

TRANSITION2PEDS: AN EVIDENCE-BASED OCCUPATIONAL THERAPY TOOL  
TO NAVIGATE THE SERVICE DELIVERY MODELS FOR CHILDREN WITH  
AUTISM SPECTRUM DISORDER

A Thesis submitted to the faculty at Stanbridge University in partial fulfillment of the  
requirements for the degree of Master of Science in Occupational Therapy

by

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Certification of Approval

I certify that I have read TRANSITION2PEDS: An evidence-based occupational therapy tool to navigate the service delivery models for experiencing children autism spectrum disorder by Brusco, Carlie, Deol, Kulwarn, Kim, Tiffany, and Vartanian, George, and in my opinion, this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy at Stanbridge University.



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## Abstract

Occupational Therapy (OT) is ranked number three in top interventions and therapies for Autism Spectrum Disorder (ASD) as outlined by the Interactive Autism Network (2018), a web project of the Kennedy Krieger Institute which started in 2006. Autism Spectrum Disorder (ASD) is a specific condition that is often addressed by occupational therapists in pediatrics using the educational and medical models as service delivery.

Approximately 37% of new OT practitioners entered their first practice in pediatrics (ACOTE; Academic Council of Occupational Therapy Education, 2018). Education on these two service delivery models is imperative, in order for practitioners to provide accurate treatment plans which can be reimbursed by the payor, insurance, or school districts. A survey of occupational therapists and occupational therapist assistants was conducted to support the need to develop an online resource tool on these two service delivery models. A visual learning tool was the top choice of 48 respondents who completed the online survey. This in turn justified the need to have an online educational, informative tool that OT practitioners may refer to when in these practice settings, target population, and identifying each service delivery models. Thus, the creation of the website, Transition2Peds, an online educational tool may support OT practitioners, new or transitioning to pediatric autism population settings, to better understand these service delivery models.

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TRANSITION2PEDS: An evidence-based occupational therapy tool to navigate the service delivery models for children with autism spectrum disorder

In reference to the 2018 Accreditation Council for Occupational Therapy Education (ACOTE) annual data report, in 2017 there were about 30,928 occupational therapy (OT), and occupational therapy assistant (OTA) graduates from an ACOTE program. Of these, about 11,448 newly certified OT and OTA joined the workforce, and approximately 37% entered their first practice in pediatrics. OT is ranked number three in top interventions and therapies for Autism Spectrum Disorder (ASD) according to the Interactive Autism Network (2018), a web project of the Kennedy Krieger Institute, which started in 2006. ASD is a specific condition that is often addressed by OT in pediatrics using an educational or a medical model: “ASD is a group of developmental disabilities that can cause significant social, communication and behavioral challenges” (Centers for Disease Control and Prevention [CDC], 2014, para. 1). ASD affects multiple populations and affects boys more than girls. CDC research studies found that “about 1 in 6 children in the U.S. had a developmental disability (DD) in 2006-2008. This data also showed that the prevalence of parent-reported DDs had increased by 17.1% from 1997 to 2008” (Center for Disease Control and Prevention [CDC], n.d., para 2). Approximately 1.8 million more children in the United States were diagnosed with a developmental disability over 12 years, which is a 289% increase in the diagnosis of ASD (CDC, n.d., para 3). This increase in the prevalence of ASD may be due to increased awareness, early screening and diagnosis, and the de-stigmatization, though future research is warranted.

Boyle et al. (2011) suggest that some factors to consider when analyzing this increase in prevalence should be the family’s ability to access care, eligibility for

Medicaid qualification for children with disabilities, and insurance coverages. Data from the CDC also showed that “children insured by Medicaid has a nearly two-fold higher prevalence of any DD compared to those with private insurance and children from families with income below the federal poverty level had a higher prevalence of DDs.” (CDC, n.d., para 5.) Therefore, the guidelines that health insurance companies require health care practitioners to adhere to have implicated and contributed to the difference in the prevalence of developmental disabilities, including ASD. “The number of children with select developmental disabilities (autism, attention deficit hyperactivity disorder, and other developmental delays) has increased, requiring more health and education services” (Boyle et al., 2011, p. 1034). OT is an allied health service which can provide health-related care and education to children with developmental disabilities and children experiencing ASD. An increasing ASD population requires competent allied health professionals such as OTs to address their healthcare, educational, and overall needs. OT, as one of the leading therapies for ASD, should inherently adapt to the service delivery models to efficiently and effectively demonstrate clinical treatments or educational services.

As stated by Serfas (2016), areas commonly addressed by occupational therapists in children experiencing ASD include behavior, self-regulation, parent-child bond and relationship, communication skills, motor skill development, play, development of healthy routines, and various activities of daily living including toileting, feeding, eating, and dressing. As illustrated by the American Occupational Therapy Association (AOTA, 2015), occupational therapists implement evidence-based practice through the use of clinical reasoning and client-centered skilled interventions to address the areas of

concern, as previously stated, to achieve positive outcomes while maintaining cost-effectiveness.

There are two primary models of occupational therapy service delivery in which therapists implement evidence-based practice to address these areas of concern in children with ASD: the medical model, and the educational model. These models follow specific guidelines which shape OT treatment for an ASD client in a specific setting. The OT medical model is typically in outpatient pediatric settings, where activities of daily living, instrumental activities of daily living, and play are the primary occupations addressed. Under this model, the federal, state, private, and commercial insurances are the primary sources of reimbursement. The federal and state government create the guidelines, in which the commercial or private insurances derive their guidelines as well (U.S. Department of Health and Human Services, n.d.). The educational model is typically utilized in school-based practice, where occupations needed to be a successful student are the primary occupations addressed. Under this model, services are provided for free under federal legislation as long as the child meets specific qualifications.

There are many instances where new OT practitioners display difficulty in planning treatment that is appropriate for their practice setting, model, and payer source. For example, one occupational therapist commented that “one Managed Care Organization (MCO) in Southern California that works with private insurance serving the pediatric ASD community shared informal data collected between 2016 and 2018 on the revisions on care plans and goals” (N. Achondo, personal communication, May 1 2018). It claimed that about 35% (450 out of approximately 1200) of the reports reviewed were returned to providers due to goals not demonstrating medical necessity and not meeting

the utilization management criteria set by the commercial health insurance (N. Achondo, personal communication, May 1, 2018). It was suggested most of these care plans were prepared by new or transitioning OT practitioners (personal communication, May 1, 2018). New, and transitioning pediatric OT practitioners seem to have challenges in identifying the needs that will fulfill the requirement for specific funder-based guidelines in school-based settings as well.

New and transitioning pediatric OT practitioners seem to have challenges in identifying the needs or the requirements of specific funder-based guidelines that apply to their practice setting, especially in creating care plans acceptable to their specific work setting model, obtaining approval for services, and getting reimbursed. If the guidelines were not meant, this could translate into a delay treatment authorizations, which at times is crucial for ASD clients' therapy. These challenges provide the foundation for our PICO research question.

### **Research Question**

The research question asks whether the data from a survey of OT practitioners will support the development of an educational tool to provide OT practitioners with resources for effective treatment planning, and reimbursement, in both the medical, and educational models.

### **Purpose of Research**

The purpose of the project was to develop an evidence-based, educational website for new, and transitioning pediatric occupational therapists on the educational, and medical models of service delivery. The primary outcomes of this project were: 1) to use the survey to examine how medical, and educational model information is disseminated

to new OT graduates, and practitioners in the pediatric ASD population; 2) create an online educational resource tool for OT practitioners; 3) how this affects treatment planning within this setting; and 4) provide information as to how treatment planning is affected by reimbursement.

### **Hypothesis**

The null hypothesis states that a needs assessment survey would not help the project team in the understanding, and application of OT interventions for ASD using the medical, and educational model in pediatric settings. The needs assessment survey will not help create a foundational basis for the education process, and would not provide information as to how treatment planning is affected by reimbursement.

The alternate hypothesis states that a needs assessment survey would help in the understanding, and application of OT interventions for ASD using a medical, and educational model in pediatric settings. It also would help create a foundational basis for the education process and would provide information as to how treatment planning is affected by reimbursement.

## **Literature Review**

### **Background**

When an educational tool aims to assist and inform occupational therapists with goal writing and treatment service delivery models, it is vital that this tool regards the most frequently used and most effective learning style. Russell (2006), in an article on adult-learning processes, stated that the desire to create change is one of the most critical reasons determining why adults enter any learning experience. One of the pioneers in the field of adult learning and the first to theorize how adults learn was Malcolm Knowles

(Russel, 2006). He believed that adult learning was a process of self-directed inquiry and identified six characteristics of adult learners. As stated by Knowles (1970), adult learners are autonomous and self-directed, goal-oriented, relevancy oriented, practical, need to be shown respect, and have accumulated a foundation of experiences and knowledge. Adults need to be self-directed, deciding for themselves what they want to learn. The benefit of self-directed learning is that learning can easily be incorporated into daily routines and occur at the learner's convenience and based on their learning preferences. Self-direction is a critical component of persistence in adult education, helping learners recognize how and when to engage in self-study (Corley, 2011).

Moreover, adults learn best when they are convinced of the need for knowing the information. Often a life experience or situation stimulates the motivation to learn (O'Brien, 2004). When adults see progress and realize they have taken concrete steps forward in the learning process, their motivation to continue to learn will increase (Russell, 2006).

### **Approaches to Learning**

Determining an adult's learning style helps identify the preferred condition under which instruction is likely to be most effective and meaningful (Richardson, 2005). Several approaches to learning styles have been proposed; one of those is based on the senses that are involved in processing information (Russell, 2006). The three most common learning styles are visual, auditory, and kinesthetic. Whichever style an adult prefers is typically based on the childhood learning patterns developed earlier in life (Russell, 2006). Those who learn best through visual means prefer written material, thus, providing exciting material in a variety of formats is essential (Russell, 2006). Auditory

learners rely on verbal repetition and saying things aloud and can remember what they say and what others say particularly well (Russell, 2006). With auditory learners, it is critical to vary the speed, volume, and pitch as appropriate to help create aural texture and to rephrase points and questions in multiple ways (Russell, 2006). Kinesthetic learners are those who prefer handling the material and getting physically engaged in the educational topic at hand (Russell, 2006). Providing frequent breaks during the teaching session to allow learners to move around, coupled with tactile activities, is the best way to engage these learners (Russell, 2006).

Ultimately, the cornerstone for adult learning is through active participation, which takes various forms. This type of learning leads to longer-term recall, higher problem-solving skills, and synthesis of the information, compared to using only one of the learning styles stated above (Russell, 2006). Because adults learn by doing, effective instruction focuses on tasks that adults can perform, rather than on memorization of content (Corley, 2011).

### **Occupational Therapy and Adult Learning**

Adult learning theories provide insight into how adults learn and can help instructors be more effective in their practice and more responsive to the needs of the learners they serve. Every individual's learning style is different. Hence, there is no single learning theory that applies to all adults, just as there is no one theory that explains all human learning (Corley, 2011). According to Braungart, Braungart, and Gramet (2011), "A learning theory is a coherent framework of integrated constructs and principles that describe, explain, or predict how people learn" (p. 56). Transition2Peds, a website was created based on the results of the needs assessment survey intended to

create positive changes for OT practitioners working with the pediatric ASD population. Braungart, Braungart, and Gramet (2011) further assert that “The key to learning and changing is the individual’s cognition (perception, thought, memory, and ways of processing and structuring information)” (p. 64). “Cognitive learning theorists stress the importance of what goes on inside the learner. Cognitive theory is assumed to comprise several sub-theories and is widely used in education and counseling. Cook and Dupras (2004) found that teaching websites are the most effective if it stimulates active learning. The first step identified in creating an effective web-based learning experience was to perform a needs analysis and specify goals and objectives.

