elementary School and Governor Wolf Elementary School were invited to participate. The control and experimental settings were not randomized but were products of convenience sampling. At Asa Packer, three of the kindergarten teachers agreed to participate in the project. At Governor Wolf, three teachers initially agreed to participate. However, one teacher in the building was unable to continue with the project due to a medical leave.

### **Survey Data and Analysis**

The 10-question survey was given to the regular education kindergarten teachers in both the intervention and control groups to understand their perceptions related to the research questions. The post intervention survey results were analyzed to compare that of the control group and the intervention group. In addition, the pre and post intervention responses in each group were analyzed to determine whether there was a difference between the pre and post

survey responses between the two groups. The following tables and graphs provide specific information and visual representations of the analysis of survey results.

### *Analysis of Post Intervention Survey Responses*

The post intervention survey data is broken down into two tables. Table 5 contains questions related to the teachers' perceptions of their own competency to address occupational therapy concerns in the regular education setting.

**Table 5**

#### *Post Intervention Survey Responses: Teacher Perceptions of Self-Competency*

Question	Control Group n=2	Intervention Group n=3
As a regular education teacher, I utilize an occupational therapist to support students in regular education.	Strongly Disagree 0 Disagree 1 Undecided 0 Agree 0 Strongly Agree 1	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0
Prior to referring a student for an occupational therapy evaluation, I attempt strategies to address fine motor deficits in the classroom.	Strongly Disagree 0 Disagree 0 Undecided 0 Agree 1 Strongly Agree 1	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0
I am knowledgeable regarding strategies that can benefit students with fine motor and sensory concerns.	Strongly Disagree 0 Disagree 0 Undecided 0 Agree 1 Strongly Agree 1	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0
All students who demonstrate fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation.	Strongly Disagree 0 Disagree 2 Undecided 0 Agree 0 Strongly Agree 0	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0



My school district offers professional development opportunities related to occupational therapy topics.	Strongly Disagree	2	Strongly Disagree	1
	Disagree	0	Disagree	1
	Undecided	0	Undecided	1
	Agree	0	Agree	0
	Strongly Agree	0	Strongly Agree	0

The survey asked each of the regular education teacher participants to indicate whether they disagreed or agreed with each statement provided on a scale including strongly disagree, disagree, undecided, agree, and strongly agree. The responses were separated and analyzed for the control group and the intervention group. The first five questions analyzed were related to teacher perceptions of self-competency. For the first question, one teacher in the control group agreed strongly that she utilizes the occupational therapist to support students in regular education while the second teacher disagreed. For questions two and three, both teachers in the control group agreed that they attempt strategies to address fine motor deficits prior to referring a student for an occupational therapy evaluation and that they are knowledgeable regarding strategies that can benefit students with fine motor and sensory concerns. Both teachers in the control group also disagreed that all students with fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation and that their school district offers professional development opportunities related to occupational therapy topics.

In the intervention group, the responses indicated that one of the teachers typically responded much differently than the other two. For example, in question one, one of the respondents strongly disagreed that she utilizes the occupational therapist to support students in regular education while the second two respondents agreed. The same pattern emerged regarding attempting strategies prior to referring students for occupational therapy evaluations, knowledge regarding strategies that can benefit students with fine motor and sensory concerns, and

regarding whether all students who demonstrate deficits should be referred for an evaluation. For the question regarding whether their school district offers professional development opportunities related to occupational therapy topics, the three teachers in the control group varied in their responses, ranging from strongly disagree to undecided in their responses, although none of the teachers agreed with this statement.

Table 6 contains questions related to the teachers' perceptions of the value of the IU occupational therapy services.

**Table 6**

*Post Intervention Survey Responses: Value of IU OT Services*

Question	Control Group n=2	Intervention Group n=3
I believe my regular education students can benefit from classroom consultation from an occupational therapist prior to a referral for evaluation.	Strongly Disagree 0 Disagree 0 Undecided 0 Agree 0 Strongly Agree 2	Strongly Disagree 0 Disagree 0 Undecided 0 Agree 2 Strongly Agree 1
The occupational therapist is a valuable resource to me as a teacher.	Strongly Disagree 0 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0
If I need assistance from an occupational therapist, my assigned building provider is available and accessible.	Strongly Disagree 0 Disagree 1 Undecided 0 Agree 1 Strongly Agree 0	Strongly Disagree 0 Disagree 0 Undecided 2 Agree 1 Strongly Agree 0
I understand the role of the school-based occupational therapist at the elementary school level.	Strongly Disagree 0 Disagree 0 Undecided 1 Agree 1 Strongly Agree 0	Strongly Disagree 1 Disagree 0 Undecided 0 Agree 2 Strongly Agree 0

I am satisfied with the support I receive from the Intermediate Unit Occupational Therapy Department.	Strongly Disagree 0	Strongly Disagree 0
	Disagree 0	Disagree 0
	Undecided 2	Undecided 0
	Agree 0	Agree 3
	Strongly Agree 0	Strongly Agree 0

The remaining five survey questions were designed to gain information on the teachers’ perspectives regarding the value of intermediate unit occupational therapy services. The responses from the participants in the control group were fairly consistent in this area. Both teachers strongly agreed that regular education students can benefit from classroom consultation from an occupational therapist prior to referral. They also agreed that the occupational therapist is a valuable resource to them as teachers. Both teachers were undecided as to whether they were satisfied with the support they receive from the intermediate unit occupational therapy department. The two teachers disagreed on whether the assigned building provider is available and accessible when they need assistance from an occupational therapist. Both teachers were undecided as to whether they were satisfied with the support they receive from the intermediate unit occupational therapy department. One teacher agreed that she understood the role of the school-based occupational therapist at the elementary school level while the second teacher was undecided.

