

**Clinical Reasoning to Support Participation:
How Occupational Therapists Make Decisions in the Schools**

BY

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THESIS

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LIST OF ABBREVIATIONS

IDEA	Individuals with Disabilities Education Improvement Act of 2004
EIS	Early intervening services
RtI	Response to Intervention
SLD	Specific learning disability
CLD	Culturally and linguistically diverse
OT	Occupational therapy
OTs	Occupational therapists
CRS	Clinical Reasoning Study
PEO	Person-Environment-Occupation framework
EHP	Ecology of Human Performance framework
OA	Occupational Adaptation framework
PEOP	Person-Environment-Occupation-Performance framework
DPA	Dynamic performance analysis
TAT	Teacher assistance team
IOWAN	Iowa Writing Assessment and Norms
PSST	Problem solving support team

SUMMARY

Occupational therapy is a blend of both art and science. The decisions that occupational therapists make appear, on the surface, to be the result of intuition or trial and error. However, occupational therapists employ a complex clinical reasoning process to make decisions regarding the services that they provide to their clients. There is a dearth of evidence regarding how occupational therapists use clinical reasoning in school-based practice. The purpose of this phenomenological study was to examine how occupational therapists use clinical reasoning when making decisions in RtI initiatives through the use of semi-structured interviews with 10 occupational therapists who worked with problem solving teams to implement RtI in Illinois. Data analysis was completed using the constant comparative method. The findings from this study suggest that occupational therapists begin their decision making by considering a child's participation in his or her student role. They examined the fit between the student, the environment, and the task. They considered a teacher's readiness to implement their suggestions before making their recommendations. In addition, the occupational therapists reported that they maintained a holistic view of the student by considering how life at school and life at home influenced one another. They tacitly used an ecological frame of reference, along with other conceptual practice models, to inform their clinical reasoning. Further, the occupational therapists identified common reasons why students were referred to them through RtI and problem solving teams. These reasons included issues related to handwriting, sensory processing, and inattention and off-task behaviors. The therapists discussed ways that they were involved in RtI across tiers and provided specific examples of ways that they supported students and teachers in general education at Tier 1. Finally, the therapists identified the itinerant nature of their work in schools and a lack of understanding by teachers and other education professionals as barriers to their continued participation in RtI. The results of this study have implications for future

research related to the clinical reasoning of occupational therapists in school-based practice, as well for pre-service and in-service training.

I: INTRODUCTION

A. Background

Increasingly, occupational therapists are consulting with teachers and other team members to support general education students within the context of RtI (Cahill, Holt, & Cassidy, 2008; Cahill, 2010; Frolek Clark, Brouwer, Schmidt, & Alexander, 2008; Reeder, Arnold, Jeffries, & McEwen, 2011). However, there are only a handful of examples in the literature that describe how occupational therapists work with educators to support general education students in RtI frameworks; none of these examples discuss how occupational therapists use clinical reasoning to arrive at their recommendations (see for example Cahill, 2007; Cahill et al., 2008; Chandler, 2010).

A pilot study completed by Cahill (2010) investigated the contributions that were being made by the occupational therapists in one district as part of a district-wide initiative to implement RtI and include related service providers on school-based problem solving teams at the kindergarten and pre-kindergarten level. Twelve occupational therapists were asked to complete monthly electronic surveys over the course of six months to document the types and frequency of recommendations that they were making as part of school-based problem solving teams. The occupational therapists were also asked to indicate what knowledge and information guided their clinical reasoning and informed their recommendations. The occupational therapists indicated that the majority of the recommendations that they made were based on clinical experience and observations. Due to the nature of the study's design, information related to how the OTs incorporated their experience and observations into their clinical reasoning was not obtained. Understanding how occupational therapists use clinical reasoning in RtI has

implications for how and when OTs will be included in these initiatives and the extent to which they can support students in general education without individualized education plans (IEPs).

B. Problem Statement

The reported emphasis on experience and observations informing the clinical reasoning process used by occupational therapists in the pilot study posed a concern related to how other team members might view the work that occupational therapists do in the context of RtI. Further, understanding the role that occupational therapists can play on problem solving teams and the unique contributions they make during this process is especially important during this economic time. As school boards and administrators are faced with the stark realization that they must cut programs and personnel, as well as redistribute costs, the inclusion of what may be considered superfluous personnel in an already costly initiative must be further examined. This study investigated how occupational therapists translated the distinct perspectives, knowledge, and skills that they use to provide services to students in special education to a general education student population and the value they added to the problem solving team by engaging in this process. The results of this study have the potential to be used by school policymakers when deciding who to include in RtI initiatives and how to determine the workload responsibilities of occupational therapists.

C. Purpose Statement

The purpose of this study was to investigate how occupational therapists used clinical reasoning to make recommendations in the context of RtI. Occupational therapists address the educational needs of students by providing consultation and intervention aimed at increasing performance skills (i.e., motor, process, and communication and interaction skills), performance patterns (i.e., habits, roles, and routines), and personal factors (i.e., strength, endurance, sensory

processing, self-regulation, and dexterity), which in turn lead to increased performance in education and social participation at school (American Occupational Therapy Association [AOTA], 2002). The social validity of RtI practices is essential to their implementation (Gresham, 2004) and the social validity of the contributions that occupational therapists make to the RTI process may not yet be fully realized.

D. Research Questions

This study contributes to the occupational therapy clinical reasoning literature by examining the contributions made by occupational therapists included in RtI initiatives. The experiences of occupational therapists working in RTI and how occupational therapists use clinical reasoning to contribute to this relatively new educational initiative are the focus of this study. The overarching question that guided this study was: *how do occupational therapists use clinical reasoning to make recommendations in RtI?* In an effort to address this aim, questions were asked to better understand:

- the process that occupational therapists employ to make RtI recommendations,
- the boundaries or scope associated with the contributions that occupational therapists make in this initiative, and
- the perceived barriers to fully realizing those contributions.