According to Taylor and Kielhofner (2017), survey studies investigate unidentified characteristics and the community needs within a defined population. Survey research is implemented either through the use of mailed questionnaires or electronic technologies such as the Internet. Lee, Taylor, Kielhofner & Fisher (2008) sent mailed surveys to practicing occupational therapists that reported using the Model of Human Occupation (MOHO) in their practice. The purpose of the survey was to measure the therapist's understanding of MOHO and the benefits and challenges of implementing it with their clients (Lee, Taylor, Kielhofner & Fisher, 2008). Focus groups and questionnaires with experts in MOHO were used to generate and refine the survey so that it would answer the research questions and would represent the circumstances and perspectives of the respondents (Lee, Taylor, Kielhofner & Fisher, 2008).

In another study by Leigers, Myers, and Schneck (2016), school-based OT practitioners were surveyed on the strategies and practices they use to address social participation in students with disabilities, and their perceived level of confidence in doing



so. Additionally, the survey explored factors that may influence intervention strategies and service delivery models provided for students with disabilities. This example illustrates how focus groups and feedback from additional experts in the topic being researched are essential and necessary components when developing a detailed and comprehensive survey.

Proffitt (2016) created a study to describe current OT practices in the usage and prescription and clinical reasoning process supporting home exercise programs for clients with neurological injuries. A survey was developed from semi-structured interviews and focus groups conducted by the researcher. The survey questions focused on basic demographics, current home exercise program practices, and attitudes toward using home exercise programs with clients with neurological injuries. The survey contained fifteen Likert scale questions and three open-ended questions addressing OT perceptions on the use and value of home exercise programs for clients with neurological injuries.

OT practitioners use a wide range of evidence-based interventions when working with individuals with ASD and their families, to support participation in a variety of meaningful occupations and settings. Interventions are client-centered and individualized in response to strengths and challenges related to personal factors, performance skills, and patterns, and the contextual factors of the environments where the person lives, works, learns and plays. OT practitioners implement evidence-based practices that target outcomes in academics, communication, higher cognitive functions, interpersonal skills, learning readiness, motor skills, personal responsibility, play, and self-regulation which are prioritized within occupational therapy intervention (AOTA, 2015, p. 3).

### **Models of Service Delivery**

When working with children experiencing ASD, there are two primary models of occupational and physical therapy service delivery in children, the clinical model and the medical model. The medical model is commonly employed in an outpatient setting whereas the educational model is commonly utilized in a school-based or educational setting. These models serve as a framework or guide in addressing OT needs of the child with ASD. These models direct the process of assessment, treatment planning, treatment implementation, and reimbursement, and they follow specific guidelines set forth by the main funder or payor.

### **Related Legislations**

As outlined by AOTA (2017), Part B of IDEA requires occupational therapists to identify and address deficits that affect a child's school performance as it relates to priorities of school staff and the child's family. However, if a child does not meet the requirements to receive special instruction under IDEA, the child may still qualify for certain educationally related occupational therapy services under Section 504 of the Rehabilitation Act of 1973. Environmental modifications, reasonable accommodations, and other appropriate materials and equipment can be recommended and provided to the child to meet the specific educational needs of the child in a general education setting based on this act. As outlined by the U.S. Department of Education (2010), Section 504 ensures children with qualified disabilities are not subjected to discrimination of any sort in any program that receives funds from the Department of Education, which includes public school districts, institutions of higher education, and other state and local education agencies. Ultimately, Section 504 assures that any child with a qualifying

disability receives free and appropriate public education (FAPE), and any environmental modifications and reasonable accommodations needed to be successful in the classroom. Section 504 guarantees that any child with a physical or mental impairment which substantially limits one or more major life activities can qualify for section 504 services, even though these children do not receive special education, or have an individualized education program (IEP). Section 504 requires children to be evaluated to ensure that children are not inaccurately labeled as having a disability, or improperly selected for placement in a non-traditional academic setting. It also ensures that all students with disabilities can participate with nondisabled students in both academic and nonacademic services in education-based settings, including in the classroom, at mealtime, recess, and physical education, or any other activity that takes part in the school setting.

As referenced by the Indiana Transition Initiative (2008), occupational therapy must be necessary to improve educational performance, and this necessity must be documented in the individualized educational program (IEP), along with educationally relevant goals. Under the medical model, occupational therapists must meet both “state and federal licensure requirements and public and private funding requirements” (Indiana Transition Initiative, 2008, para. 1). According to Indiana Transition Initiative (2008), a physician determines the need for therapy services and provides a referral for occupational therapy. However, the child’s insurance company may determine the amount of therapy that can be provided and the medical necessity of services. Under the medical model, services are paid for by either the parent, client, insurance company, or by governmental assistance. As referenced by the Indiana Transition Initiative (2008),

documentation requirements to prove medical necessity are determined by the payer of services.

Under the educational model, occupational therapy is “considered related services in the Individuals with Disabilities Education Act of 2004 (IDEA)” (Indiana Transition Initiative, 2008, para. 1). As referenced by the Indiana Transition Initiative (2008), these related services are provided in a special education setting to assist children in the learning process by targeting educational performance and providing adaptations as necessary to improve performance.

As stated by Ray & Holahan (n.d.), skilled therapy must address a condition or situation that adversely affects the children’s overall performance and incorporate evidence-based practice in their treatment plans. Data is collected and interpreted to determine the need for services and to develop an intervention plan. The intervention plan must address functional deficits that the payer of services deems necessary to receive reimbursement for services.

In school settings, occupational therapy services must be educationally, developmentally, or functionally relevant and must lead to the development or improvement of a child’s performance or function related to academics. Occupational therapy goals and recommendations must align with the general education curriculum and extracurricular activities. For children to qualify for occupational therapy in a school setting, their impairment must interfere with academic performance. The goal of the occupational therapist in a school setting is not to provide a rehabilitation program but support a child’s academic performance (Bazyk & Cahill, 2015).

In contrast to school settings, the primary sources of reimbursement are Medicaid, Medicare, and private insurance coverage. As outlined by the Centers for Medicare and Medicaid Services (2012), there are several conditions for coverage and payment by Medicare and Medicaid. Such components include providing therapy services based on individual needs, documenting a thorough plan of care, and providing services to individuals who are under the direct supervision of, and received therapy orders from, a physician or nurse practitioner. According to CMS (2012), the plan of care must include the diagnosis of the patient and long-term treatment goals; it must also include the type, amount, duration, and frequency of therapy services. As referenced by CMS (2012), treatment programs and specific interventions must target anticipated goals and expected outcomes as they relate to the targeted occupational performance deficits.

Furthermore, progress reports must reflect the justification for therapy services as deemed medically necessary and relevant. “Services should be appropriate type, frequency, intensity, and duration or the individual needs for the patient” (CMS, 2012, p. 20), and the needs of the patient are dependent upon the occupational roles they must to fulfill. Moreover, “The fact that services are billed is not necessarily evidence that they were appropriate” (CMS, 2012, p. 20), and appropriateness is ultimately dependent upon the practice setting and model being utilized.

As outlined by AOTA (2017), Medicaid reimburses for occupational therapy services provided in a school setting that are deemed medically necessary. As outlined by Medicaid.gov (n.d.), Medicaid is a program funded by both the states and the federal government to provide medical coverage to mandatory eligibility groups, which includes low-income families, certain pregnant women and children, and those receiving

supplemental security income. According to Medicaid.gov (n.d.), Medicaid provides health coverage and fund assistance to the people in family households with limited income and assets. According to AOTA (n.d.), federal law requires each state to provide an extensive set of health services covered by Medicaid. However, each state can design specific programs of Medicaid. Though OT is federally recognized as a covered service, states can make it an optional benefit or reimburse for only specific OT services they deem medically necessary. As stated by Medicaid.gov (n.d.), optional benefits include prescription drugs, case management, occupational therapy, and physical therapy. Mandatory benefits include inpatient and outpatient hospital series, physician series, laboratory and x-ray services, and home health services. As outlined by Medicaid.gov (n.d.), the Children's Health Insurance Program (CHIP) provides medical coverage to children ages 19 and younger, whose parents' income is too high to qualify for Medicaid.

In outpatient clinics mostly utilizing the medical model, OT focuses on the child's health status and development, emphasizing functional progress and participation in home, school, and community activities. The primary focus is the participation, and performance of activities of daily living (ADLs), along with other tasks that are necessary for "independent living, education, and community participation" (AOTA, 2016; Dudgeon, Crooks, & Chappelle, 2015, p.707). The primary source of reimbursement typically comes from a combination of private insurance, Medicaid, or other state programs, and Medicare (Dudgeon, Crooks, & Chappelle, 2015).

### **Relevance to Occupational Therapy**

As OT practitioners, it is crucial to have a thorough understanding of the types of services allowed in the respective settings to maximize the client's potential, and get

reimbursement. Pediatric OT practitioners must have a solid understanding of the differences between education and medical models. School-based OT practitioners must understand the domain of occupational therapy within an academic context, which encompasses knowledge of both federal and state laws facilitating free and appropriate education (FAPE) in children's least restrictive environment (LRE) (Bazyk & Cahill, 2015).

Brandenburger-Shasby & Trickey (2001), identified that a large number of entry-level practitioners in a school-based setting had minimal experience learning about the school setting through their pre-service education. In a survey conducted in the United States to identify the most critical needs of new OT practitioners in a school setting, the participants identified several topics including a great need of knowledge regarding the federal and state regulations and role of occupational therapy, including evaluation and intervention approaches within the practice setting (Bazyk & Cahill, 2015, p. 664). On the other hand, in a setting that utilizes the medical model approach to occupational therapy treatment, it is important for the practitioner to have an in-depth understanding of "the characteristics of health care systems" (Dudgeon, Crooks, & Chappelle, 2015, p. 723). This encompasses "the factors and trends that affect hospitals, including legal and accreditation requirements, and the specialized needs of hospitalized children and their families" (Dudgeon, Crooks, & Chappelle, 2015, p. 723). Furthermore, medical settings use a universal coding system for billing of services, and OT practitioners should have an awareness of the payment limitations involved when using these codes, and in providing care, enabling the OT practitioner to clearly communicate treatment plans and the scope of services that are offered in the specific setting with families (Dudgeon, Crooks, &

Chappelle, 2015). Ultimately, occupational therapy treatment for ASD is influenced by the source of payment, whether you are using an educational model or medical model approach. It is imperative to have a thorough understanding of the regulations, guidelines, and reimbursement practices in place to ensure smooth therapy process, and provision of therapy services.