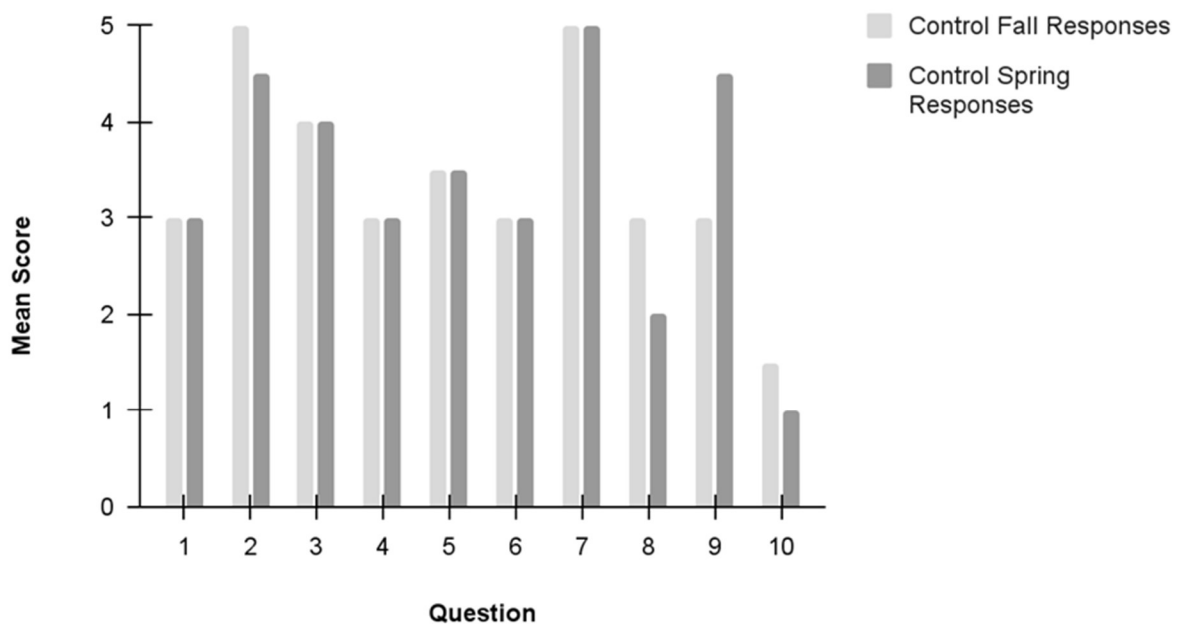
In the intervention group, all the teachers either agreed or strongly agreed that regular education students can benefit from classroom consultation prior to a referral for occupational therapy. Two teachers agreed that the occupational therapist is a valuable resource to them while the third strongly disagreed. One teacher felt that the occupational therapist is available and accessible when needed while the remaining two teachers were undecided. Two of the teachers agreed that they understand the role of the school-based occupational therapist at the elementary

level while one strongly disagreed. However, all three teachers agreed that they are satisfied with this report they receive from the intermediate unit occupational therapy department.

In addition to analyzing the post- intervention responses between the control and intervention groups, responses within each group were analyzed. The control group responses from the pre-intervention survey compared to those of the post-intervention survey are presented in Figure 1. Although this group did not participate in the intervention, the survey was delivered to the control group in the same manner as the intervention group to provide a point of comparison.

**Figure 1**

*Control Group Pre- and Post- Survey Responses*



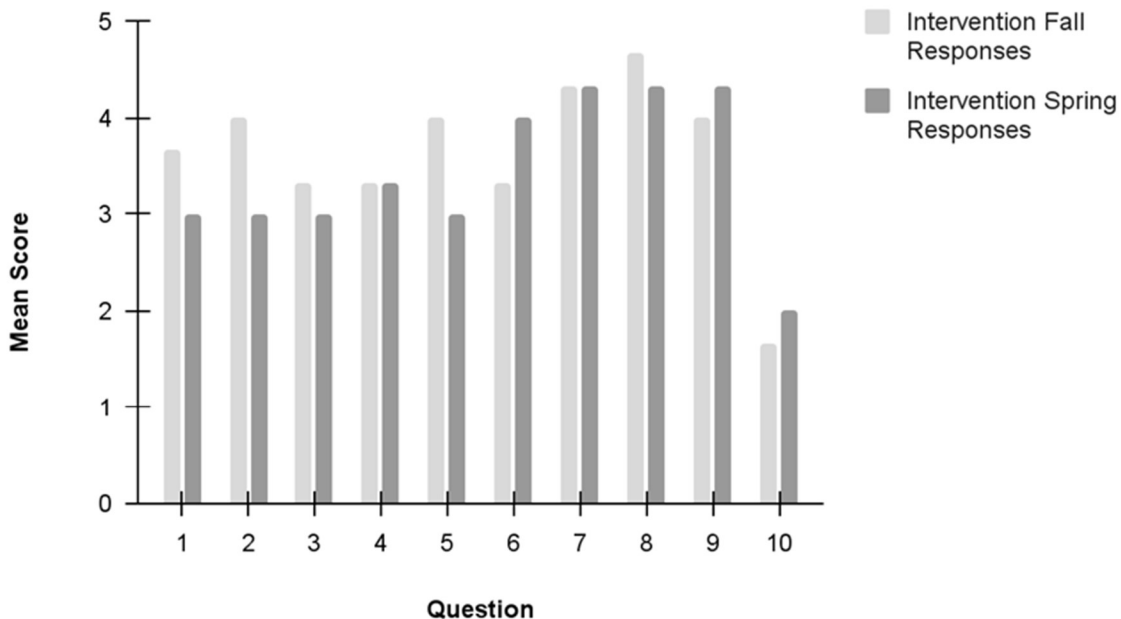
Survey results from the control group were analyzed to determine if there was a difference between the pre-intervention survey responses and the post intervention survey responses over the course of the five-month period through a comparison of mean response scores. The questions included in the survey can be found in Appendix A. In general, the survey

results for the control group did not vary greatly when comparing the fall responses to the spring responses. For questions two, three, four, five, six, and seven, the teachers' responses remain consistent from the fall to the spring. For question two, there was a slight decrease in the mean score response. For question eight, there was a slightly larger decrease in the mean score response, and for question 10, there was a slight decrease in the mean score of the responses.

Survey responses from the intervention group prior to the intervention were also compared to the group's responses following the intervention. The intervention group responses from the pre-intervention survey compared to those of the post-intervention survey are presented in Figure 2. The purpose of this comparison was to determine if participation in the intervention would have an impact on teacher perceptions as conveyed through the survey responses.

**Figure 2**

*Intervention Group Pre- and Post- Survey Responses*



The survey results from the intervention group were also analyzed to compare the teachers' responses during the fall administration of the survey when compared to the spring