As RtI becomes more prevalent in today's schools, the knowledge of the contributions that occupational therapists make to the problem solving process is crucial for teams to understand. The more that is known about the way that occupational therapists think and make decisions, the more that can be understood about the value that occupational therapists add to the RtI process and to school-based problem solving teams in general.

II: LITERATURE REVIEW

The practice of occupational therapy is based on a blend of humanistic values, the artful expression of these values in regular interactions with clients, and a scientific foundation (Wood, 1995). The decisions that occupational therapists make may appear, on the surface, to be the result of intuition or trial and error. However, occupational therapists employ a complex clinical reasoning process to make decisions regarding the services that they provide to their clients (Mattingly, 1991a). The purpose of this literature review is to discuss the following: 1) the concept of clinical reasoning as it pertains to decision making by occupational therapists, 2) the traditional roles of occupational therapists in the schools, and 3) the use of RtI.

A. Clinical Reasoning among Occupational Therapists

School-based occupational therapists make numerous clinical decisions every day. These decisions range from which students can benefit from their services, to which teachers will be receptive to collaboration, to which intervention strategies should be employed given a specific student's needs. Clinical reasoning is a multifaceted process that is difficult to explain due to the complexity that is involved and its tacit value when used by seasoned occupational therapists (Watson & Haas, 2010). The literature in occupational therapy education suggests teaching occupational therapy students to use clinical reasoning to guide their observations is a valuable way for them to learn about the occupational therapy process (Neistadt, 1998).

How occupational therapists apply their unique knowledge and expertise was the focus of *The Clinical Reasoning Study*, which was jointly funded by the American Occupational Therapy Association (AOTA) and the American Occupational Therapy Foundation (AOTF) and began in 1987 (Gillete & Mattingly, 1987). Cheryl Mattingly, who was a doctoral student in Urban Planning at the Massachusetts Institute of Technology at the time, led a team of researchers

which included three graduate level occupational therapy students and seven occupational therapy faculty members) to examine the practices of 14 OTs from the University Hospital in Boston using ethnographic research techniques. The OTs who participated in the study were selected to represent the breadth of occupational therapy practice and they provided services to children with developmental concerns; individuals with hand injuries, spinal cord injuries, or mental illness; as well as individuals who required neurorehabilitation (i.e., individuals who experienced a cerebral vascular accident or a traumatic brain injury). The combined results from the study were published in several articles in the *American Journal of Occupational Therapy* in 1991 and were also used as the basis of the book *Clinical Reasoning: Forms of Inquiry in a Therapeutic Practice*, written by Mattingly and Fleming (1994). Key findings from *The Clinical Reasoning Study (CRS)* will be discussed below.

1. CRS key finding 1

As a result of the CRS, Mattingly and her colleagues found that when occupational therapists work with their clients, they use two frames for reasoning, which on the surface, appear to conflict with one another (Mattingly & Gillette, 1987). These two frames for reasoning were named the *mechanistic paradigm* and the *phenomenological paradigm*.

The mechanistic paradigm is one that is common in medicine, shared by many health providers, and is primarily used for diagnostic reasoning. According to Rogers and Holmes (1991), diagnostic reasoning requires that the service provider act as a “data processor” (p. 1048) to search for relevant information or “cues” (i.e., “symptoms”) that will help create a picture of a specific individual’s problems or concerns. When cues are combined, they create a profile of dysfunction and help the provider to generate a hypothesis as to why a certain dysfunction exists.

Further investigation leads to hypothesis testing, the inclusion of new cues, and further hypothesis generation. The provider then establishes that the hypothesis is both reliable and valid through the use of assessment tools, comparing the individual's profile against the profiles of other individuals that present with similar cues, and corroborating with peers.

The phenomenological paradigm is one that Mattingly and Fleming (1994) compare to the concept of practical reasoning attributed to Aristotle. This type of reasoning results in a 'right' or appropriate action executed by an individual who is considered as an expert in the area related to the decision. The decisions made in this tradition are concerned with the best course of action related to a particular situation, rather than what might be believed as a standard protocol and a 'good enough' course of action for the majority of situations. This concern for the specifics or the "...deliberation about what an appropriate action is in this particular case, with this particular patient, at this particular time" (Mattingly & Fleming, 1994 p. 10) is a core tenet of the practice of occupational therapy and is the basis for the work that is done in the name of being client-centered (AOTA, 2004, 2008).

The key to being client-centered is the understanding that the occupational therapist has of the individual's lived-experience. Theoretically, the lived-experience is situated between the biomedical knowledge related to the cause and impact of certain performance differences related to disability, disease, or atypical development and the "anthropological concern" (Mattingly & Fleming, 1994, p. 64) related to what those performance differences mean to a given individual. The practice of occupational therapy, particularly occupational therapy assessment, is phenomenological, with the therapist trying to support the client in the areas that are of the greatest concern to that individual, and not necessarily those that are the most obvious or socially different. For example, take an occupational therapist that is working with a student who is in

seventh grade, has a diagnosis of spastic diplegia, and uses a wheelchair. Based on this student's diagnosis alone, a therapist might work on helping the student manage school materials, travel between classes by propelling her own wheelchair, or be independent at lunchtime. These goals are aligned with client-centered practice and take into account the student's lived-experience if the student herself has indicated a desire to work on these areas and expressed, in some way, that doing so would be meaningful to her. However, if the student does not believe that these areas are significant to her life and would rather focus instead on participating in her school's annual musical production, then the occupational therapist likely would and should divert her efforts to support the student in the area that she selected herself. By ignoring the social, emotional, and volitional factors that may have lead to the student's selection, the occupational therapist would be missing an opportunity to treat her as a "whole person" (Mattingly & Fleming, 1994, p. 74) and, therefore, would be engaging in non-theoretical practices.