### **Theoretical Framework**

Occupational therapy is concerned with the person and how factors, such as the environment, influence their performance skills and patterns. OT practitioners may experience challenges when transitioning as a new OT practitioner or from a different practice setting. One such challenge is identifying the environmental factors that influence the occupational based assessments and interventions that are appropriate for their chosen work setting. The Person-Environment-Occupation (PEO) model offers the best fit for the purpose and scope of our study. The PEO model acknowledges a person as a holistic balance of mind, body, and spirit (Law et al., 1996). The person incorporates life experiences and a set of attributes in the transaction process, including skills which can either be learned or innate (Law et al., 1996). The amount of experience that an OT practitioner has with a specific population in a given practice setting, such as children with ASD in either a medical or educational setting, ultimately determines their abilities, skill set, and how well they will perform their duty as an OT practitioner in improving their client's occupational performance. The individual's environment contributes to their life experiences. The environment is explained as the setting where the occupational performance takes place and consists of "cultural, socio-economic, institutional, physical, and social considerations" (Law et al., 1996, p. 16). The environment can either create



barriers or enhance occupational performance for the individual. New and transitioning OT practitioners can utilize the PEO model as a guide to transition from university or a different practice setting. The PEO model can assist OT practitioners in identifying the model that is employed in a given practice setting and the treatment planning and goals that are appropriate for that model, such as the medical model in an outpatient setting and the educational model in a school-based setting.

Transition2Peds as an online resource aims to lead OT practitioners into the sphere of transformative learning. Transition2Peds as transformative learning tool hopes to enable OT practitioners to “change the way they think” when providing therapeutic services to pediatrics with ASD utilizing these two models (Corley, 2011).

Transformative learning is often described as learning that changes the way individuals think about themselves and the world (Corley, 2011). A more thorough definition of transformative learning states:

Transformative learning helps adult learners understand their experiences, how they make sense or meaning of their experiences, the nature of the structures that influence the way they construe experience, the dynamics involved in modifying meanings, and the way the structures of meaning themselves undergo changes when learners find them to be dysfunctional. (Mezirow, 1997)

Transformative learning is about change in learners, and it is the kind of learning that occurs when individuals make meaning out of the world through their experiences (Cercone, 2008). According to Mezirow (1997), “The goal of this learning theory is to enable the adult learner to become a more autonomous thinker by learning to negotiate his or her values, meanings, and purposes rather than to uncritically act on those of

others” (p. 11). The learning process involves learning about oneself and transforming not just what one learns, but also how one learns. It is also about sensing, visualizing, perceiving, and learning informally with others. Interaction and collaboration should occur in the learning environment to facilitate adult learning (Cercone, 2008).

## **Methodology**

### **Research Design**

The design for this research study was a mixed method descriptive design. A self-administered, self-report survey was designed to identify current strategies in learning about the service delivery models in the pediatric setting. The survey was comprised of open and closed-ended questions focusing on non-identifiable demographic information, strategies on learning, access to resources, care plan development, and care provision. Participants were enrolled in the study using the purposive sampling method.

### **Participants**

#### **Inclusion Criteria:**

Newly registered occupational therapists, and occupational therapy assistants, with at least one month but less than three years of experience working with the pediatric ASD population in a school-based, or outpatient setting were included. Transitioning OT practitioners to pediatric ASD setting from a different practice setting were included in the study.

#### **Exclusion Criteria:**

Anyone who was not a registered occupational therapist or assistant was excluded. OT practitioners who had no work experience with the pediatric ASD population was excluded.

**Instrument**

The research project's needs assessment was conducted through social media recruitment. The post acquired 80 responses from members who were subscribed to the social media group in which the question was posted. All of the 80 responses acknowledged the need for an improved approach at disseminating information on service delivery models in pediatric school-based and medical-based models for new OT practitioners. A quantitative survey was created using a checkbox, Likert scale, and open-ended questions to analyze the current perceptions of novice occupational therapy practitioners. This web-based survey asked 17 questions to discern the current state of understanding and the perception that new, and transitioning OT practitioners have about writing client-centered, reimbursable treatment goals for children with ASD in the pediatric school and outpatient setting. Out of the 17 questions, 15 questions were composed of checkboxes (ranging from two to seven response options to choose from) and Likert scale questions, and two questions were compiled as open-ended questions to identify current perceptions among pediatric occupational therapists working with the ASD population. The 17 survey questions were chosen from a pool of 40 questions through a process of elimination. We selected the questions that best exemplified the purposes of the research question. The survey was used as an instrument for gathering information aimed at analyzing the difference in reimbursable therapy goals for pediatric occupational therapists working with the ASD population in school-based, and medical-based settings. The survey method of data collection allowed the research team the ability to reach a large number of respondents with minimal cost, collect data on several

different variables, and allow for the analyzation of the data to perform statistical manipulations necessary to interpret and transcribe data results (Forsyth & Kviz, 2017).

### **Procedure**

The survey was disseminated through social media platforms, such as pediatric occupational therapy Facebook groups, and through OT databases from national, and state organizations such as the AOTA, and Occupational Therapy Association of California (OTAC). A promotional flyer explaining the purpose of our study was used to recruit participants from different platforms and databases. A survey was created through a web-based survey site, which allowed for subjects to access the survey by email or other types of invitation (Taylor, 2017). The online survey also allowed participants to complete it at their convenience in any location with internet access. Information collected was statistically analyzed and the information was translated into the creation of Transition2Peds, an online, educational website, accessible to new and transitioning OT practitioners in the pediatric ASD setting.

### **Data Collection and Analysis**

According to Kelley, Clark, Brown, and Sitzia (2003), the purpose of all data analysis is to summarize data so that it is easily understood and provides answers to our original questions. Since the inclusion criteria call for a specific type of experience from the practitioner, the purposive sampling method provides the best outcome for participant recruitment. Purposive sampling is the intentional selection of subjects by the researcher based on specific predetermined criteria, which is reflected in the inclusion and exclusion criteria of a study (Dickerson, 2017). After the survey was administered and data was collected, the averages of the results were calculated through the use of statistical mean,

median, and mode. Descriptive statistics were used to analyze the results for questions using the Likert scale and checkbox questions. The two open-ended questions supported the attempt to obtain qualitative responses that were used to supplement our quantitative data.

## **Results**

Of the 61 OT practitioners who agreed to take the survey, 13 made it to the consent page, and after giving consent, did not proceed any further. These 13 practitioners who did not complete the survey were excluded from the analysis. It was concluded there was no valid justification to include their non-responses, and doing so would not affect the project. Three participants did not respond to all questions in the survey. However, it was decided to include those in the analysis as part of the 45 participants that provided complete answers to each question. For these unanswered questions, the number of respondents was noted. Therefore, all data analysis conducted was based on the 48 participants who responded to the majority of the survey questions.

## **Descriptive Statistics**

Data responses showed that 83.3% of respondents were occupational therapists (n=40), and 16.7% were occupational therapy assistants (n=8) (*Figure 1*). Of these respondents, 31.3% were primarily practicing in an outpatient setting (n=15); 47.9% were in school-based (n=23); 6.3% were in Early Intervention/home (n=3); while 14.6% from another setting (n=7) (see: *Figure 2*). There were 17 (35.4%) respondents practicing in the West region (states such as California, Nevada, etc.); 11 were from the Midwest (22.9%); 6 from the Mid-Atlantic region (12.5%); four from the Northeast region (8.3%); three from the Northwest (6.3%); and six from the Southeast region (12.5%), totaling to

48 respondents (see: Figure 3). Of these respondents, one was male (2.1%) while 47 females responded to the survey (97.9%), suggesting that there are more female OT practitioners (see: Figure 4).

OT practitioners learning about the use of either the medical or educational model in pediatric ASD setting methods were as follows: 4.2% handbook (n=2), 2.1% audiovisual presentation (n=1), 31.3% face to face orientation (n=15), 56.3% self-directed training (n=27) while 2.1% accounted for other methods (n=1); and 2.1% of respondent received all of the above (n=1). There were 47 respondents on the preferred method of learning. Out of the 47 respondents, 12 (25.5%) prefer visual methods of learning; two (4.3%) prefer audio; nine (19.1%) prefer kinesthetic, and almost a majority, 24 (51.1%) prefer multiple methods (*Figure 5*).

Ten of the 47 respondents were practicing for less than one year (21.3%); 16 were from one to three years in practice (34%); two were practicing from four to six years (4.3%); one reported practicing six to ten years(2.1%); and 18 were practicing for more than 10 years (38.3%) (see: Figure 6). The majority of the respondents (n=48) were between ages 20 to 30 (19 out of the 48, 39.6%) followed by ages 31-40 (n=14; 29.2%). Ten were between ages 41 to 50 (20.8%), and five were between ages 51 to 60 (10.4%) (*Figure 7*). Out of the 47 respondents, 24 agreed that they were comfortable with their knowledge on applying the medical and educational model in ASD (51.1%), while 9 respondents neither agree or disagree (19.1%), 12 strongly agreed (25.5%), and 2 disagreed (4.3%).

Regarding confidence with the application of the medical and educational model used in their current setting for goal writing and treatment planning, there were 47

respondents. 23.4% of respondents strongly agreed (n=11), 59.6% of respondents agreed (n=28), 14.9% of respondents neither agreed or disagreed (n=7), and 2.1% of respondents disagreed (n=1) (*Figure 8*). On the question regarding the ability in explaining episodic compared to long term care to clients using the medical model, there were 47 respondents. 12.8% of respondents strongly agreed (n=6), 42.6% of respondents agreed (n=20), 25.5% of respondents neither agreed or disagreed (n=12), and 19.1% of respondents disagreed (n=9).

Regarding comfort in knowledge and application of OT services within the educational model context, there were 47 respondents. 34% of respondents strongly agreed (n=16), 46.8% of respondents agreed (n=22), 12.8% of respondents neither agreed or disagreed (n=6), and 6.4% of respondents disagreed (n=3). For the question regarding the ability to explain how funding sources affect the plan of care, there were 47 respondents; 16 (34%) OT practitioners agreed that have the ability to explain how funding sources affect the plan of care, while 17% strongly agreed (n=8), 27.7% neither agreed or disagreed (n=13), 19.1% disagreed (n=9), and 2.1% strongly disagreed (n=1).

There were 45 respondents on success in demonstrating competency in the plan of care by reimbursement percentage, 34 OT practitioners (75.6%) reported 100% competency; four (8.9%) reported 75% competency; one each (2.2%) reported on 25%, 50% competency; and five (11.1%) reported zero percent competency or no competency. Of the 47 respondents, 22 (46.8%) agreed that there is a need for more educational resources to build a knowledge base about differences of reimbursement in the educational, and medical models when providing care for children with ASD. 17 (36.2%) strongly agreed, six (12.8%) neither agreed nor disagreed, while two (4.3%) disagreed.

### **Inferential Statistics**

The independent variables were analyzed using the following methods: The demographic information looking at the type of OT practitioner (OTR/OTA) was measured using an independent sample t-test. The years of OT experience was analyzed using a Pearson's R correlation. The primary setting was analyzed using one-way ANOVA testing. The age was analyzed using Pearson's correlation method. Region of practice was analyzed using One-way ANOVA. Gender was analyzed using an independent t-test with a 95% confidence interval of difference. Method of learning that was provided was analyzed using one-way ANOVA. Preferred method of learning was analyzed using One-way ANOVA.