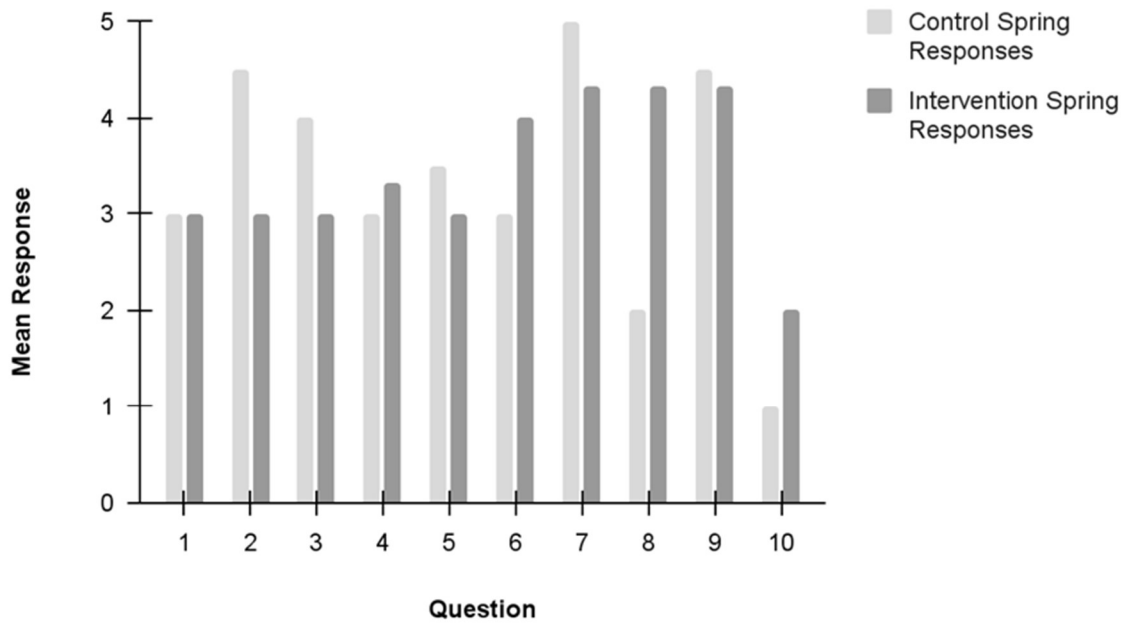
administration of the survey using an analysis of the mean response score for each question. In the intervention group, the scores remained consistent for question four and question seven. There was a slight decrease in the mean score of responses for question one, question two, question three, question five, and question eight. The intervention group responses showed an increase in mean score for question six, question nine, and question 10.

***Analysis of Pre and Post Intervention Survey Responses between Groups***

To determine if there was a difference in the pre- and post- survey results between the two groups, the researcher calculated the mean response score for each group and compared the data. The mean response scores are visually represented in Figure 3.

**Figure 3**

*Control Versus Intervention Group Post- Survey Responses*



***Analysis of Referral Data***

CIU20 receives referrals for occupational therapy evaluations through an electronic referral system. Member school districts complete the referral form, which is found on the IU

website, to request services or evaluations from the IU. Once the referral is submitted, it is processed by department secretaries and routed to the appropriate service providers. A database of all requested referrals is maintained in Google Sheets. For the current study, this referral data was used to analyze the number of referrals received from Asa Packer and Governor Wolf kindergarten teachers during the 2022-2023 school year. All referrals for each building were pulled from the database. Any students not in kindergarten for the current school year were removed from the count. In addition, kindergarten students in classes not participating in the study were also removed from the final count.

For the current study, the researcher compiled referral data from the 2022-2023 school year from the beginning of the year through May 1, 2023. Asa Packer Elementary School submitted 17 referrals for occupational therapy evaluations for students in K-5 classroom programs. Governor Wolf submitted 18 referrals for occupational therapy evaluations for students in K-5 classroom programs. During the 2021-2022 school year, Asa Packer Elementary School submitted 23 referrals for occupational therapy evaluations for students in K-5 classroom programs. Governor Wolf submitted 24 referrals for occupational therapy evaluations for students in kindergarten through fifth grade classroom programs during the 2021-2022. Overall, the two buildings had a similar rate for occupational therapy evaluation referrals for the last two years.

To compare referral rates across the classrooms participating in the control and intervention group, the researcher removed all students in grades one through five from the referral data. In addition, referrals from the kindergarten teachers not participating in the project were excluded. The remaining kindergarten referrals were compared across the Asa Packer intervention classrooms and the Governor Wolf control group classrooms. Overall, Asa Packer

had four referrals from the participating classrooms. The Governor Wolf classrooms had only two referrals from the participating teachers. Despite the intervention, the number of referrals from the teachers participating in the intervention was lower overall than those of the teachers assigned to the control group.

The referral rates for the classrooms in the control and intervention groups were also compared across the 21-22 school year and the 22-23 school year. At Governor Wolf, the classrooms in the control group submitted a total of two referrals for occupational therapy evaluations during the 21-22 school year. The same classrooms submitted two referrals for occupational therapy evaluations during the 22-23 school year. At Asa Packer, the classrooms in the intervention group submitted a total of seven referrals for occupational therapy evaluations during the 21-22 school year. The same classrooms submitted four referrals for occupational therapy evaluations during the 22-23 school year. Overall, the number of referrals in the control group stayed the same across the two school years, while the number of referrals from the classroom teachers in the intervention group dropped. Table 7 represents the number of referrals by building and year for both the control group and the intervention group.

**Table 7**

*Number of Referrals by School Year*

School	Group	School Year	Number of Referrals
Governor Wolf	Control	21-22	2
Governor Wolf	Control	22-23	2
Asa Packer	Intervention	21-22	7
Asa Packer	Intervention	22-23	4



## **Interview Data**

### ***Occupational Therapist Interview***

Following the completion of the intervention, the researcher conducted an interview with the participating occupational therapist. The interview was conducted via zoom due to construction at the main office. Responses were recorded by the researcher. The interview consisted of five predetermined questions designed to gather information about the therapist's thoughts regarding the effectiveness of the intervention. In addition to these five questions, the research asked two follow-up questions to gain further insight on the responses provided.

Question 1: What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?

Question 1 Response:

For at least some of the teachers who requested items, they found they were helpful without needing to put in a referral. For example, for sensory items, the students were able to focus more at their desk without having to get up and move around. We used kick bands and sensory stickers for some students. The teachers liked the wiggle wobble feet that they used on the feet on some students' chairs. One student was struggling with cutting and I spoke to the teacher about giving her a reminder to keep her thumb up. Once she was given the reminder the student was able to do this throughout that activity and generalized this for the rest of the year. The teacher reported this to me. One of the three teachers was very receptive and always let me know if things worked or not. I tried to go in and not disrupt the classroom, but this teacher would often stop and talk to me and ask for suggestions about how to handle different situations.

Question 2: What impact did the current intervention have on student performance in the regular education classroom?

Question 2 Response:

The students were able to focus more, especially those who needed sensory and movement. Many of them were able to stay at their desks longer. Movement around the classroom decreased. These students were constantly up and around the classroom, which was a distraction for the teacher and the other students. It was a constant disruption to try and get them back to their desk area.

Question 3: What impact did the current intervention have on teacher's perceptions regarding the value of occupational therapy services in the school environment?

Question 3 Response:

I feel like they liked it. One of them was more receptive and asked a lot of questions. At the end she asked about seeing me the following month. She liked being able to bounce ideas off me and get ideas rather than needing to put in a referral for an evaluation to get input.

Question 4: What impact did the current intervention have on your relationship with the classroom teachers?

Question 4 Response:

I think it definitely helped. I have been in this school for the last several years. I think it opened up communication more. Usually, I am just going to the door and pulling a student out for an evaluation. This allowed me to have more open conversations and the ability to give them suggestions.