2. CRS key finding 2

Another key finding of the CRS was that the occupational therapists' thinking was guided by the automatic and habitual use of information based on five domains (Mattingly, 1991a). These domains included:

1. The OT's perspective regarding his or her client's personal motivation, obligations, and what that person can accept about himself or herself and the world;
2. The OT's appraisal of the context in which occupational performance is taking place
3. The OT's understanding of the individual's needs and the best way to intervene related to these needs
4. The OT's insight into the joint relationship between herself and the individual and how this relationship will produce progress

5. The OT's goals for the individual, as well as his or her view of the individual's capacity to reach those goals over time

Reasoning based on this information often went unnoticed by the OTs and, as a result, made it difficult for them to verbalize what they were actually doing in practice. According to Mattingly (1991a), the automatic and habitual use of the information was often described by therapists in the study as the implementation of a trial-and-error method of matching the therapeutic strategy to the individual. However, Mattingly asserts that the use of such knowledge to inform decision making becomes almost unconscious to the experienced OT to the extent that the OT no longer recognizes that he or she is engaging in a "micro level process" (p. 983).

3. CRS key finding 3

Mattingly and her colleagues found that once the OTs in the CRS had finished presenting demographic and basic medical information about their clients, they began telling stories. Mattingly (1991b), defined *storytelling* as the presentation of a client's case when the therapists, "shifted their focus from a discussion based on pathology to one based on the specific patients they had worked with and their experiences of disability" (p. 999). The therapists' use of storytelling in the study helped them to make connections between what they themselves were seeing and experiencing in regards to the individual's performance and the individual's motivation, obligations, and acceptance of himself or herself and the world according to that unique perspective. The therapists' use of storytelling further explained why the OTs in the study seemed to place less emphasis on each individual's medical condition or dysfunction, and more emphasis on the particulars of the case.

Beyond telling stories, the OTs in the CRS also created *prospective treatment stories*. Mattingly (1991b) defined prospective treatment stories as the therapists' predicted image of the individual in the future and as a result of OT intervention. The progress that the individual was

envisioned to achieve was related as much to his or her life experience (both past and present), as to the therapist's intervention. Mattingly cautioned that prospective treatment stories should not be reduced to treatment goals, which, achieved or otherwise, are just a small part of a much larger and complex picture of the individual's lived experience.

4. CRS key finding 4

During their work on the CRS, Mattingly and her colleagues compared the way that OTs think and approach decisions to how other professionals engage in the same tasks. Fleming (1991) wrote that OTs engage in an ongoing diagnostic process over the course of many intervention sessions, which differs from physicians who are obliged to make diagnoses within a span of one or two visits. Fleming stated that the OTs in the CRS often did not use a rigid form of linear logic to make their decisions. The therapists in the study often asked the individuals that they were working with hypothetical, as well as social questions. This line of questioning was thought to add to the overall strength of the therapeutic relationship, as well as to the therapist's clinical picture of the individual and did not detract from the intensity of the intervention. Further, Fleming noted that the therapists in the CRS used continuous reasoning and an ongoing assessment process, rather than a sequential method for defining concerns. Finally, throughout their interactions, the therapists maintained a future-focused orientation when considering their client's needs. Fleming stated that this orientation differs from the one commonly used in medicine which is more concerned with finding the origin or cause of the difficulty.

5. CRS key finding 5

According to Mattingly and Fleming (1994), occupational therapists use three different modes of reasoning when making intervention decisions, which include: procedural reasoning, interactive reasoning, and conditional reasoning. These three types of reasoning are often used

simultaneously and inform one another. Each mode of reasoning is presented as a discrete concept here for the purpose of clarity.

Procedural reasoning is used by professionals in many disciplines to target concerns and devise strategies or solutions to address those concerns. This form of reasoning is thought to be in line with the mechanistic paradigm which was discussed earlier. Procedural reasoning involves thinking about how the client performs in relation to his or her level of impairment or disability (Fleming, 1991). Occupational therapy practitioners use procedural reasoning when they think about how to address an individual's performance problems through occupation, or functional activities (Watson & Haas, 2010). For example, in the schools, an occupational therapist might encounter a student who has difficulty with maintaining an efficient grip on his pencil due to decreased hand strength. The occupational therapist might design an intervention for the student focused on completing an art project that requires him to cut through a variety of different media with scissors to further develop the intrinsic muscles of the hand, which are essential in maintaining an efficient pencil grip.

The next form of reasoning is interactive reasoning. This form of reasoning involves the occupational therapist's therapeutic use of self. Therapeutic use of self is defined as the deliberate and reflective actions that the occupational therapist uses to develop rapport with a client in order to gain an understanding of his or her specific concerns, and to support the client in attaining his or her occupational therapy goals (Taylor, 2008). Through the interactive reasoning process, the occupational therapist gains an in-depth understanding of: 1) the person as an individual; 2) how the person views his or her disability, condition, or developmental concern; 3) the areas of focus that would be the most meaningful for the individual; 4) the strategies to which that individual is most likely to respond; and 5) an understanding of how the individual

might express satisfaction or dissatisfaction with the occupational therapy process. The focus of interactive reasoning is to assist the client in understanding how their past performance difficulties relate to the current therapeutic intervention and how the current intervention may be linked to future performance successes (Fleming & Mattingly, 2008). The interactive form of reasoning also requires the occupational therapist to consider the holistic context of the individual and the challenges that he or she is encountering; this is particularly important when the therapist is trying to prioritize intervention recommendations based on the individual's perspectives of what is the most significant challenge in his or her life or in a particular context (Watson & Haas, 2010). A school-based occupational therapist could use interactive reasoning when working with a student who has many educational needs to understand what type of support would be the most meaningful for that particular student, given his or her feelings and perspectives. For example, an occupational therapist might prioritize working with a student on how eat lunch in the cafeteria in a socially acceptable way (i.e., using utensils and a napkin) instead of focusing first on locker organization if the student more clearly identified with the need for the first goal.