There was no statistical significance in the comfort level of knowledge in applying the medical and educational model in the current ASD pediatric setting between OT ( $m=4.0256$ ,  $SD=.77755$ ) and OTA ( $m=3.7500$ ,  $SD=.88641$ ).

For the various primary OT settings, there is a significance difference when it comes to explaining episodic and long-term care ( $p=.003$ ). A Fischer's Least Significant Difference (LSD) Analysis of Variance (ANOVA) was used to highlight the differences. The post hoc results revealed that when it comes to outpatient ( $m=4.0667$ ) vs. school-based ( $m=3.000$ ), there is a statistical significance in favor of outpatient with a mean difference of 1.0667 regarding episodic vs. long term care ( $p=.000$ ).

For practice region, findings show that there was an overall significance when it comes to the comfort level of knowledge within the various regions. Comfort level in applying the medical and educational model used in the current setting for goal writing and treatment planning is the only variable amongst the five regions that were statistically



significant ( $p=.002$ ). An LSD one-way ANOVA post hoc was performed and revealed that specifically when it comes to the comfort level of knowledge amongst the various regions, for West ( $m=4.1111$ ,  $SD=.67640$ ) vs. Northwest ( $m=2.6667$ ,  $SD=.57735$ ), the West has a significantly higher level of knowledge with a mean difference of 1.4444 ( $p=001$ ). For West vs. Northeast ( $m=3.2500$ ,  $SD=.95743$ ), West has a significantly larger mean with a different of .8611, which implies that West has a higher comfort level of knowledge compared to the northeast ( $p=.026$ ).

When it comes to Midwest ( $m=4.5000$ ,  $SD=.52705$ ) vs. Northwest, Midwest has a significantly higher level of knowledge with a mean difference of 1.83 ( $p=.000$ ). For Midwest vs. Northeast, Midwest has a significantly higher comfort level of knowledge of with a mean difference of 1.25 ( $p=.003$ ). For Southeast ( $m=3.8333$ ,  $SD=.75277$ ) vs. Northwest, the Southeast has a significantly higher comfort level of knowledge with a mean difference of 1.1667 ( $p=.018$ ). For mid-Atlantic vs. Northwest, mid-Atlantic has a significantly higher comfort level of knowledge with a mean difference of 1.33 ( $p=.008$ ).

A one-way ANOVA was performed to evaluate the method of learning that was provided to OT practitioners in learning the medical and educational models in pediatric ASD settings. No significance was found. Amongst the four different methods of learning, there is no difference when it comes to the independent variables.

For the preferred method of learning, a one-way ANOVA was performed. Results show that there was a statistical significance in need for more educational tools ( $p=.017$ ). A one-way LSD ANOVA post hoc was then performed and found that there was statistical significance favoring visual tools more so than audio ( $p=.004$ ), kinesthetic

more so than audio ( $p=.013$ ), and multiple methods of learning in favor over audio ( $p=.002$ ).

When it comes to correlation for age, Pearson's correlation was used. Results show that there was a significant positive linear correlation between years of practice and level of knowledge ( $p=.002$ ). For years of practice and confidence in applying the medical and educational models, there was a significant positive correlation ( $p=.000$ ). For years of practice and understanding the difference between episodic and long term care, no correlation was found.

Results showed that there is a significant positive linear correlation between years of practice, and comfort level of knowledge in applying the medical and educational model in ASD pediatric settings ( $p=.002$ ), demonstration of competency by having OT services reimbursed ( $p=.023$ ), an explanation of how funding sources affect plan of care ( $p=.025$ ). There was also a statistically positive significant correlation between years of practice and competency in POC by reimbursement ( $p=.025$ ). Of the seven dependent variables analysis, two did not yield significance: episodic versus long term care, and need for more educational resources. For age, there was a statistical significance with knowledge and application ( $p=.044$ ).

### **Qualitative Results**

Two research students performed thematic coding for the two open-ended questions. The first question was: As an OT practitioners working with the ASD pediatric population, what additional resources do you think would be helpful with distinguishing between the medical and educational model? When asked what additional resources would be helpful with distinguishing between the medical and educational model, there

were 30 respondents. Some respondents included more than one resource in their responses. Three responses indicated “unclear” or “not sure,” seven responses indicated a need for a “resource for parents”, five responses indicated a need for some “evidence-based practice” research, five responses indicated a need for official “AOTA documents,” one response indicated “conferences,” four indicated “webinars,” one indicated “continuing education courses,” and nine indicated “other.”

Second question was: List the top three reasons that OT services are denied reimbursement for a client with ASD? When asked what the top three reasons that OT services are denied reimbursement for clients with ASD, there were also 30 respondents. Some respondents included more than three reasons for denial of reimbursement for services. Three responses indicated “not sure,” three responses indicated “treatment does not fall within the appropriate model,” three responses indicated that clients were “not making enough progress or are within level of function,” six responses indicated “proper documentation,” nine responses indicated “not applicable,” five responses indicated “other,” two responses indicated “intervention not backed by evidence,” one response indicated “services have never been denied,” five responses indicated “insurance,” and three responses indicated services were “sensory integration based.”

### **Clinical Significance**

Years of practice had the highest magnitude of confidence on comfort level. Clinical significance was 19.1%. This is explained by years of practice when it comes to the comfort level, meaning the more years of practice that a therapist has, the higher their comfort level.

**Discussion**

The results of the study outlined the need for educational resources for OT and OTA regarding differences between the medical and educational model when it comes to reimbursement in the pediatric ASD population. The mean of OT and OTA who responded to the survey agreed that there is a current need for more educational resources on this matter. However, OTAs have a similar level of comfort with their level of knowledge in applying the medical and educational model in ASD pediatric settings, implying a need for an educational resource for both OT and OTA. Furthermore, the results outline practitioners in both outpatient and school-based settings agreed as a majority for a further need for educational resources.

When asked about the method of learning that was provided to OT practitioners in learning about the two models of practice, no significance was found. This implies that any method of learning would be beneficial to include in an educational resource to educate OT practitioners on the medical and educational models in pediatric ASD settings.

The preferred method of learning across all respondents was reported to be multiple methods, followed by visual learning. Individuals who prefer visual learning strategies highlighted a significantly higher need for educational resources when compared to those who prefer learning through audio strategies. This suggests a need for a multiple method tool would be a beneficial learning tool for the medical and educational models in the ASD population.

The results indicate that this need can be affected by the geographic location of practice, with the most significant difference being in the area of the practitioners'

comfort level of knowledge. OT practitioners working with the ASD population in the Western region of the U.S. have a higher comfort level of knowledge in applying the medical and educational model in current ASD pediatric settings. It may be beneficial for future research to analyze the various educational methods or tools used to educate OT practitioners in this region, to increase the comfort level for other practice regions. Mid-Atlantic was the least comfortable in their level of knowledge in applying the educational and medical models, implying that an educational tool focusing on the specific needs of OT practitioners in the region may be warranted.

OT practitioners working in primarily an outpatient setting held a stronger understanding of the differences between episodic and long-term care and were able to explain these differences better using the medical model, which may be attributed to clinical knowledge gained through on-the-job learning and experience. This reflects a need for an educational tool outlining the long term and episodic care for OT practitioners transitioning out of school-based practice and into outpatient settings. A surprising finding from the study illustrated that OTA responded with a stronger competency in the point of care by reimbursement. The results illustrated that years of practice experience had a positive linear relationship with multiple variables regarding clinical knowledge and reimbursement practices unique to settings working with the pediatric ASD population. We found that as years of practice increase, so does a practitioner's comfort level of knowledge in applying the medical and educational models, successful demonstration of competency in having services reimbursed, and are better able to explain how funding sources affect the plan of care. This implies a need for an educational tool that is geared toward new OT practitioners. However, there was no

correlation between years of practice and understanding the difference between episodic and long-term care. This implies that any OT practitioners with any number years of practice experience could benefit from the use of an educational tool for the educational and models, and specifically on the differences in episodic and long-term care using the medical model.

The results indicated that the older you are, the more experienced you should be in medical and educational based settings treating the pediatric ASD population, as it could be expected. All other dependent variables did not correlate with age. Therefore, regardless of age, there is a need for further education of OT practitioners on applying the medical and educational models in ASD pediatric settings. This will allow OT practitioners to increase confidence in the application of both models for goal writing and treatment planning, to educate clients on episodic versus long term care using the medical model, and become more educated on how to explain funding sources and how they affect the plan of care. Ultimately, further education will increase competency and increase reimbursement rates of services.

In response to the question asking which additional resources would be helpful with distinguishing between the medical and educational model, the most significant need for OT practitioners was an educational tool that can be provided to parents. The second highest indicated need was evidence-based practice information, and the third indicated need was AOTA documents. This supports the need for an educational tool that provides OT practitioners with resources that they can both provide to parents and also refer to themselves to educate on the differences in the educational and medical models and how legislation and reimbursement affect service delivery.

In response to the question asking for the top reasons for which OT services are denied reimbursement for clients with ASD, the top reason was that this issue does not apply to their practice setting. School-based OT practitioners do not typically bill for reimbursement. Services may be rendered as long as services fall within the goals outlined in the child's IEP. This warrants a possible need for educational tools that can educate both OT practitioners and parents on legislation and regulations that allow for only specific interventions to be applied in this setting, that that may otherwise not be reimbursable in other settings such as outpatient medical model-based settings. Such legislation includes IDEA and Section 504. The second most recorded reason for denial of reimbursement for service did not have proper documentation, indicating a need for an educational tool that educates OT practitioners on how to correctly document services rendered in both the medical and educational model. The third most recovered reason for denial of reimbursement for services was insurance. OT practitioners working in outpatient settings under the medical model must justify services to third-party payers to receive reimbursement. This indicates a need for an educational tool that outlines the reimbursement guidelines for insurances commonly used in pediatric settings with the ASD population, which include Medicare, Medicaid, and CHIP. The educational tool being developed in the form of an information website can be used to mitigate the lack of knowledge that is inversely related with years of practice, to provide them with the tools necessary to understand the intervention approaches in their respective settings.

### **Ethical & Legal Considerations**

A survey platform was used that kept the participants' responses to the survey anonymous. Demographics, such as the years of occupational therapy experience with the

pediatric ASD population, were gathered anonymously. Before beginning the survey, the participants were required to read and sign an informed consent form on the initial page of the survey (see Appendix E). The informed consent form outlined the potential usage of the responses gathered from the survey, such as disseminating the results to potential posters, presentations, and conferences. The responses were accessible through a password-protected web-based drive with the password frequently changed. The research group and advisor had access to these results to ensure confidentiality. All respondents were of legal age, and there were no vulnerable populations affected. An Institutional Review Board (IRB) application was approved through Stanbridge University containing the informed consent form, survey, and flyer that will be used (see Appendix G).