Question 5: What impact did the current intervention have on your level of participation in the building as a whole?

Question 5 Response:

It made me be in the building at least once a month. In the past there were times when I would not have been there if there were no referrals. It definitely increased my presence by being there for a scheduled visit each month. It was neat to see the kids without being there for a specific student. I got to see the classroom as a whole and see how one student with OT concerns can impact the entire class and not just that student.

Follow-up Question 1: If the district added an occupational therapist as a member of their MTSS team, do you think this would be a valuable addition to the team?

Follow-up Question 1 Response: “Yes, I do. The district does have suggestions based on general areas of concern. This would allow us to give specific recommendations for specific kids based on the teacher’s concerns.”

Follow-up Question 2: Do you think providing pre-referral consultation regularly could decrease referral rates?

Follow-up Question 2 Response:

I am going to say yes and no. I think yes if it is just a simple thing like giving reminders of using a thumb up for cutting skills. It’s not something that needs to be addressed in a pull-out session. I feel that most of the teachers do know when there are needs that can’t be addressed in the classroom and there is a need for a direct pull-out.

### ***Principal Interview***

Question 1: What impact did the current intervention have on the teachers’ ability to address Occupational Therapy concerns in the regular education classroom?

Question 1 Response: “It allowed for more access to sensory related tools for all students in the classroom environment.”

Question 2: What impact did the current intervention have on student performance in the regular education classroom?

Question 2 Response: “It helped some students in the short term. Students still had difficulty focusing, but this allowed for additional strategies to be implemented in the classroom on a regular basis.”

Question 3: What impact did the current intervention have on your perceptions regarding the value of Occupational Therapy services in the school environment?

Question 3 Response: “There is a continuing and growing need for support for all students. Some interventions work immediately and last while other interventions work short term and need to be varied and/or changed.”

Question 4: What impact did the current intervention have on your impression of the value of IU related services as a support for your building?

Question 4 Response: “There is a need for more sensory and OT interventions throughout the building for all students. We are seeing an increase in this, more than we previously have experienced in our building.”

Question 5: What impact did the current intervention have on the Occupational Therapists’ level of participation in the building as a whole?

Question 5 Response: “During the project, the OT was in the building on a more regular basis, not just when conducting evaluations or meeting with the COTA who provides direct service.”

Follow-up Question 1: Prior to this intervention, did your regular education teachers have access to the occupational therapists as a resource for supporting students not receiving services through a 504 plan or IEP?

Follow-up Question 2 Response: “We have utilized them in the past.”

Follow-up Question 2: As the building principal, do you feel the OTs could contribute to your MTSS process?

Follow-up Question 2 Response: “Yes. Their input would be valuable in making decisions about students who may benefit from OT Services. We’ve also taken suggestions on possible interventions when they are part of the team.”

### *Analysis of Interview Responses*

The researcher conducted a thematic analysis of the interviews conducted to analyze the responses. Both interviews were reviewed to determine if common themes were present when comparing the principal’s responses to those of the occupational therapist. Based on the analysis, three main themes emerged from the data.

The first theme consistent across both interviews was the prevalence of sensory issues for students at the elementary level. The therapist reported that teachers sought suggestions on providing students alternative ways to meet sensory needs while decreasing movement around the classroom. The teachers also responded positively to suggestions of OT equipment that could be utilized independently by students in the regular education environment. The building principal also reported sensory needs as one of the major concerns related to occupational therapy within the building. The principal reported the intervention provided teachers with better ability to provide all students with access to sensory related tools. As the therapist shared,

students with sensory needs can create a disruption to the classroom environment, distract other students, and result in lost instructional time due to the need for teacher redirection.

The second theme that emerged in the interviews was the belief that there has been an increase in occupational therapy needs across the building. According to the building principal, the school team has seen an increase in students that surpasses what was seen in previous years. The principal stated that “there is a continuing and growing need for support for all students.” He noted that some interventions need to be adjusted to continue to be effective and require ongoing monitoring by the OT to ensure continued effectiveness.

Finally, the third theme identified in the therapist and principal interviews was the perceived value of the suggestions and recommendations provided to the teachers by the occupational therapist. The principal noted that as a part of the MTSS team, an occupational therapist can provide suggestions on possible interventions that could be implemented to support students in the regular education classroom. He stated that the OT’s input could be useful in determining whether students are appropriate for direct OT service prior to a referral. The occupational therapist shared that during the intervention, one of the teachers “would often stop and talk to me and ask for suggestions about how to handle different situations.” The therapist also shared that participating in the project allowed her “to have more open conversations and the ability to give them suggestions.” The theme emerged again when the therapist was asked whether she believed the addition of an OT to the MTSS team would be of value. She responded that while the district team has been provided general suggestions related to general areas of concern, as a member of the MTSS team she could provide specific recommendations for specific students based on the teacher’s concerns.

### **Discussion of the Data Analysis Process**

The researcher employed triangulation to verify the accuracy of the data and give credibility to the findings. Multiple sources of data were collected and analyzed within the current research study. The research design included the collection of three sources of data. Pre- and post- surveys administered to the participating teachers provided the first source of data. The second source of data was gathered through the interviews conducted with the building principal and participating occupational therapist. The final source of data analyzed was collected from the IU electronic referral database. This information included the number of referrals requested from teachers in the control and intervention classrooms across the current school year through the end of the implementation phase of the study. In addition, referral data from the same classrooms during the 2021-2022 was collected and analyzed. Through the analysis of data from multiple sources, the researcher hoped to provide further support of the validity of the findings.

### **Summary**

The purpose of this mixed method research design was to examine the impact of pre-referral occupational therapy consultation on teacher perceptions and OT evaluation referral rates. Teacher surveys were used to collect data on teacher perceptions to determine if the intervention impacted teacher perceptions related to two of the three research questions. Referral data was also analyzed to assess whether the intervention had an impact on referral rates when the intervention group was compared to the control group. Interviews were conducted with the participating Occupational Therapist and the building principal of the intervention group to gain further insight into the impact of the intervention. Chapter IV provides a detailed report of the data analyses, results, and a discussion of the interpretation of results. Chapter V will present

conclusions developed from the analysis of these results, implications for school administrators, a discussion of research limitations, and recommendations for future research.



## Chapter V

### Conclusions and Recommendations

After analyzing the data collected over the implementation phase of the study, the results provided mixed support for the effectiveness of the intervention. Data collected from survey responses, interviews, and OT evaluation referral data were used to generate conclusions and formulate recommendations. The focus of Chapter V is to present these conclusions and recommendations based on the analysis of the data collected as it relates to each research question.

#### Conclusions

##### *Research Question One*

**Survey Responses.** The survey results from the teachers who participated in the intervention as well as the control group were analyzed to answer the first research question, “How does the provision of pre-referral professional development and class wide consultation impact teachers’ perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting?” The survey results were compared between the two groups as well as pre- and post- intervention to evaluate any changes over the course of the intervention.