The final mode of reasoning is conditional reasoning. Conditional reasoning is highly influenced by the individual's commitment to participating in the occupational therapy process. Conditional reasoning involves the occupational therapists thinking around what the individual's performance difficulties mean in the specific spatial and temporal context that he or she works, lives, or learns in and what the performance difficulties may mean in the future. For occupational therapy intervention to be successful, the individual also needs to share this understanding. An occupational therapist might use this sort of reasoning when considering where a student is in his or her academic career today and what the demands will be on that student in the years to come.

For example, an occupational therapist who is working with a student on increasing handwriting legibility in the early elementary grades, might recommend beginning a keyboarding program to prepare the student for the demands he or she will encounter in middle school.

The findings from the CRS illustrate how occupational therapists use clinical reasoning with their clients across various practice settings and with a diverse group of client populations and how they used tacit knowledge to guide their decision making. After the CRS, research in the field of occupational therapy has focused on the clinical reasoning of OTs working with individual clients (see for example Creighton, Dijkers, Bennett, & Brown, 1995; Unsworth, 2005) and OTs working with groups of clients (see for example Ward, 2003). The results of these studies, though not directly related to school-based occupational therapy, can be used to deepen the understanding of how the therapeutic process unfolds.

6. Clinical reasoning in practice

Occupational therapy scholars have examined how clinical reasoning is taught to occupational therapy students (see for example Lysaght & Bent, 2005) and how it is used in practice. For example, Creighton et al. (1995) explored the clinical reasoning of four occupational therapists with expertise in treating individuals with spinal cord injuries (SCI). Each therapist was followed over six weeks as they worked with one of their clients with SCI. The research team observed their intervention sessions, collected structured treatment notes after each session, and interviewed each of the therapists at the beginning and end of each session. Each of the interviews included questions that asked the therapists to: 1) describe what they did during their session, 2) explain why they chose to use certain strategies at certain times within the session, and 3) compare and contrast the strategies they used with a client in relation to those that might have used with another client or within another context.

The results from the study suggest that the occupational therapists initially framed their answers to the team's questions using procedural reasoning. However, after being probed, the occupational therapists were able to discuss their decisions using conditional reasoning. The occupational therapists talked about introducing activities in a "natural progression" and "building mental files" (p. 313) of activities to use in sessions. They also talked about the significance of grading therapeutic activities through an almost automatic process of comparing the individual's performance against the desired outcome while systematically problem solving ways to improve the individual's outcome. Finally, the occupational therapists discussed their concerns with their clients' motivation and they did so within the context of clinical storytelling as described by Mattingly (1994).

Like Creighton et al. (1995), Unsworth (2005) explored how occupational therapists used clinical reasoning with individual clients. Unsworth followed 13 occupational therapists working in a physical rehabilitation setting in Australia and conducted a series of stimulated recall interviews while watching videotaped treatment sessions with the occupational therapists.

The results from the study suggest that the occupational therapists used procedural, interactive, and conditional reasoning separately and in different combinations throughout their therapeutic intervention with their clients. For example, sometimes the occupational therapists who participated in the study used one primary way of thinking to frame their session and in other instances they would move back and forth between different ways of thinking when discussing what they did with a client. In addition, the occupational therapists shared a concern that the practice context limited their clients' outcomes due to factors outside of either the therapist's or the client's control, such as reimbursement for services and availability of equipment.

This study also highlighted another type of thinking used by occupational therapists called pragmatic reasoning. Pragmatic reasoning is highly embedded in context and was used by the occupational therapists to anchor their reflections to *where* they practiced. The decisions they made when engaged in pragmatic reasoning were, in part, driven by the settings they were working in and the constraints or opportunities afforded by these contextual environments. For example, a therapist at a particular rehabilitation facility might have had access to certain therapeutic modalities and tools and not have had access to others or have been forced to consider a family's or a school district's financial resources before making a recommendation. The locale, philosophy, resources, and policy requirements of a given institution or facility influenced the decisions that were made by the occupational therapists. Given the rules and regulations that govern school therapy, when occupational therapists use pragmatic reasoning, particularly under RtI frameworks, has implications for practice.

Ward (2003) explored the clinical reasoning of a psychosocial occupational therapist with seventeen years of experience that provided group intervention to her clients. The investigator collected data through semi-structured interviews and one day of participant observation at the community mental health center where the occupational therapist worked. The purpose of the study was to explore how clinical reasoning was used within the context of a group and has implications for the proposed study as it relates to the work that occupational therapists may do with students in Tiers 1 and 2 of RtI and when they interact with entire problem solving teams.

The results from the study suggest that the occupational therapist continuously used procedural and interactive reasoning throughout her interactions with her clients. The occupational therapist paid special attention to discovering the meaning behind the behaviors that were demonstrated by certain clients during her group activities, as well as how to respond to

them, similar to the process educators engage in when completing a functional analysis of behavior. The occupational therapist also used storytelling to relate her clients' struggles at the community mental health center with those that people without mental illness encounter at mainstream places while engaged in routine activities (i.e. waiting in line at deli). Situating her clients' experiences of frustration in this context helped the occupational therapist to glean insights from their perspectives.