Furthermore, the research project was being guided by the OT code of ethics outlined by AOTA. Under the ethical principle of beneficence, OT practitioners must “provide occupational therapy services, including education and training, that are within each practitioner’s level of competence and scope of practice” (AOTA, 2015, p. 2), “take steps (e.g., continuing education, research, supervision, training) to ensure proficiency” (AOTA, 2015, p. 2) and “maintain competency by ongoing participation in education relevant to one’s practice area” (AOTA, 2015, p. 2). For an OT to write appropriate goals and focus on occupational deficits related to their practice area, they must be competent within their area of practice and understand why some deficits would not be appropriate to address. Under the ethical principle of nonmaleficence, occupational therapists must “avoid any undue influences that may impair practice and compromise the ability to safely and competently provide occupational therapy services, education, or research (AOTA, 2015, p. 3) and “avoid compromising the rights or well-being of others based on



arbitrary directives (e.g., unrealistic, productivity expectations, falsification of documentation, inaccurate coding) by exercising professional judgment and critical analysis” (AOTA, 2015, p. 4). Occupational therapists must have a clear understanding of appropriate goals and treatment plans and implement them as efficiently as possible so clients can gain the most benefit out of therapy while being efficient with payer funding. Finally, under the ethical principle of veracity, occupational therapists must “record and report in an accurate and timely manner and accordance with applicable regulations all information related to professional or academic documentation and activities” (AOTA, 2015, p. 6). Occupational therapists must understand which type of documentation is appropriate for their payer and provide all necessary information to maintain professionalism.

### **Limitations and Implications to OT**

The study focused on OT practitioners within a specific setting involving a particular disability, the pediatric ASD setting. Due to its specificity, the results from this study cannot be generalized to other populations, disabilities, or age groups. There was a small sample size of 48 respondents. Respondents to the survey were heavily skewed in favor of female respondents, with only one male respondent. Another potential limitation in the inclusion criteria, OT practitioners that have had at least one month to no more than three years of ASD pediatric clinical experience. By excluding practitioners with more than three years of clinical experience, expertise level was not taken into consideration. Transition2Peds looked at the perceptions of OT practitioners and did not interview or include the other members of health care such as insurance companies, health planners, and managed care providers, and the perceptions of the entities that

reimburse occupational therapy services. Another limitation of this study was that OT practitioners who are on social media, such as Facebook, and are members of pediatric groups, may be more inclined to have access to goal writing support from their fellow practitioners compared to recently graduated, brand new OT practitioners, who may not be a part of these groups. Another possible limitation was the possibility that a subject retakes the survey multiple times, which would skew the results. Although there was an attempt to curb this possibility by creating a consent question before taking the survey, there was no way to guarantee that no two responses are from the same person since we did not ask for identifiable information.

For future studies, it may be beneficial to survey the population of reimbursement entities, such as insurers, who pay for services, to get a complete account of current reimbursement standards, procedures regarding occupational therapy treatment reimbursement in the school-based and outpatient based pediatric setting. As an addition to the body of knowledge of OT in pediatric setting specifically in the treatment of ASD in either the school, or the clinic settings, Transition2Peds can act as legislation resource for easier understanding of the complex nature of health insurance, and guidelines for education based treatment, and medical based treatments. Transition2Peds can also open the possibility of including more educational resources to graduate students through an in-depth class discussion or inclusion in their graduate curriculum or program.

### **Conclusion**

It is critical for pediatric OT practitioners to understand the differences and importance of the educational and medical models to effectively create and document treatment plans, and also ensure reimbursement for provided services. Effective, and

efficient practice in a school-based and outpatient setting require OT practitioners to have a sound understanding of the domain of practice within these settings, all the while understanding the federal laws, and regulations that guide the domain of practice (Bazyk & Cahill, 2015, p. 664) Nevertheless, many entry-level OT practitioners identify as feeling the least prepared for the school-based setting and not having enough exposure to school-based practice during their pre-service curricula (Brandenburger-Shasby, 2005). Without a comprehensive understanding of the school-based practice, OT practitioners do not have all the tools to write treatment goals that follow school-based practice guidelines and encounter issues with reimbursement. Within the medical model, OT practitioners must have a comprehensive understanding of characteristics within the healthcare system, along with entities that affect the hospital or medical setting. OT practitioners must also be familiar with the coding systems that medical settings use to bill services and understand the perceived limitations involved in providing care that falls outside of these reimbursable services.

Having an understanding and knowledge on these service delivery models will enable an OT practitioner to justify the needs for skilled or specialized therapy such as occupational therapy. The results of this study facilitated in the development of an evidence-based, educational website, Transition2Peds, for new, and transitioning pediatric occupational therapists who work with children experiencing ASD regarding the educational and medical models of service delivery. The web-based educational tool, Transition2Peds, provides a plethora of information and resources on these two models. It will provide new, and transitioning OT visual tool and guide in navigating these two models in different settings, and hopes that it will increase their competency and their

confidence in providing efficient OT care. Transition2Peds can also be a resource to support vulnerable populations and address health disparity issues by providing effective solutions to guide the stakeholders through the complex world of health insurance.

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Department of Education (2010).

## Appendix A

## Stanbridge university research subject/participant's Bill of rights

Every person who is asked to be in a research study has the following rights:

1. To be told what the study is about and what will be measured;
2. To be told what will happen in the study and whether any of the procedures, drugs or devices are different from what would be used in standard practice;
3. To be told about important risks, side effects, or discomforts of the things that will happen to her/him;
4. To be told if she/he can expect any benefit from participating and, if so, what the benefits might be;
5. To be told what other choices she/he has and how they may be better or worse than being in the study;
6. To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study;
7. To be told what sort of medical treatment is available if any complications arise;
8. To refuse to participate at all before or after the study is started without any adverse effects. If such a decision is made, it will not affect his/her rights to receive the care or privileges expected if s/he were not in the study.
9. To receive a copy of the signed and dated consent form;
10. To be free of pressure when considering whether s/he wishes to agree to be in the study

**Independent Contact:** If you are in some way dissatisfied with this research and how it is conducted, you may contact the Stanbridge University Vice President of Instruction, [VP.instruction@stanbridge.edu](mailto:VP.instruction@stanbridge.edu) or 949-794-9090 x 5112.

## Appendix B

## Consent Form

**STANBRIDGE UNIVERSITY RESEARCH CONSENT FORM**

**Description:** You are invited to participate in a research study on the current strategies that pediatric occupational therapists use in learning about the educational and medical models when working with children diagnosed with autism spectrum disorder (ASD). You will be asked to complete a survey about strategies used in learning about these models. The data will then be used to develop an evidence based, educational website with information on treatment planning within the educational and medical models for new, and transitioning pediatric occupational therapists who are working with children diagnosed with ASD.

**Your Time Involvement:** Your participation will take approximately 15 minutes.

**Risks and Benefits:** There are no known risks to this study. The benefits to this study include the creation of an additional resource that will provide information on treatment planning within the educational and medical models when working with the ASD population.

**Payment:** There will be no payment for participation in this study

**Participant Rights:** If you have read and signed this form you are consenting to participate in this study. Participation in this study is voluntary and you have the right to withdraw at any point without penalty. Your alternative is to not participate in this study. You have the right to refuse to answer specific questions. Your identity will not be disclosed at any time. The results of this study will be used to develop an evidence-based educational website, which will provide information on treatment planning within the educational and medical models when working with the ASD population.

**Contact Information:** If you have any questions about this research you may contact the Faculty Advisor: Naomi Achondo; [nachondo@stanbridge.edu](mailto:nachondo@stanbridge.edu); 909-833-1099

**Independent Contact:** If you are in some way dissatisfied with this research and how it is conducted, you may contact the Stanbridge University Vice President of Instruction, [VP.instruction@stanbridge.edu](mailto:VP.instruction@stanbridge.edu).

(If applicable, complete the following)

**Indicate Yes or No:**

I give consent to be audio taped during this study.

\_\_\_\_\_ Yes \_\_\_\_\_ No

I give consent to be photographed for this study and for my photograph to be used in any materials (poster, video) resulting from this study.

\_\_\_\_\_ Yes \_\_\_\_\_ No

I give consent to be videotaped for this study and for my image to be used in any materials (poster, video) resulting from this study.

\_\_\_\_\_ Yes \_\_\_\_\_ No

I give consent for my identity to be revealed in any materials resulting from this study.

\_\_\_\_\_ Yes \_\_\_\_\_ No

**Please keep a copy of this signed and dated consent form for yourself.**

**Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

Appendix C

Presurvey Facebook Poll



**Naomi Jaye** ▸ **Pediatric Occupational Therapists**



July 23 ·

OT research advisor here: Is there a need to better disseminate information on service delivery model for pediatric setting (medical vs. educational model) for new OT practitioners?

TIA

85

80 Comments

Like

Comment

## Appendix D

## Information Flyer



# STANBRIDGE UNIVERSITY

Department of Occupational Therapy invites you to participate in this graduate student study:

ONLINE SURVEY REGARDING  
THE EDUCATIONAL AND  
MEDICAL MODEL SERVICE  
DELIVERY FOR CHILDREN  
WITH ASD

**WHO:**

- Newly registered *OT* and *OTA* practitioners with at least 1 month experience to **3 years** in **ASD**
- Transitioning OT (from other work/ population setting) to peds
- Access survey thru (website) by (end date)
- Survey will take no more than **15 minutes** to complete
- For more information, contact [transition2pedsot@gmail.com](mailto:transition2pedsot@gmail.com)

## WHO:

- Newly registered *OT* and *OTA* practitioners with at least 1 month experience to **3 years** in **ASD**
- Transitioning OT (from other work/ population setting) to peds
- Access survey thru (website) by (end date)
- Survey will take no more than **15 minutes** to complete
- For more information, contact [transition2pedsot@gmail.com](mailto:transition2pedsot@gmail.com)



## Appendix E

## Survey with Consent Form

**Education Model vs. Medical Model in Pediatrics ASD**

\_\_\_\_ By completing this survey, you are CONSENTING that you are within legal age to participate in this study, use your responses, and share the data gathered by MSOT Graduate Students of Stanbridge University. Participation in this study is voluntary and you have the right to withdraw at any point without penalty. The results of this study will be used to create an online education tool for Occupational Therapists (OT).

\_\_\_\_ I affirm that I have at least one (1) month pediatric Autism Spectrum Disorder (ASD)

This survey will take no more than 15 minutes to complete.