Within the control group, the teachers’ post intervention responses related to teacher perceptions of self-competency were mixed regarding their likelihood to utilize an occupational therapist to support students in regular education. Both teachers expressed that they do attempt strategies to address fine motor deficits prior to an OT referral. The control group teachers also reported they feel knowledgeable about strategies to address fine motor and sensory concerns despite expressing that their district does not provide professional development opportunities

related to occupational therapy topics. Both teachers also disagreed that all students with fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation.

In the intervention group, the post-intervention survey responses differed across the three teachers on almost every response. Two of the three teachers reported that they attempt strategies prior to referring students for occupational therapy evaluations, believe they are knowledgeable regarding strategies to address fine motor and sensory concerns, and feel all students who demonstrate deficits should be referred for an evaluation. None of the post intervention responses from the teachers in the control group supported the belief that the school district offers professional development opportunities related to occupational therapy topics.

A comparison of the pre-and post-survey results within the control group showed the mean of the survey responses did not vary greatly over the five-month time span in which the intervention was implemented. As this group did not participate in the intervention, it was reasonable to predict their responses would not change greatly over the course of the project. The mean of the teachers' responses did decrease for question two, question eight, and question ten; all three of these questions were related to the teachers' perceptions of their own self-competency. For question two, the spring responses showed more agreement with the statement that the teachers attempt strategies to address fine motor deficits in the classroom prior to a referral. For question eight, the mean score in fall indicated a higher degree of agreement with the concept that all students who demonstrate fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation. For question ten, the mean of the spring response showed slightly higher agreement with the idea that the school district offers professional development opportunities related to occupational therapy topics. As these teachers did not participate in the intervention, it is unclear as to why their responses showed this difference

across the duration of the study. It is possible that the interactions these teachers had with their assigned therapist outside of the intervention may have had an impact on their survey responses. Overall, the results indicate the intervention did have some positive impact on the teachers' perceptions of self-competency related to addressing occupational therapy concerns in the regular education setting.

The analysis of results from the intervention group teachers' responses during the fall administration and the spring administration of the survey revealed some changes in the mean response scores for each question related to perceptions of self-competency. The mean scores from the spring administration indicated that the teachers agreed more with the statement that prior to referring a student for an occupational therapy evaluation, the teacher attempts strategies to address fine motor deficits in the classroom. The spring results also showed increased agreement with the teachers' belief that they utilize an occupational therapist to support students in regular education.

However, the teachers also showed greater agreement in the spring with the statement that all students who demonstrate fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation. The intervention group's spring responses indicated they felt less knowledgeable regarding strategies that can benefit students with fine motor and sensory concerns than prior to the intervention. The teacher's spring responses also indicated greater disagreement that the school district offers professional development opportunities related to occupational therapy topics. The intervention group's fall and spring survey responses indicated the teachers maintained the belief that regular education students can benefit from classroom consultation from an occupational therapist prior to a referral for evaluation. It is hypothesized

that the intervention may have highlighted to the teachers areas in which they needed assistance and increased their reliance on the OT as an expert.

**Occupational Therapist and Principal Interviews.** In addition to the survey responses, the interview conducted with the participating occupational therapist provided additional insight into each of the identified research questions. The therapist shared her perceptions of the impact of the intervention on the teachers' competency related to addressing occupational therapy concerns in regular education. From the perspective of the OT, the intervention allowed some of the teachers to better address the sensory needs of students in the classroom. Through consultation, the therapist was able to identify sensory needs and make recommendations for simple modifications to assist students with more appropriately meeting those needs. In addition, the therapist coached a particular teacher on implementing a simple intervention for cutting. The teacher was able to implement this strategy, and the student corrected their scissor grip and generalized the skill for the rest of the year.

The principal of Asa Packer Elementary provided additional insight into the impact of the intervention on the teacher's ability to address occupational therapy concerns in the regular education setting. According to the principal, the intervention allowed for more access to sensory related tools for all students and provided opportunities for strategies to be implemented in the classroom on a regular basis.

### ***Research Question Two***

**Survey Responses.** The second research question "How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of the value of IU OT services?" was also evaluated through an analysis of the survey data. The responses collected from the regular education kindergarten teachers who participated in the

intervention were compared to that of teachers not participating in the intervention to determine if there were differences between the two groups. In addition, the survey results from the teachers who participated in the intervention were analyzed to determine if the pre-intervention responses differed from the post intervention responses.

The post intervention survey questions designed to gain information on the teachers' perspectives regarding the value of intermediate unit occupational therapy services elicited fairly consistent responses from both control group participants. The teachers' responses indicate they believe their students can benefit from OT consultation prior to referral and view the occupational therapist as a valuable resource. However, the teachers' responses did not indicate that they are satisfied with the support they receive from the IU OT department and only one teacher agreed that she understood the role of the school-based occupational therapist at the elementary school level. Based on these responses, it is evident that the IU services are not highly valued by all district teachers, and there is a need to improve teachers' understanding of the IU's services and build better relationships between teachers and therapists within the schools we serve.

The analysis of results from the intervention group teachers' responses during the fall administration and the spring administration of the survey also revealed some changes in the mean response scores for each question related to perceptions of satisfaction with IU OT services. The mean scores from the spring administration indicated that the teachers agreed more with the statement that they understand the role of the school-based occupational therapist at the elementary school level. In addition, the spring results also showed increased agreement with the teachers' belief that the occupational therapist is a valuable resource. These two changes support the effectiveness of the intervention on the teachers' level of satisfaction with the IU OT

services. The teachers' responses regarding the belief that regular education students can benefit from classroom consultation from an occupational therapist prior to a referral for evaluation stayed the same over the course of the intervention, with all the teachers agreeing to some level. The teachers' views regarding the availability of the OT provider also remained the same but indicated a lower level of agreement. The mean score for the question of whether the teachers are satisfied with the support they receive from the Intermediate Unit occupational therapy department indicated slightly less agreement in the spring. However, the teachers still reported agreement with this statement.

**Occupational Therapist and Principal Interviews.** The interview with the participating Occupational Therapist also gave insight into the second research question "How does the provision of pre-referral professional development and class wide consultation impact teachers' perceptions of the value of IU OT services?" While the participating teachers varied in their responsiveness to the intervention, one teacher was reported to have sought out the therapist's input on multiple occasions. The therapist reported that in addition to their conversations during the classroom visit, the teacher would frequently approach her "and ask for suggestions about how to handle different situations." The therapist also shared that because the sensory recommendations allowed students to focus and remain in their seats, the teachers expressed satisfaction over the reduction in disruptions during instruction. A final piece of evidence supporting the teacher's perceptions regarding the value of OT services was the request by one participant that the therapist continue the visits even after the intervention was over.