Abstracts were manually reviewed from the *American Journal of Occupational Therapy* after the publication of the results from the CRS (e.g., 1991) until present day to locate articles related to the clinical reasoning used by occupational therapists in the school system and only one article was found. Hall, Robertson, and Turner (1992) described the process used by OTs in the Wake County Public School System in North Carolina to make "clinical decisions". The article does not present a study, but rather a description of the schematic guide that is used by OTs to make recommendations related to the need for school-based services. Such a schematic may be helpful to a department of OTs in establishing a reliable procedure to determine if and how often students should receive therapy services under IDEA. Although Mattingly's work is cited, the emphasis of the Hall et al. (1992) paper is only on the mechanistic paradigm. The complexity of the clinical reasoning process of school-based occupational therapists warrants further investigation.

B. The Role of School Occupational Therapists

1. History of occupational therapy

Before one can understand the unique role that occupational therapists have in schools and how they use clinical reasoning, one must understand what occupational therapy is, what occupational therapists believe and how their perspectives have changed over time. The field of

occupational therapy began as a response to the moral treatment movement of the early 19th century, which was concerned with rehabilitating and providing humane care to individuals with mental illness (Bryden & McColl, 2003). According to Kielhofner (2004), one of the key tenets of moral treatment was the notion that, “participation in the various tasks and events of everyday life could restore persons to more healthy and satisfying function” (p. 30). The supporters of the moral treatment movement believed that people with mental illness developed deficient habits that marginalized them in society and that it was society’s obligation to help return individuals with mental illness to the mainstream. Early practitioners adjusted the individuals’ physical, temporal, and social environments; helped them to develop and incorporate efficient and productive habits; and encouraged their participation in daily life, which included activities associated with education, self-care, work, and leisure.

At the beginning of the 20th century the principles of moral treatment began to be applied to individuals who were chronically ill or experienced physical or intellectual disabilities and the first meeting of the National Association for the Promotion of Occupational Therapy was convened. Early occupational therapists were physicians, nurses, architects, and artisans who shared a common vision that was guided by five constructs. These constructs included that: 1) humans need to be occupied; 2) an individual’s health is dependent on and reflected in the habits that he or she uses to organize how time is spent on a daily basis; 3) the mind and body are connected; 4) disruption in an individual’s participation in daily activities could be a result of poor health *or* could cause poor health; and 5) that participation in everyday activities (or occupations) could be applied therapeutically to enhance a person’s physical or mental health (Kielhofner, 2004). In 1926, Bryant, as cited in Bryden and McColl (2003), spoke of the power of occupational therapy for children with developmental delays:

We know we are helping these misfit children to self-possession in the broadest sense of the word, to realize that they are responsible little folks with real things to do. We help them to form good habits, to be observant, attentive, cooperative, honest, well-behaved children. We know that their salvation lies in handwork, and so we are encouraged to try again and again (p. 30).

In the mid-20th century, the field of occupational therapy was criticized for lacking a rigorous and comprehensive theoretical grounding. As a result, the field's paradigm shifted to be aligned more closely with the traditional medical model and they adopted a reductionist view (Kielhofner, 2004). Reductionism, sometimes referred to as the mechanistic paradigm, is used by many medical professionals to explain illness or disability by seeking to identify causes for the apparent dysfunction and systematically introducing treatments to repair them. According to Kielhofner (2004), the adoption of this mechanistic or reductionist view resulted in the field of occupational therapy's collective focus on using psychology, neurology, and kinesiology to explain why individuals experienced *occupational dysfunction*, or a disturbance in the usual or typical patterns or pursuits of everyday activities.

While the shift in the mid-20th century brought about important changes related to the practice of occupational therapy, it also resulted in a divergence from the core constructs that guided pioneering occupational therapy practitioners during the moral treatment era. According to Kielhofner (2004), the face of occupational therapy practice changed during this time and, in many cases, therapists gave up the use of occupation (or engagement in meaningful activities) for exercise regimes and the use of physical agent modalities (e.g., the application of heat, cold or electrical stimulation to address musculoskeletal issues).

In the 1960's and 1970's leaders of the profession called occupational therapists to return *occupation* to the profession's core. This call resulted in another shift in occupational therapists' collective thinking. In 1962, Mary Reilly said:

The logic of occupational therapy rests upon the principle that man has a need to master his environment, to alter, and improve it. When this need is blocked by disease or injury, severe dysfunction and unhappiness result. Man must develop and exercise the powers of his central nervous system through open encounters with life around him. Failure to spend and to use what he has in the performance of the tasks that belong to his role in life makes him less human than he could be (Bryden & McColl, 2003, p. 35).

The current paradigm of occupational therapy is a blending of the field's two previously held paradigms. Kielhofner (2004) argues that today's occupational therapists have blended, "what was learned about reducing impairments into a more holistic framework of enabling persons to adapt to their occupational lives" (p. 65). Current practice is based on the belief that humans have an occupational nature; that is, humans have a basic drive to be occupied and that participation in such occupations gives meaning to life (Hasselkus, 2002; Kielhofner, 2002; Kielhofner, 2008). Further, the meaning that individuals associate with participation in occupations (i.e., self-care, work, or play), depends on each individual's unique history and understanding of life's events (Helfrich, Kielhofner, & Mattingly, 1994; Mallinson, Kielhofner, & Mattingly, 1996).

2. Occupational therapy frames of reference

The current paradigm has also resulted in the adoption of a "focal viewpoint" (Kielhofner, 2009, p. 44) for the profession. This viewpoint reflects the profession of occupational therapy's rededication to using occupations as both a means and an end to therapy. In addition, it calls OT practitioners to de-emphasize the mechanistic focus on an individual's impairments and consider how the environment and the larger context shape what is considered a disability. This viewpoint is influenced by disability studies and systems theory and it shifts the "problem" that causes the disability outside of the person and rather frames disability as a mismatch between the person, the environment and the task or the occupation that is at hand (Kielhofner, 2009). From this viewpoint, a child with spastic quadriplegic cerebral palsy who

uses a power wheelchair to independently navigate her school, directs her personal care assistant in how to perform self-care tasks, and uses a communication device to participate in class while being understood by both her teacher and her peers is not “disabled”, even though she has the medical condition of cerebral palsy. In this case, supports, (i.e., the power wheelchair, the personal care assistant, and the communication device) reduce any mismatch between the student, the environment, and the occupations with which she is engaged. Using the same viewpoint, a student without any known diagnosis who cannot turn in his homework, copy notes from the board, or attend to his teacher’s lesson is more “disabled” than the student with cerebral palsy because he is unable to fully and successfully participate in his environment and complete the essential tasks or occupations that are part of his student role.