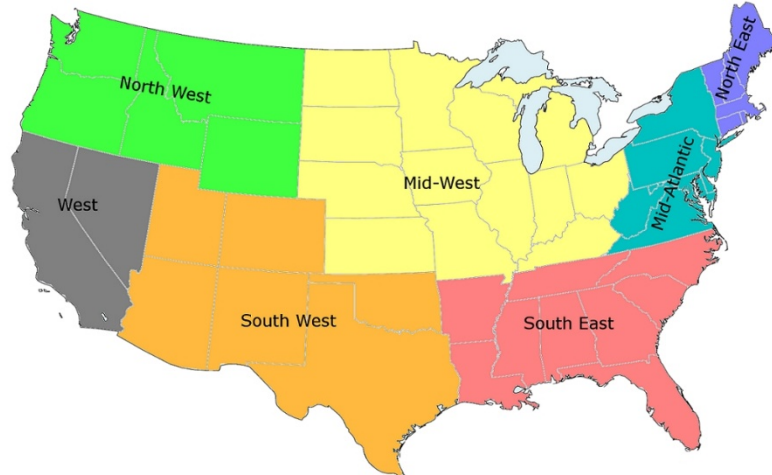
Contact information: [transition2pedsot@gmail.com](mailto:transition2pedsot@gmail.com)

## DEMOGRAPHIC QUESTIONS

1. I am an
  - a. Occupational therapist
  - b. Occupational therapist assistant
  
2. I have been practicing in the pediatric setting for
  - a. Less than a year
  - b. 1-3 years
  - c. 4-6 years
  - d. 6-10 years
  - e. 10+years
  
3. My primary pediatric setting is
  - a. Outpatient center
  - b. School base
  - c. Others (\_\_\_\_\_)
  
4. I am within the age range of
  - a. 20-30 years old
  - b. 31-40 years old
  - c. 41-50 years old



- d. 51-60 years old
  - e. 61+ years old
5. My primary U.S. practice region is in



- a. North West
  - b. West
  - c. South West
  - d. Mid-West
  - e. South East
  - f. Mid Atlantic
  - g. North East
6. I am a \_\_\_\_\_ pediatric OT
- a. Female
  - b. Male
  - c. LGBTQ
  - d. Other
  - e. Prefer not to disclose

#### PRACTICE SPECIFIC QUESTIONS

6. What methods were provided to you for learning on the use of either the medical or education model in the pediatric ASD setting?
- a. Handbook
  - b. Audio/Visual presentation (Online Access)
  - c. Face-to-face orientation
  - d. Self-directed training
  - e. Other (\_\_\_\_)

7. What is your preferred method of learning?
  - a. Visual
  - b. Audio
  - c. Kinesthetic
  - d. Multiple
  - e. None
  
8. I feel comfortable with my level of knowledge in applying the medical and/or educational model in my current ASD pediatric setting?
  - a. Strongly Disagree
  - b. Disagree
  - c. Neutral
  - d. Agree
  - e. Strongly Agree
  
9. I feel confident with my application of the medical and/or educational model used in my current setting for goal writing and treatment planning?
  - a. Strongly Disagree
  - b. Disagree
  - c. Neutral
  - d. Agree
  - e. Strongly Agree
  
10. I am able to explain to my clients what episodic care means vs. long term care using the medical model
  - a. Strongly Disagree
  - b. Disagree
  - c. Neutral
  - d. Agree
  - e. Strongly Agree
  
11. I am comfortable in my knowledge of the application of terms and OT within the context of the educational model
  - a. Strongly Disagree
  - b. Disagree
  - c. Neutral
  - d. Agree
  - e. Strongly Agree
  
12. I am able to explain how the funding sources affect my plan of care
  - a. Strongly Disagree
  - b. Disagree

- c. Neutral
- d. Agree
- e. Strongly Agree

13. I have been successful in demonstrating competency with my plan of care by having it fully reimbursed \_\_\_\_\_% of the time

- a. 100
- b. 75
- c. 50
- d. 25
- e. 0

14. I see a need for more educational resources that will help me further understand the differences in reimbursement for the educational vs. medical model when providing care for children with ASD

- a. Strongly Disagree
- b. Disagree
- c. Neutral
- d. Agree
- e. Strongly Agree

15. As an OT PRACTITIONERS working with the ASD pediatric population, what additional resources do you think would be helpful with distinguishing between the medical and educational model.

16. List the top three reasons that OT services are denied reimbursement for a client with ASD

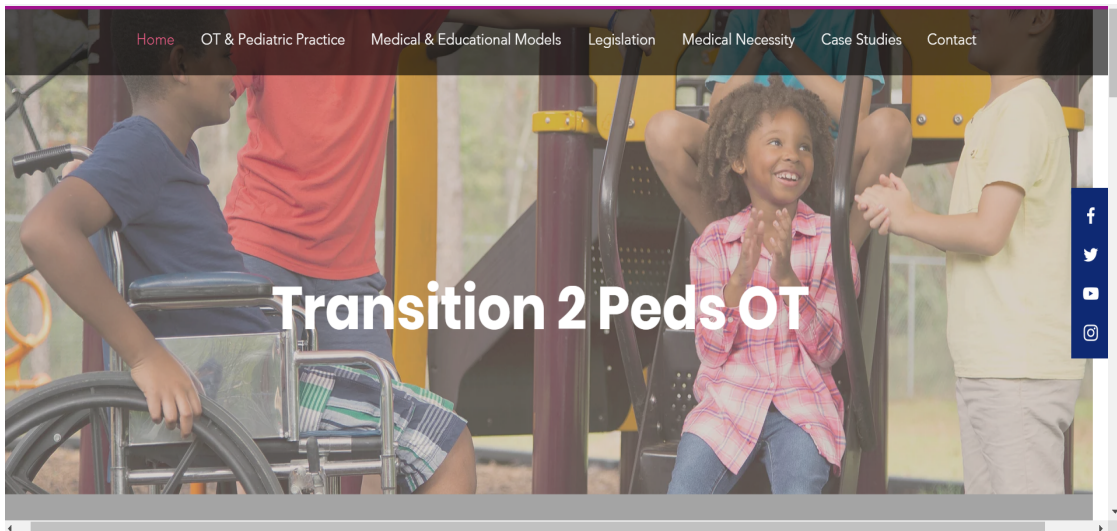
**Thank you for participating in our study!**  
**MSOT Cohort 7**  
**Stanbridge University**

## Appendix F

## Outline for Evidence-Based Website

1. Name of Website
2. Authors of Website/Contact Information
3. Information on Pediatric Occupational Therapy
4. Information on ASD
5. Information of Educational and Medical Service Models
6. Resources
  - a. Sample Goals
  - b. Sample Cases
  - c. Legislation and Guidelines for Reimbursement

URL: <https://transition2pedsot.wixsite.com/transition2pedsot>



## Appendix G

## IRB APPROVAL EMAIL

**Revised - IRB Proposal #081 - Feedback**

Dr. Lakshmi Kodeboyina

Fri 9/28/2018 12:26 PM

To:

- Dr. Naomi Achondo <nachondo@stanbridge.edu>

Cc:

- IRB <irb@stanbridge.edu>

2 attachments (63 KB)

081 MSOT 007 Achondo IRB Review Checklist\_2nd review.docx; 081 MSOT007 Achondo IRB Feedback Form\_2nd review.docx;

Dear Dr. Achondo,

After a review of your IRB application for Study ID# 081, it has been approved and you may start developing your thesis or your data collection at this time. This approval is limited to the activities described in the IRB application.

Congratulations and we wish you success with your thesis project.

Sincerely,

**Lakshmi Kodeboyina, PhD | IRB Chair | Scientific Writing Specialist**

P. 949.794.9090 ext.5201 F. 949.794.9094

2041 Business Center Dr, Irvine, CA 92612

2016 CAPPS Excellence in Community Service, Gold Award Winner

2015 ACCSC Excellence in Student Services Award Winner

2014 - 2015 ACCSC School of Excellence

2013 ACCSC Community Service Award Winner

2009, 2010, 2011, 2012, 2013, 2014, 2015 President's Higher Education Community Service Honor Roll

2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016 IRE America's Best Technical Colleges



Appendix H

Institutional Review Board Approval



**IRB Reviewer Feedback**

Reviewer Name: Dr. Melissa Samaniego  
 Student Name(s): Carlie Brusco, Tiffany Kim, Kulwarn Deol, George Vartanian  
 Advisor Name(s): Dr. Naomi Achondo  
 Study Title: Transition2Peds: An Evidence-Based OT Tool to Navigate the Service Delivery Models for Children with Autism Spectrum Disorder  
 Study ID: 081  
 Decision:  Approve  
            Minor Revisions  
            Major Revisions

**Reviewer Comments:**

**I think this is a valid topic and study that has the potential to contribute positively to the field of occupational therapy, and I approve the application.**

Dr. Melissa Samaniego

Please type your name as electronic signature

## Appendix I

## Official Reviewer Checklist for New IRB Applications



## Reviewer Checklist for New IRB Applications

|                                       |   | YES                                 | NO                       | NOT SURE/<br>COMMENTS |
|---------------------------------------|---|-------------------------------------|--------------------------|-----------------------|
| <b>Purpose and Objective of Study</b> | Is a problem clearly identified?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Is the research question clear?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Are the research objectives and/or hypotheses of the research clearly stated?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Are there sufficient time and resources to complete this study?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
| <b>Description of Human Subjects</b>  | Does the activity in the research justify using the proposed population as subjects?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Does the selection of participants have inclusion and exclusion criteria?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
| <b>Recruitment Procedures</b>         | Is it clear that the researcher has access to the population that will allow for recruitment of the required number of participants?                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | It is obvious how participants will be solicited for participation in the study?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Are there appendices with copies of materials used to recruit participants such as flyers or permission letters?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
| <b>Consent Process</b>                | Is it clear when how and where consent forms will be obtained?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | It is clear how participants will understand their rights prior to the commencement of the study and that they can consult with someone prior to the study? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | It is clear how participants will be informed that they may withdraw from the study at any time without penalty?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|                                       | Is it clear where consent forms will be stored?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |

|   |   | YES                                 | NO                       | NOT SURE/<br>COMMENTS |
|---|---|-------------------------------------|--------------------------|-----------------------|
| <b>Informed Consent for Special Populations</b>               | Is there an informed consent form for participants or an assent form for participants who are younger than 18 attached in the appendices?                       | <input type="checkbox"/>            | <input type="checkbox"/> | N/A                   |
|   | If participants are adults with impaired decision-making capacity is there a mechanism for obtaining informed consent from a legally authorized representative? | <input type="checkbox"/>            | <input type="checkbox"/> | N/A                   |
|   | Is there a translator for non-English speaking participants?  | <input type="checkbox"/>            | <input type="checkbox"/> | N/A                   |
|   | If this research involves prisoners, it is clear how approval will be attained?   | <input type="checkbox"/>            | <input type="checkbox"/> | N/A                   |
| <b>Does the informed consent FORM include these elements?</b> | <i>A description of risks or benefits of the research in terms of participants.</i>   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | <i>A statement about the intent of the research and the expected duration of the participation demanded and description of procedures.</i>                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | <i>A disclosure of alternative procedures, if any, that might allow the participant's actions to remain confidential?</i>                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | <i>A statement describing how records will be kept confidential and participant identity masked.</i>  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | <i>A statement about compensation for participation in this research.</i>   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | <i>A statement that participation is voluntary and that refusal to participate will involve no penalty or loss of benefits.</i>                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
| <b>Risk and Benefit Considerations</b>                        | Are the risks to participants clearly identified?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | Is there a plan to minimize any physical, psychological, legal, economic or social risks by using procedures that are sound?                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | Do the benefits outweigh the risks?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
| <b>Confidentiality of Records</b>                             | Will data be anonymous? (the researchers will have no visual or verbal contact with the participants and will see no identifying information in the data)       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                       |
|   | If the data is not anonymous, is it clearly described how the data will be kept confidential?   | <input type="checkbox"/>            | <input type="checkbox"/> | N/A                   |



|   |   | YES                                 | NO                       | NOT SURE/<br>COMMENT<br>S                                |
|---|---|-------------------------------------|--------------------------|--|
|   | Is it clear who will see the data?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is it clear how raw data and computerized data will be stored?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is it clear how participant identity will be kept separate from participant data?   | <input type="checkbox"/>            | <input type="checkbox"/> | No personally identifiable information will be collected |
| <b>Methodology, Procedures and Analysis</b> | Does the methodology and data analysis match the aims of the research? (See Table 1 for selection of statistical tests for goals and Appendix A for an example of qualitative analysis) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Are the procedures for data collection so clearly described that it is obvious what participants will experience throughout the activities involved in the research?                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is there adequate information about the copyright of questionnaires, interviews, focus group questions or any instruments used in this study?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is there a comment on the reliability and validity of any standardized evaluation instruments used?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Are the questionnaires, interviews, focus group questions or any tools used in this study in the appendices?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is it clear in detail how the data will be collected?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
|   | Is it clear how data will be analyzed?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| <b>Scientific Merit</b>                     | Do you feel this study has Scientific Merit?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |

Instructions: Studies may only be approved once all items have been marked “Yes.” If there are one or more items marked “No,” the study should be returned for minor revisions. If there are an abundance of items marked “No,” or there are “fatal flaws,” the study should be returned for major revisions.