During the interview, the OT made the statement "I got to see the classroom as a whole and see how one student with OT concerns can impact the entire class and not just that student." Being present in the classroom had benefits not just for the teachers and students, but for the

occupational therapist as well. Rather than simply taking students out of the classroom and conducting testing in isolation, the therapist had the opportunity to regularly observe students in the natural environment. The visits provided an opportunity to increase communication between the therapists and teachers. It allowed the therapist to gain a better understanding of the teacher's skills and instructional methods as well as the demands of the classroom environment.

During the principal interview, the principal was asked to describe the impact of the current intervention on his perceptions regarding the value of occupational therapy services in the building. He shared that students have continuous and growing needs for additional support, and he sees a need for additional OT interventions throughout the building. To ensure the success of interventions, there is a need for the OT to provide ongoing support to adjust and vary interventions and maintain their effectiveness. Overall, the survey data and interviews provided some support that the provision of pre-referral professional development and class wide consultation can impact the teachers' perceptions of the value of IU OT services and improve their understanding of the role of the school-based occupational therapist.

### ***Research Question Three***

**Referral Data.** The final research question "How does the provision of pre-referral professional development and class wide consultation impact the number of initial referrals for kindergarten occupational therapy evaluations?" was evaluated through an analysis of the number of occupational therapy referrals requested by teachers in the intervention classrooms compared to those requested by the teachers who did not participate in the intervention in the current school year. In addition, data from the 2021-2022 school year was compared to data from the 2022-2023 school year. This data provided additional information on whether the intervention may have had an impact on the rate of referrals.

For the current study, the CIU20 occupational therapy referral data was used to analyze the number of referrals received from Asa Packer and Governor Wolf kindergarten teachers during the 2022-2023 school year and the prior year. A comparison of the data between the two groups and across the two school years was used to gather more evidence on the effectiveness of the intervention on reducing referral rates in the intervention group. Overall, the control group classrooms had lower rates of referrals than the intervention group teachers. Based on this, the intervention did not result in a significant difference in the between group data. However, the number of referrals in the control group stayed the same across the two school years, while the comparison of referral data across the two school years did provide some evidence of support for the intervention. When comparing the 21-22 school year to the current year, the number of referrals from the classroom teachers in the intervention group dropped. The referral rates for classrooms assigned to the control group stayed the same across the 21-22 and 22-23 school years. Based on this analysis, the intervention was associated with a decrease in referrals for OT evaluations for the teachers in the intervention groups when compared to the prior year.

**Interview Data.** One of the major themes identified in the therapist and principal interviews was the perceived value of the suggestions and recommendations provided to the teachers by the occupational therapist. The principal pointed out that as a member of the MTSS team, an occupational therapist would be able to provide suggestions on how to support students in the regular education classroom and provide useful input regarding when students should be referred for evaluation. By providing this input, it is reasonable to predict that certain students would not be recommended for further evaluation, and referral rates could be impacted.



During the OT interview, the therapist shared her views on whether pre-referral consultation regularly could decrease referral rates. The quote below provides evidence of the therapist's perspective on this question.

I am going to say yes and no. I think yes if it is just a simple thing like giving reminders of using a thumb up for cutting skills. It's not something that needs to be addressed in a pull-out session. I feel that most of the teachers do know when there are needs that can't be addressed in the classroom and there is a need for a direct pull-out.

### **Application to CIU20**

Although the results of the current study were mixed, the teachers, building principal and occupational therapist reported several positive outcomes as a result of pre-referral occupational therapy consultation. Overall, the consultation increased the presence of the occupational therapist in the elementary school setting. The consultation also allowed teachers to gain assistance from an occupational therapist without initiating a referral for an evaluation. Reducing referral rates also allows the therapists more time in their schedules to directly impact non-identified students and support district personnel.

The current intervention was limited to kindergarten teachers in one elementary school in the Bethlehem Area School District. Bethlehem Area School District contains 16 elementary schools and a total of 22 kindergarten through twelfth grade buildings. In addition to the Bethlehem Area School District, CIU20 provides occupational therapy services to 12 other school districts in Monroe, Pike, and Northampton Counties. Expanding the provision of pre-referral occupational therapy services would allow the IU to positively impact thousands of students across our partner districts.

CIU20 offers IU20's training and consulting services through the Training and Consulting (TaC) department. The TaC team emphasizes the importance of bringing research to practice and strives to improve classroom instruction across our districts by supporting educators and helping them to meet the needs of all students.

The mission of TaC is to support Pennsylvania special education regulations and initiatives by partnering with local education agencies to build their capacity to provide both quality special education services and preventative interventions and programs that promote student success. (Colonial Intermediate Unit 20, n.d., para. 1)

According to the CIU20 website, the TaC department's philosophy promotes the belief that "every student is capable and teacher growth benefits everyone in the school" (Colonial Intermediate Unit 20, n.d.). The department promotes student and educator success through the development of multiple approaches to teaching and learning. Both MTSS and Inclusive Practices are initiatives currently identified as areas of focus for the TaC department. However, the TaC department currently does not include an occupational therapist or provide any assistance to our districts in this area. The current action research project provides an example of a model by which pre-referral occupational therapy services could be added to the existing training and consultation services offered by the IU. The participation of school-based occupational therapists in inclusive settings allows non-identified students to benefit from their specialized expertise without necessitating more restrictive supports. In addition, the addition of occupational therapists to MTSS teams would expand the ability of those teams to support students prior to a referral for special education services.

### ***Fiscal Implications***

Colonial Intermediate Unit 20 billed our member districts a fee of \$136.93 per hour for occupational therapy services during the 2022-2023 school year. Based on recent trends, OT costs are predicted to continue increasing as the number of evaluations requested by our districts continues to increase annually. The provision of pre-referral professional development and consultation allows an occupational therapist to directly support classroom teachers in the regular education environment. In addition, the OT has access to a larger number of students who may benefit from individualized recommendations resulting from observation and discussion between the teachers and therapists. If teachers gain proficiency in meeting the OT needs of their students, there is a potential of decreasing both requests for OT evaluations and the number of students qualifying for individualized direct services through a 504 plan or IEP.

From a fiscal perspective, the long-term goal of the current project was to propose a new service delivery method that could result in reduced costs for member districts utilizing the IU for occupational therapy services. While there would be new costs associated with the expansion of occupational therapists in the training and consultation department, a more efficient and proactive approach may be a more effective alternative to the delivery of individualized therapy services for some students.