Occupational therapists realize the focal viewpoint through the use of theory. Theory is defined here as term that is used to refer to, “the ideas that help occupational therapists to think about and conceptualize what they do” (McColl, 2003, p. 7). According to McColl (2003), the purpose of theory in occupational therapy is twofold. First, occupational therapists use theory to better understand humans and their innate drive to be “doing” or occupied. Second, theory is used to predict and change how people engage in occupations and participate in their roles. In general, the theoretical occupational therapy literature is concerned with two components that lead to the better understanding of occupational performance and role participation; these two components are the *person* and the *environment*. For the purposes of constructing theory, aspects of the person are often compartmentalized into different body components and systems. This compartmentalization leads to what are viewed as “bottom-up” theories because they focus on the underlying body structures, systems, and functions that are the foundation for occupational

performance. Environment-focused theories are viewed as “top-down” because they focus on improving participation in occupations through the adjustment of contextual factors.

Occupational therapists select their theoretical approach based on the occupational change that they want to elicit. McColl (2003) described three ways that changes in occupational performance can occur:

1. Developmental changes: These changes are based on an inherently predictable and sequential trajectory that are elicited by internal factors within the individual and supported by external factors (e.g., affordances provided by the environment);
2. Adaptive changes: These changes are based on a behavior that previously had been effective in meeting an objective, but is no longer considered viable. As a result of this ineffectiveness, new behaviors have to be explored and attempted; and
3. Adjustment changes: These changes are based on adjustments or modifications that are made to the built or social environment, the tools that are used to complete a task, and/or the expectations or “rules” that govern a certain task or activity.

Dunn (2011) identified three overarching frames of reference for the field of occupational therapy that are aligned with Kielhofner’s focal viewpoint and commonly used in the practice of occupational therapy with children and youth when working towards occupational change: the person-environment-occupation framework (PEO), the ecology of human performance framework (EHP), and the occupational adaptation (OA) framework (Dunn, 2011). Other scholars also include the person-environment-occupation-performance framework (PEOP) (Brown, 2009; Rigby & Letts, 2003) in this group. These frames of references all recognize the significance of the environment on occupational performance and engagement (Brown, 2009).

Frames of reference, in general, provide a systematic way to uphold the core principles of occupational therapy while thinking about and explaining the prioritization of goal areas for intervention, as well as a means to structure different aspects of the intervention itself (Dunbar, 2007). More specifically, the frames of reference mentioned above provide the occupational therapy practitioner with a way to conceptualize the interactional relationship between the person, the task that he or she wants to perform, and the environment or context in which that task will take place (Brown, 2009; Dunn, 2011; Rigby & Letts, 2003).

Three of these frameworks (i.e., PEO, EHP, and PEOP) were developed in the 1990s by different groups of therapists who wanted to provide a mechanism for occupational therapists to emphasize the role of the environment in their assessment and interventions (Brown, 2009) and the fourth framework (i.e., EHP) was introduced in 1994. Each framework uses slightly different vocabulary and emphasizes a different component of the person-environment-occupation relationship; however, to persons outside of the profession of OT, it may appear as if these models are interchangeable. All of the frameworks are based on the social science models, such as Bronfenbrenner's (1979) ecological model, Gibson's (1979) concept of environmental affordances, Lawton's (1986) concept of environmental press, and Csikszentmihalyi's (1990) concept of flow (Brown, 2009). Further, all of these frameworks are based on the concept of the "goodness of fit" between the person-environment-occupation factors. Each of the frames of reference will be described below.

The purpose of the person-environment-occupation framework (PEO) is to help occupational therapy practitioners understand the influence of each of the components of the framework (i.e., person, environment, and occupation) on one another and their combined influence on an individual's participation in meaningful activities (Law et al., 1996; Law &

Dunbar, 2007). According to Law and Dunbar (2007), the scholars who put forth PEO were highly influenced by environmental psychology and believed environments to be dynamic factors that continually influenced an individual's development and behavior at all times. PEO is based on three assumptions: 1) that the person has unique and individual characteristics that interact with the task at hand and the environment, which leads to a personal experience of doing; 2) that the environment includes all things, places, and social norms that exist outside of the individual and that cause the individual to respond; and, 3) that occupations are intrinsically meaningful activities that an individual elects to participate in over time. The framework recognizes that performance with a given activity and in a given context is highly subjective and influenced by the individual's experience, as well as the meaning that he or she attributes to that experience. According to PEO, performance challenges are the result of a mismatch, or an ill-fit, between the person, the environment, and the occupation (Law & Dunbar, 2007). Occupational therapy intervention, then, is intended to reduce the mismatch or create an ideal fit between these three components. The result of this fit is improved or optimal performance. The PEO model also highlights the transaction that takes place between the person, the environment, and the occupation; meaning that a change in one of the components, leads to changes in the other two.