List of Figures

Figure 1. Type of occupational therapist who participated in the survey

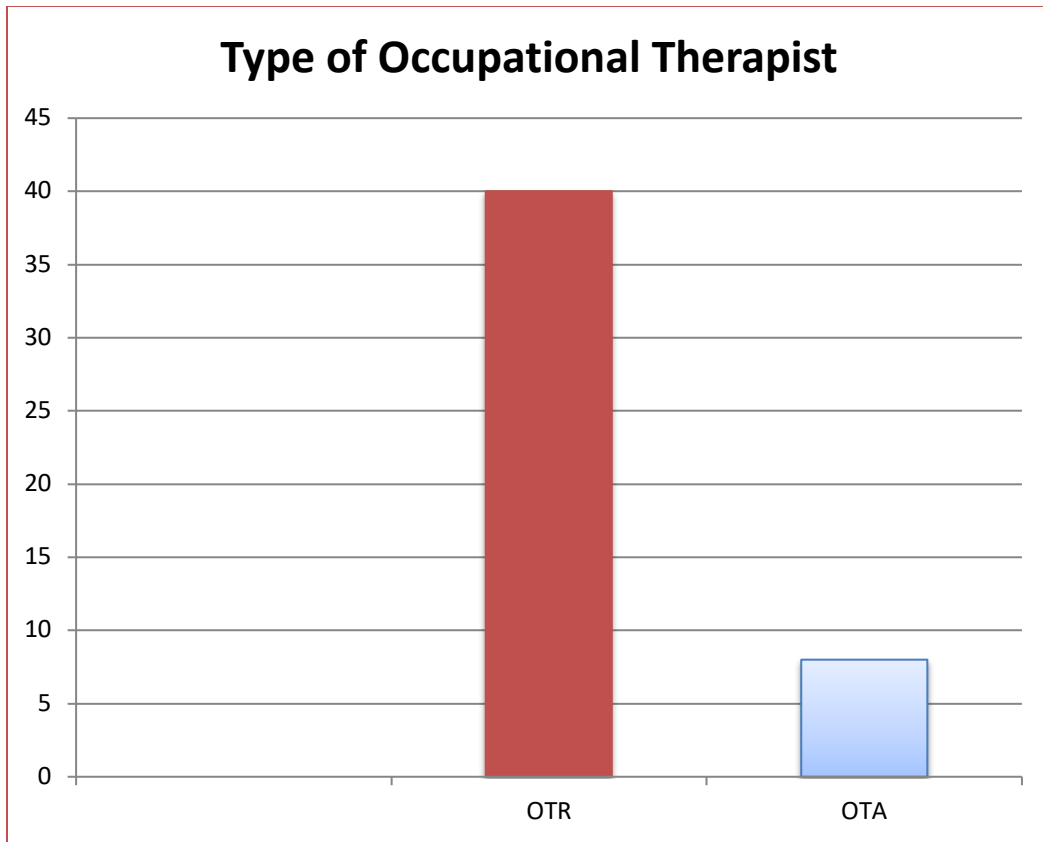


Figure 2. Practice Setting of OT in the United States

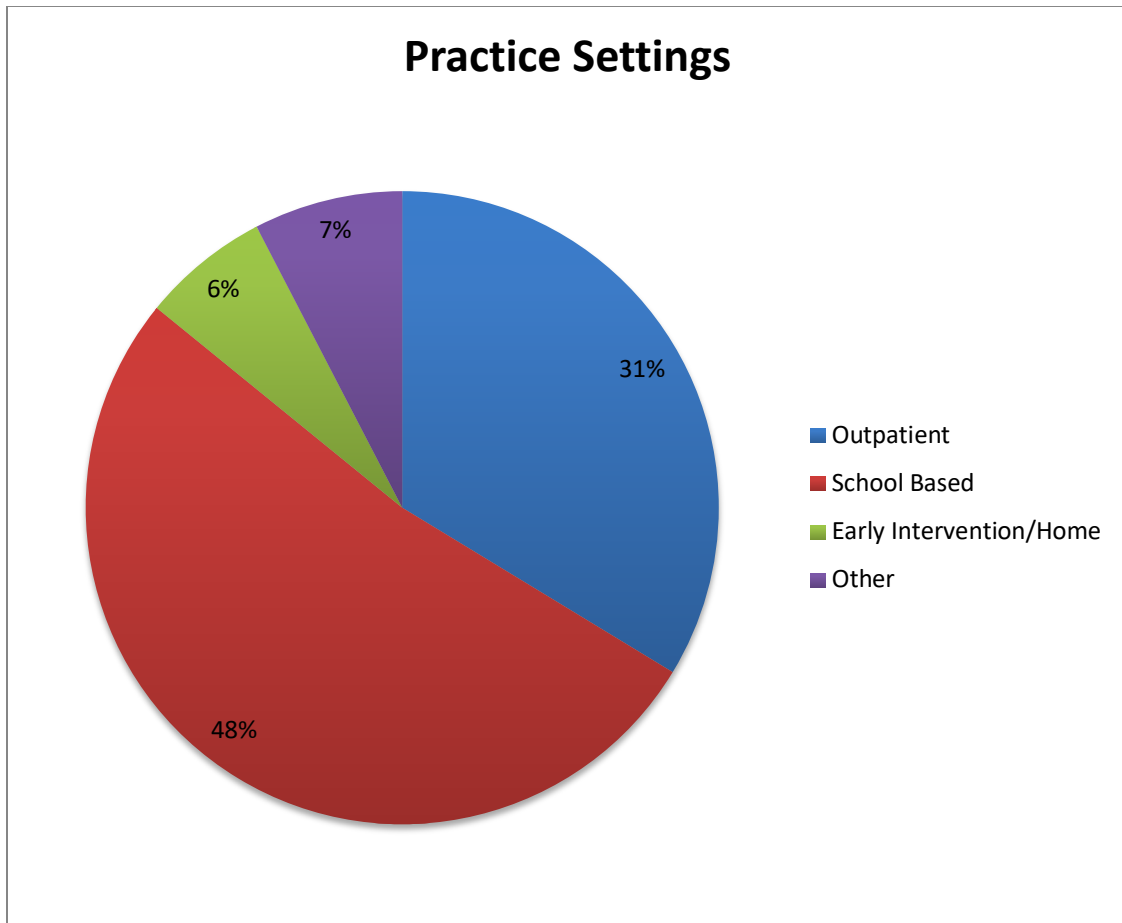


Figure 3. Practice Region of OT in the United States

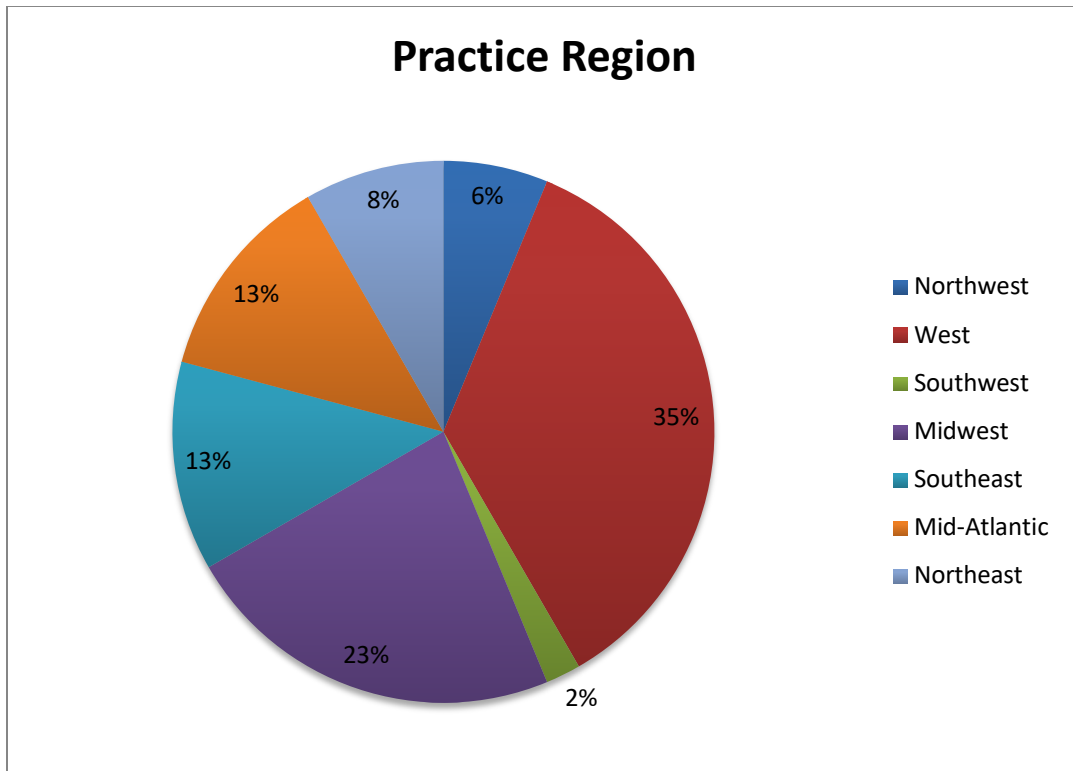


Figure 4. Gender of OT practitioners

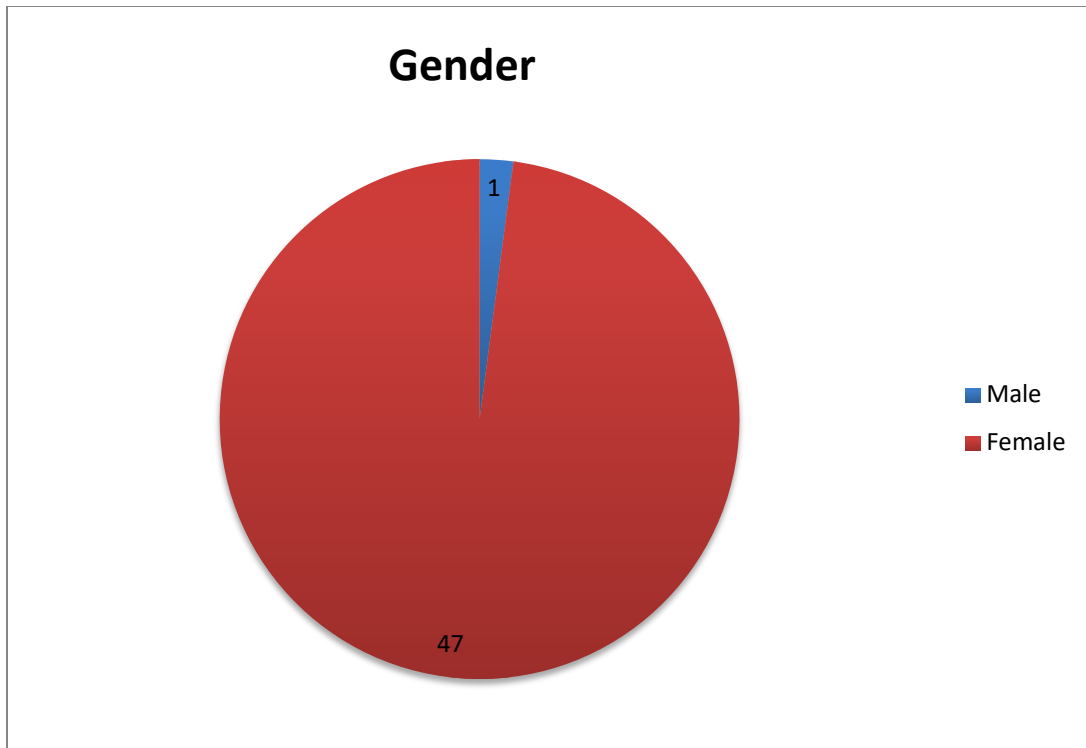


Figure 5. Preferred method of learning of OT practitioners