### **Limitations**

The current intervention was limited to kindergarten teachers in one elementary school in the Bethlehem Area School District. The intervention was delivered over five months. To truly investigate the impact of OT consultation services on referral rates, it would be beneficial to deliver the intervention over a longer period. Implementing the consultation intervention over a full school year would allow more time for collaboration between the teachers and therapist. It

would allow the therapist to gain a greater understanding of individual student needs and the dynamics of the classroom environment. Extending the intervention phase would also allow the therapist more time to evaluate the effectiveness of recommendations and make adjustments as needed.

In addition to the brief period of the intervention, the number of teachers participating in the intervention was small. Because of the small group size, it was difficult to determine the impact of the intervention on the teacher's perceptions. Including more classroom teachers in the intervention would increase the reliability and validity of the survey data analysis.

Within the control and experimental groups, data was not collected on the individual characteristics of the classroom teachers. The survey results analysis revealed differences within each group that seemed unrelated to the intervention's implementation. It is possible that individual teacher characteristics, such as number of years' experience or educational background may have impacted the survey responses and resulted in confounding variables. Collecting additional data on individual teacher characteristics may have allowed for a better understanding and analysis of the survey responses.

### **Recommendations for Future Research**

Based on results and conclusions of the current action research study, there are several areas that could be investigated more fully through future research. Replicating the study over a longer period would allow for a better comparison of referral data across school calendar years. The impact of pre-referral consultation and professional development may take a greater period to affect referral rates.

The current action research project was limited to regular education kindergarten teachers and classrooms. Another area of future research would be to expand the intervention across all

grade levels at the elementary school level. Most OT referrals received by the intermediate unit are for students at the elementary level, and teachers at all grade levels may benefit from access to occupational therapy consultation in the general education classroom setting.

The first two research questions identified in the current action research project focused on the impact of pre-referral OT consultation and professional development on the perceptions of regular education teachers regarding their own self-competency as well as their perceptions regarding the value of the IU OT services. The third question was designed to investigate the impact of pre-referral consultation and professional development on OT evaluation referral data. In addition to these factors, the intervention created a new avenue for the occupational therapist to support students and teachers in the general education classroom. An additional research question might explore the impact of this participation on the therapist. How might this new role impact the job satisfaction of the occupational therapist in the school setting? In the current climate, when retention of professional educators is a critical concern, finding ways to increase job satisfaction is an important consideration.

Additionally, the intervention could be explored by investigating the impact on student performance data. The addition of an occupational therapist to the elementary school MTSS team would provide an opportunity to explore this further. In the current study, the consultation and collaboration between the teacher and therapist was limited to the monthly classroom visits. Adding the therapist as a participant in MTSS team meetings would provide the opportunity to track the impact of specific recommendations on individual student performance. During the OT interview, the researcher asked the therapist whether she believed the addition of an OT to the MTSS team would be of value. The therapist responded that as a member of the MTSS team she could provide specific recommendations for specific students based on the teacher's concerns.

During the principal interview, when asked if he felt the OTs could contribute to the MTSS process, the principal responded as follows. “Yes. Their input would be valuable in making decisions about students who may benefit from OT Services. We have also taken suggestions on possible interventions when they are part of the team.” Providing an opportunity for the OT to participate as a team member in the MTSS process may also have a positive impact on the therapist’s presence in the building and the perceived value of OT services provided by the IU.

### **Summary**

The purpose of this mixed method action research project was to evaluate the impact of pre-referral professional development and class wide consultation on several factors. Quantitative and qualitative data were analyzed to determine the impact of the intervention on teacher perceptions regarding their own abilities to address occupational therapy concerns in the regular education setting. In addition, the data was analyzed to determine whether the intervention impacted the teachers’ and principal’s perceptions regarding the value of occupational therapy services in a district elementary school building. Finally, the data was analyzed to draw conclusions regarding whether pre-referral professional development and class wide consultation can impact the number of occupational therapy referrals requested by regular education kindergarten teachers.

Intermediate Units strive to be “entrepreneurial, highly skilled, technology-rich, and agile providers of cost-effective, instructional, and operational services to school districts.”

(Pennsylvania Association of Intermediate Units, n.d.).

Over the years, intermediate units have responded to a wide array of needs as they developed in schools and communities throughout the state. Today, intermediate units continue to fulfill their mission of service by addressing traditional and emerging needs,

serving as essential links for learning in Pennsylvania, and as a liaison between local schools and the Pennsylvania Department of Education. (Pennsylvania Association of Intermediate Units, n.d., para. 2)

To remain vital, Intermediate Units must continuously evolve to meet the changing needs of the districts, students, and communities we serve. Moving beyond the traditional role of the school-based occupational therapist is one way in which our organization can create new opportunities for mutually beneficial relationships with our district partners and expand access to meaningful supports and services for our students.

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**APPENDICES**



## Appendix A

### Teacher Survey Questions (pre- and post-)

Please respond to the following questions using the rating scale provided:

(1-Strongly Agree, 2-Agree, 3-Undecided, 4-Disagree, 5-Strongly Disagree)

As a regular education teacher, I utilize an occupational therapist to support students in regular education.

Prior to referring a student for an occupational therapy evaluation, I attempt strategies to address fine motor deficits in the classroom.

The occupational therapist is a valuable resource to me as a teacher.

If I need assistance from an occupational therapist, my assigned building provider is available and accessible.

I understand the role of the school-based occupational therapist at the elementary school level.

I am satisfied with the support I receive from the Intermediate Unit Occupational Therapy Department.

I believe my regular education students can benefit from classroom consultation from an occupational therapist prior to a referral for evaluation.

All students who demonstrate fine motor deficits or sensory concerns should be referred for an occupational therapy evaluation.

I am knowledgeable regarding strategies that can benefit students with fine motor and sensory concerns.

My school district offers professional development opportunities related to occupational therapy topics.

## **Appendix B**

### **Occupational Therapist Interview Questions**

What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?

What impact did the current intervention have on student performance in the regular education classroom?

What impact did the current intervention have on teacher's perceptions regarding the value of occupational therapy services in the school environment?

What impact did the current intervention have on your relationship with the classroom teachers?

What impact did the current intervention have on your level of participation in the building as a whole?

## Appendix C

### Principal Interview Questions

What impact did the current intervention have on the teachers' ability to address Occupational Therapy concerns in the regular education classroom?

What impact did the current intervention have on student performance in the regular education classroom?

What impact did the current intervention have on your perceptions regarding the value of Occupational Therapy services in the school environment?

What impact did the current intervention have on the Occupational Therapists' level of participation in the building as a whole?

What impact did the current intervention have on your impression of the value of IU related services as a support for your building?

## **Appendix D**

### **Teacher Consent Letter**

Dear Teacher,

As a regular education teacher at the elementary school level, you are being asked to participate in a research study to evaluate the impact of pre-referral occupational therapy consultation. Your participation in this study will help the researcher learn more about how consultation in the regular education setting can impact occupational therapy referral data, improve student outcomes, and better support teachers in meeting the needs of students with occupational therapy needs.