The ecology of human performance framework (EHP) (Dunn, Brown, & McGuigan, 1994) and PEO share similar constructs; however, PEO and EHP differ in three significant ways. While both are used by occupational therapy practitioners to understand an individual's performance in relationship to the activity and the environment, EHP does not use the term "occupation". Instead, EHP uses the word "task" with the intention that this will make the framework more accessible to people outside of the occupational therapy profession (Dunn, 2007). In addition, EHP considers that the individual is embedded in the context of the

environment and has a limited range of engagement opportunities based on support from the environment and his or her own skills and abilities (Brown, 2009). Finally, EHP offers five intervention approaches, establish/restore, adapt/modify, alter, prevent, and create, which are further explained in Table 1. These intervention approaches have been adopted and incorporated into the *Occupational Therapy Practice Framework* (AOTA, 2002, 2008).

Table 1

EHP Intervention Approaches (Dunn et al., 1994)

Intervention Approach	Purpose of Intervention Approach
Establish/restore	To work with the individual to develop or regain skills.
Alter	To alter aspects of the context to better support the individual's performance.
Adapt/modify	To adapt or modify aspects of the task or context to better support the individual's performance.
Prevent	To prevent further performance difficulties from arising by anticipating challenges that may surface and proactively addressing them.
Create	To focus on creating programs to promote overall participation at the population level.

The third frame of reference that is used by occupational therapists to structure their thinking is the occupational adaptation (OA) framework. Like the other two frames of reference, OA also takes into account the person, the environment, and the task or occupation. However, a key difference between OA and the other frames of reference is this framework's emphasis on the individual's innate drive to respond successfully to mastery challenges (Schkade & Schultz, 1992). Therapists that use OA believe that difficulties in occupational performance arise because a person's ability to adapt has been challenged and that occupational therapy intervention should

be guided towards helping the person learn to adapt based on the new set of circumstances (Schultz, 2008). OA helps practitioners to think about how an appropriately selected “just right challenge” can afford the individual with an opportunity to generate, evaluate, and integrate an adaptive response (DeGrace, 2007). Occupational therapists can use this framework to consider how a given individual problem solves and copes as increasingly difficult challenges are presented and can determine if the skills needed to respond efficiently are emerging or fully developed.

Another framework that incorporates the active involvement of clients in the therapeutic relationship is the person-environment-occupation-performance framework (PEOP) (Christiansen & Baum, 1997). This framework was greatly influenced by the work of the scholars that developed the PEO model; PEOP and PEO differ in that the person-environment-occupation-performance (PEOP) model views the client’s perception of their issues and needs as the primary concern (Tufano, 2010). It is the client’s perspective that determines whether or not impairment is present or function is reduced.

Occupational therapy scholars view the profession as being guided by a focal viewpoint that emphasizes the interaction between the person, his or her environment, and a given task or occupation. Four frames of reference were reviewed to explain how OTs support their work. Another part of the collection of OT theories, conceptual practice models, is reviewed in the next section.

3. Occupational therapy conceptual practice models

PEO, EHP, OA, and PEOP are often referred to as frames of reference (Brown, 2009; Dunn, 2011); however, other occupational therapy scholars consider these frameworks to be *conceptual models* (see for example Dunbar, 2007). Kielhofner (2004, 2009), defines conceptual practice

models as a dynamic way of thinking about practice that frames the occupational therapist's understanding of the individual's challenges in a given content and guides them to select specific interventions to address the individual's needs. According to Kielhofner (2004), the conceptual models of practice are based on three factors:

- shared knowledge among different disciplines, particularly psychology and medicine;
- a guiding theory that can be used to understand the complexities of a certain individual's situation; and
- a foundation in evidence.

Strong conceptual practice models also have a developed "technology for application" (Kielhofner, 2004, p. 76). The concept of technology for application can be described as the concrete tools that one would use when trying to address an individual's concerns or needs through the use of a given conceptual model. Some examples of this technology include assessment instruments or procedures, therapeutic equipment or devices, and intervention protocols.

Kielhofner (2004) evaluated all of the current frameworks, theories, and models that occupational therapists use in practice and determined that seven of them met his definition of a conceptual practice model and were theoretically grounded, based in evidence, and had a sufficient technology of application. The ones relevant to pediatric and school systems practice will be reviewed in more detail.

a. Biomechanical model

The theory that underlies this model is concerned about the relationships between joint range of motion, strength, and endurance (Kielhofner, 2004, 2009; Pedretti & Zoltan, 2001). A key assumption underlying this model is that the extent to which one can efficiently move is closely

tied to occupational performance. The technology of application includes goniometry, manual muscles testing, other objectives measures of strength and endurance, and biomechanical task analysis. Therapeutic intervention is focused on preventing deformity, maintaining or restoring motion and/or strength, or teaching individuals who experienced decreased strength or range of motion to functionally compensate.

b. Canadian model of occupational performance

The theory that underlies this model is based on the values and beliefs that occupation gives meaning to life, that occupation is essential for overall health and well-being, that occupation organizes behavior, that occupation is dynamic and changes over time, that occupation is shaped by the environment and in turn can shape the environment, and that occupation can be used as modality in intervention (Canadian Association of Occupational Therapy, 1997). The model is based on the person-environment-occupation frame of reference and a key assumption underlying this model is that the individual receiving intervention is a client and a full partner in the therapeutic relationship. The technology of application includes a systematic approach to goal identification and intervention that is informed by the *Canadian Occupational Performance Measure* (COPM). Therapeutic intervention is focused on supporting the individual to make decisions and problem solve regarding the challenges that they encounter during occupational performance.

c. Model of human occupation

The theory that underlies this model is concerned with an individual's motivation, the patterns of his or her behavior, and how he or she approaches different occupations in a given environmental context (Kielhofner, 2004, 2009). Volition, habituation, and performance capacity are viewed as characteristics innate to the individual and can be influenced by the presentation of

an occupation or a context. A key assumption of this model is that engagement in occupations can be broken down into three distinct levels: participation, performance, and skill. The goals of intervention guided by this model might include helping an individual to develop occupational competence and/or an occupational identity (i.e., a role). The technology of application includes several different assessment tools, such as the *Short Child Occupational Profile Evaluation* and the *Pediatric Volitional Questionnaire*, as well as other observation-based assessment tools, interview, and self-reports.