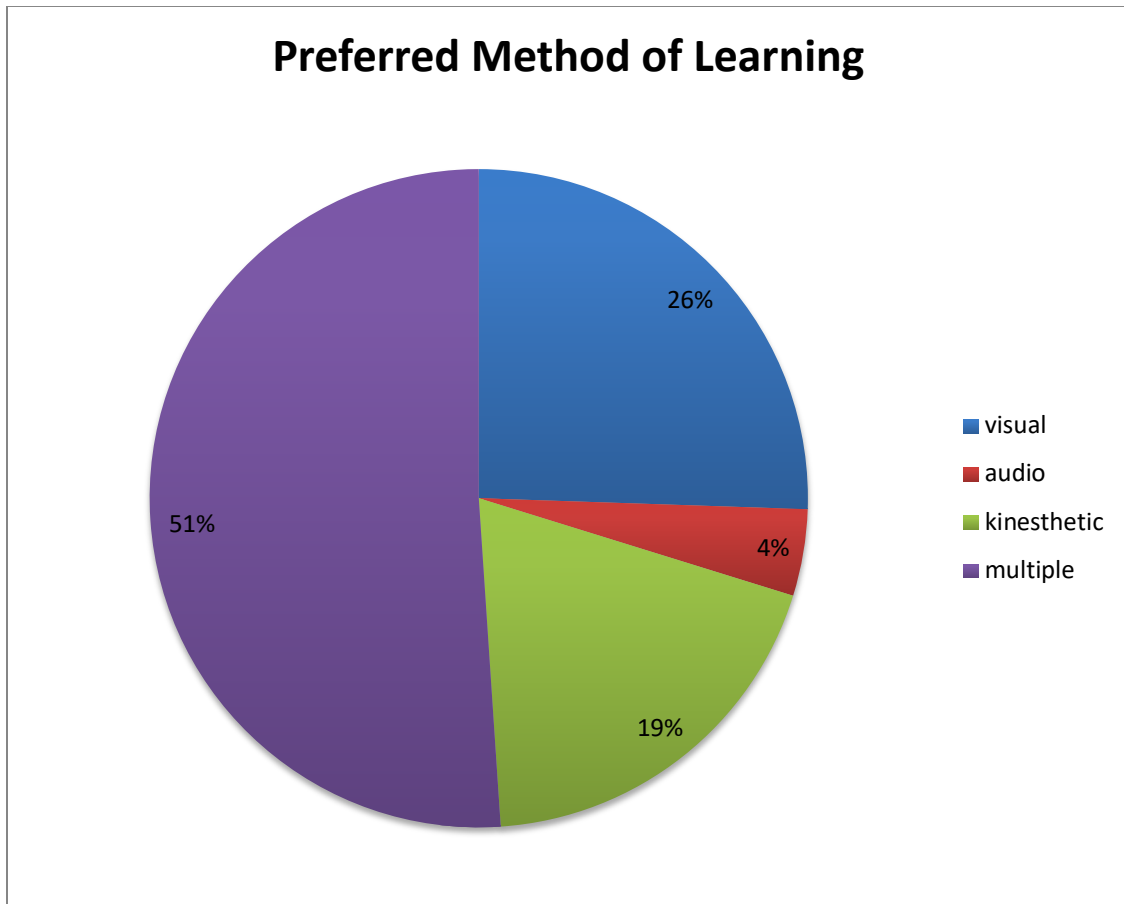


Figure 6. Years practicing as an Occupational Therapist in United States

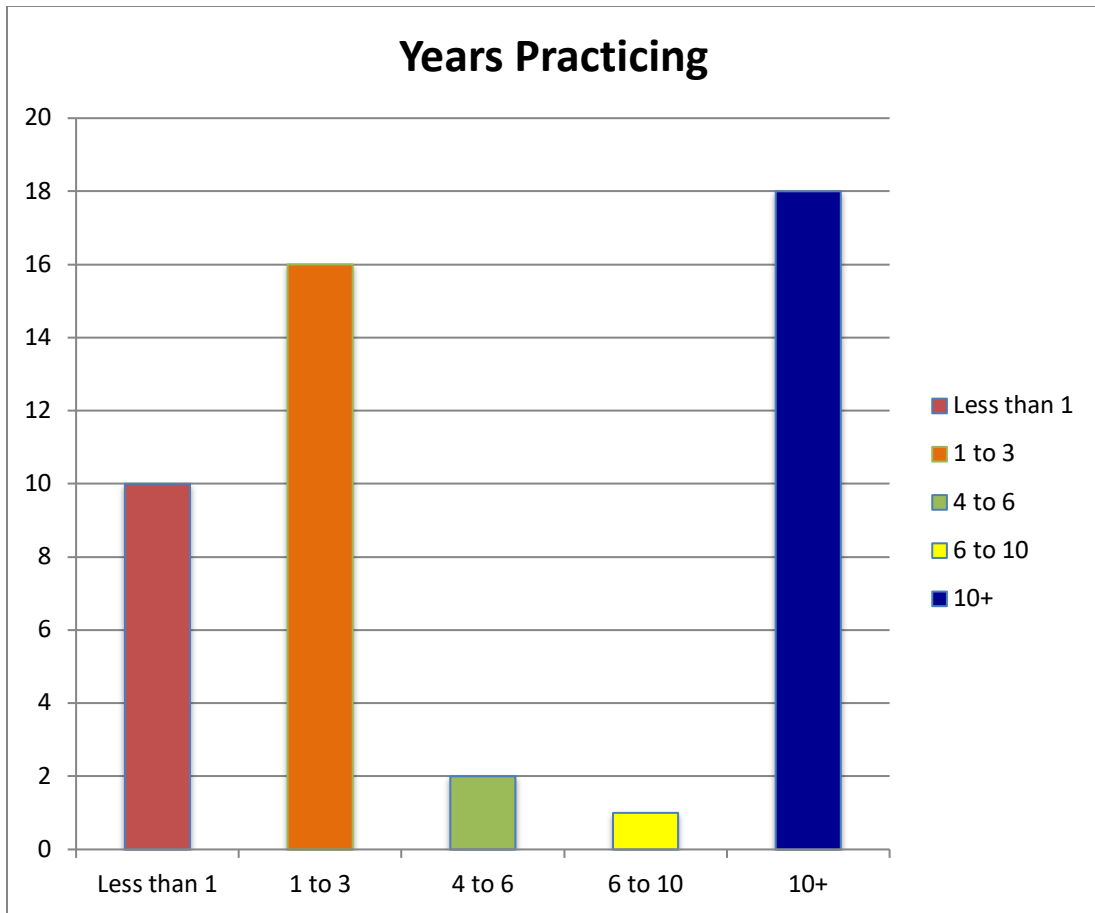
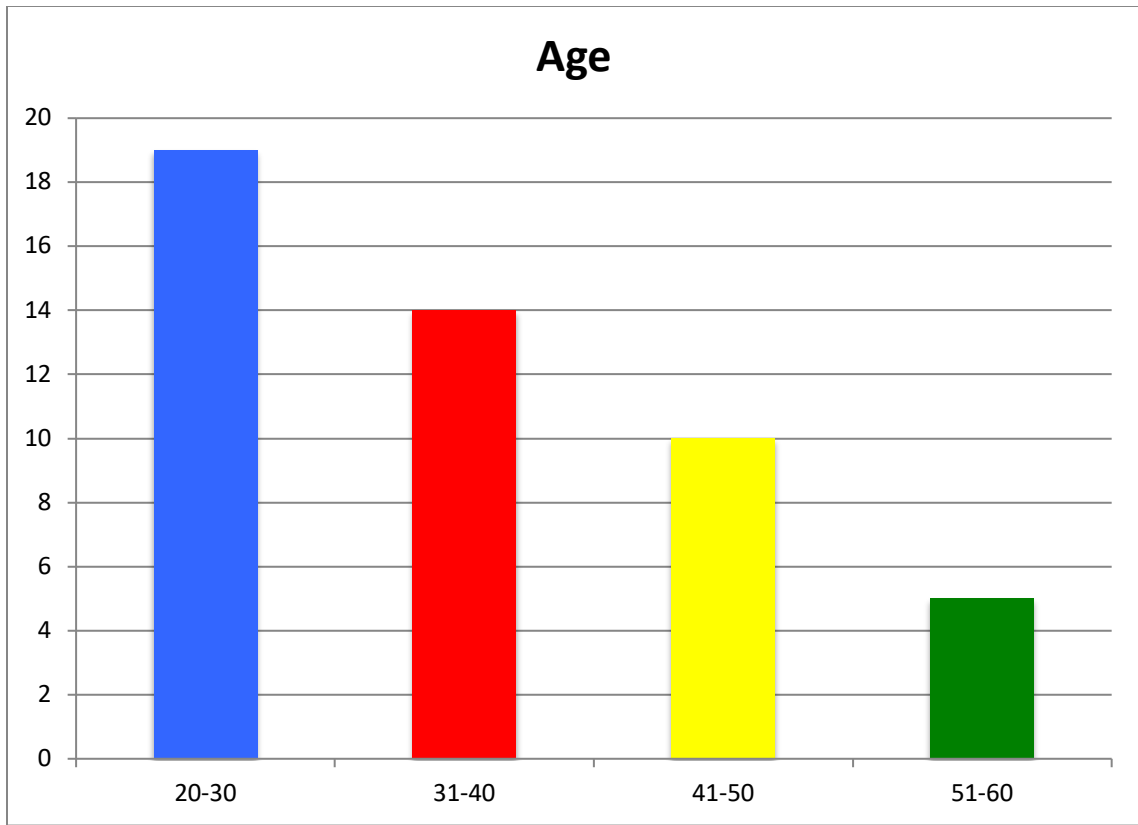


Figure 7. Age of OT Practitioners in the United States





*Figure 8.* Confidence level of occupational therapists in application of medical model and educational model in treatment planning and goal writing in their practice setting.