#### **What will I be asked to do if I take part in this study?**

If you agree to participate in this study, you will be asked to complete two Google Form electronic survey questionnaires (pre- and post- intervention). Four classrooms will participate in five monthly classroom consultations with an IU Occupational Therapist scheduled during the school day based on the teacher's availability. The therapist will visit each classroom in the intervention group for a 30-minute monthly consultation for a period of five months.

Consultation services may include observation, discussion with the teacher, recommendations for class wide adaptations, and modeling of occupational therapy strategies. The consultation visit will not impact instructional time or interfere with class activities, and there will be no active presentations provided by the therapist during the class visit. The therapist will be available for assistance if requested by the teacher but will refrain from disrupting the classroom routine to the greatest extent possible. The pre- and post-intervention interviews will ask you questions regarding your perceptions of the IU occupational therapy services.

#### **Where will this study take place?**

Both surveys will be provided via an online survey tool (Google Forms) using a secure website.

#### **How long will the study last?**

The study is projected to last approximately 5 months and two electronic survey questionnaires (pre- and post- intervention). Total participation time will vary. The pre- and post-surveys may take up to 10 minutes each or 20 minutes total to complete.

#### **What happens if I don't want to participate?**

Your participation is voluntary; you can choose whether you want to participate in the study or not. There will be no penalty if you choose not to participate.

#### **Can I quit the study before it ends?**

Yes, you can withdraw from the study at any point by notifying the researcher, Jennifer Curtis, at [cur9592@calu.edu](mailto:cur9592@calu.edu) or at 610-810-7538. There will be no penalty for withdrawing from the study nor will you be asked to provide an explanation for your decision.

**What are the risks?**

There are minimal risks to this study. You will not be asked questions of a sensitive nature. Participants are reminded that they are not required to answer any questions which they choose. Participants can also stop their participation at any time without question.

**How will I benefit from participating?**

If you decide to be in this study, you will assist the researcher in better understanding the current perceptions of district teachers regarding CIU20 occupational therapy services. The intervention may provide you with tools to help you meet the needs of students with occupational therapy needs in the classroom and reduce the need to refer students for occupational therapy evaluations.

**Will my responses be kept confidential and private?**

Yes, the survey data and interview responses we collect from you will be kept confidential, which means only the researcher will see or have access to it. Your survey responses will be anonymous. No names will be reported in the report of the findings. Personal identifiers will not be used in the analysis of interview results. Data will be stored on a secure server and password protected. Returning the survey is an indication of consent to use the data.

**Who do I contact if I have questions about this study?**

If you have questions about this study, please contact the researcher, Jennifer Curtis, at [cur9592@calu.edu](mailto:cur9592@calu.edu) or at 610-819-7538. If you would like to speak with someone other than the researcher, please contact Dr. Mary Wolf, Assistant Professor at California University of Pennsylvania, at [wolf@calu.edu](mailto:wolf@calu.edu).

Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective 10/4/2022 and expires 10/3/2023.

By signing below, you agree to participate in this survey for the purpose of this research study.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

## Appendix E

### Principal/Occupational Therapist Consent Letter

Dear Principal/Occupational Therapist,

You are being asked to participate in a research study to evaluate the impact of pre-referral occupational therapy consultation. Your participation in this study will help the researcher learn more about how consultation in the regular education setting can impact occupational therapy referrals, improve student outcomes, and better support teachers in meeting the needs of students with occupational therapy needs.

#### **What will I be asked to do if I take part in this study?**

If you agree to participate in this study, you will be asked to participate in one post- intervention interview following five monthly classroom consultations in 4 regular education classrooms. The interview will include questions regarding your perceptions of the IU occupational therapy services and the perceived effectiveness of the consultation.

#### **Where will this study take place?**

Interviews will occur in the elementary school conference room.

#### **How long will the study last?**

The study is projected to last approximately 5 months and two electronic teacher survey questionnaires (pre- and post- intervention). Total participation time will vary. The pre- and post-surveys may take up to 10 minutes each or 20 minutes total to complete. The building principal and occupational therapist will participate in a brief interview at the end of the study. The length of the interview is anticipated to be 30 minutes or less.

#### **What happens if I do not want to participate?**

Your participation is voluntary; you can choose whether you want to participate in the study or not. There will be no penalty if you choose not to participate.

#### **Can I quit the study before it ends?**

Yes, you can withdraw from the study at any point by notifying the researcher, Jennifer Curtis, at [cur9592@calu.edu](mailto:cur9592@calu.edu) or at 610-810-7538. There will be no penalty for withdrawing from the study nor will you be asked to provide an explanation for your decision.

#### **What are the risks?**

There are minimal risks to this study. You will not be asked questions of a sensitive nature. However, participants are reminded that they are not required to answer any questions of which they choose. Participants can also stop their participation at any time without question.

**How will I benefit from participating?**

If you decide to be in this study, you will assist the researcher in better understanding the current perceptions of district teachers regarding CIU20 occupational therapy services. The results could support class wide consultation as a method to reduce referrals for occupational therapy evaluations.

**Will my responses be kept confidential and private?**

Yes, the survey data and interview responses we collect from you will be kept confidential, which means only the researcher will see or have access to it. No names will be reported in the report of the findings. Data will be stored on a secure server and password protected.

**Who do I contact if I have questions about this study?**

If you have questions about this study, please contact the researcher, Jennifer Curtis, at [cur9592@calu.edu](mailto:cur9592@calu.edu) or at 610-810-7538. If you would like to speak with someone other than the researcher, please contact Dr. Mary Wolf, Assistant Professor at California University of Pennsylvania, at [wolf@calu.edu](mailto:wolf@calu.edu).

Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective 10/4/22 and expires 10/3/2023.

By signing below, you agree to participate in this survey for the purpose of this research study.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

## Appendix F

### Institutional Review Board Approval



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Institutional Review Board  
250 University Avenue  
California, PA 15419  
instreviewboard@calu.edu  
Melissa Sovak, Ph.D.

Dear Jennifer,

Please consider this email as official notification that your proposal titled “Improving Student Outcomes and Teacher Perceptions through Pre-Referral Occupational Therapy Consultation” (Proposal #PW22-023) has been approved by the Pennsylvania Western University Institutional Review Board as submitted.

The effective date of approval is 10/04/2022 and the expiration date is 10/03/2023. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

- (1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)
- (2) Any events that affect the safety or well-being of subjects
- (3) Any modifications of your study or other responses that are necessitated by any events reported in (2).
- (4) To continue your research beyond the approval expiration date of 10/03/2023, you must file additional information to be considered for continuing review. Please contact [instreviewboard@calu.edu](mailto:instreviewboard@calu.edu)

Please notify the Board when data collection is complete.

Regards,  
Melissa Sovak, PhD.  
Chair, Institutional Review Board