d. Motor control model

Kielhofner (2004) includes four different treatment approaches with similar purposes in this model. These approaches include: the Rood approach, neurodevelopmental therapy, Brunnstrom's movement theory, and proprioceptive neuromuscular facilitation. Each of these approaches is designed to address motor problems that are a result of damage to the central nervous system, as in the case of cerebral palsy or cerebrovascular accident (i.e., stroke), and share an underlying basis in neurophysiology, neuropsychology, human development, and movement science (Trombly & Radomski, 2002). This approach emphasizes that: 1) reflex patterns emerge at different points based on the maturity and integrity of an individual's central nervous system; 2) reflex patterns are integrated into voluntary movement patterns; 3) motor development is hierarchical and follows an established sequence; and 4) that the brain and the nervous system are flexible and have the potential to reorganize based on therapeutic intervention. "Reorganize" means that the brain has the plasticity to develop new pathways in order to compensate for areas that were injured due to damage. The technology of application for each of these treatment approaches varies, however they share a collection of therapeutic

techniques that are focused on inhibiting abnormal movement patterns and facilitating normal movement patterns.

Kielhofner (2004) also includes the contemporary approach to motor control, often called the task-oriented approach (Bass-Haugen, Mathiowtz, & Flinn, 2002), in this model. The contemporary view of motor control is based on the premise that motor control is a result of the innate features of the individual, the environment, and the task demands. A key assumption of the contemporary approach to motor control is that carefully selected tasks can lead to more efficient movement patterns and increased motor control. The therapist systematically observes the individual and determines which motor patterns are stable and functional and which are instable or ineffective across different activities and contexts. Therapeutic intervention is focused on supporting the individual to increase occupational performance through a variety of different practice opportunities, while guiding the individual through problem-solving to determine the best motor solutions for a given task or environment.

e. Sensory integration

Sensory integration has its roots in experimental neuroscience and normal development. It was originally developed to treat a group of children with learning disabilities in the early 1970s by A. Jane Ayres and has been revised as new information about the brain and how it works has been discovered. The underlying assumptions of this model are: 1) that humans have a biological drive to participate in sensory motor activities; 2) that the brain and central nervous system are plastic and capable of change; 3) that brain development is based on biology, as well as the sensory experiences, or lack of experiences, that one encounters; 4) that the brain operates as an integrated whole and organization in one area influences organization in another; and 5) that adaptive or appropriate behavioral responses to the environment are based on brain

organization and that adaptive responses can be fostered thereby leading to increased brain organization (Bundy, Lane, & Murray, 2002). “Organization” means the brain’s ability to distinguish and interpret sensory stimulation typically and efficiently, and in a way that leads to what can be considered appropriate or functional behavior. The tactile, proprioceptive, and vestibular systems are considered to be the most significant in terms of brain organization. Therapeutic intervention often involves the systematic addition and subtraction of different sensory stimuli in an environment or during a therapeutic activity to garner an adaptive response. The therapist then attempts to increase the amount of adaptive responses that are elicited from the individual. The technology of application of this model includes several standardized observation-based assessments, caregiver reports, and an array of therapeutic equipment (e.g., swings, Swiss balls, and weighted vests). Kielhofner also includes the more current literature on sensory processing by Winnie Dunn and Lucy Jane Miller under this conceptual model.

f. Cognitive-perceptual model

This model was developed in an effort to address the cognitive and perceptual difficulties that individuals with central nervous system damage experience (Kielhofner, 2004). In this model, occupational performance is based on the individual’s ability to perceive information gained from their senses and then use this information to think of a plan and carry out this plan. A key assumption of this model is that an individual’s cognitive and perceptual abilities are the foundation for their performance in all areas of occupation, that is: work, leisure, self-care, education, and other areas of daily living (Katz, 2005). The technology of application associated with this model includes taxonomies of cognitive and perceptual abilities, a wide array of assessment tools to evaluate these abilities, task analysis associated with these abilities, and a functional approach to intervention that includes teaching the individual to compensate or adapt

given a task or an environmental context. Therapeutic intervention also focuses on remediating the specific cognitive or perceptual skills that present a challenge to the individual, as well as supporting the individual to develop a self-awareness of their strengths and limitations.

In 2009, Kielhofner re-examined the conceptual practice models used in occupational therapy and identified the biomechanical model, the cognitive disabilities model, the model of human occupation, the motor control model, and the sensory integration model as the most “prominent and/or promising in the field” (p. 63). Other scholars suggest that there are conceptual practice models beyond the ones outlined by Kielhofner (2004; 2009). Like Kielhofner, Dunn (2011) agrees that conceptual practice models are used by occupational therapy practitioners to understand an individual’s challenges in a given context and to guide decision making. However, Dunn (2011) de-emphasizes the need for technology for application as Kielhofner defined it in 2004 and discourages occupational therapy practitioners from limiting the use of certain conceptual models due to lack of scientifically-based evidence, as some scholars believe that occupational therapy continues to be an emerging field. Dunn (2011) also includes conceptual practice models that are interdisciplinary and shared by occupational therapy with other professional disciplines. Table 2 includes a list of additional conceptual models that are recognized by Dunn and what she believes they contribute to the field of occupational therapy.

Table 2

Models Recognized by Dunn (2011)

Conceptual Practice Model	Contribution to OT
Developmental practice model	Insight into typical development and an opportunity to have an interdisciplinary dialogue about a child's progress. A wide variety of developmentally-based assessment tools are available.
Sensory processing model	Insight into how individuals respond to the sensory experiences they encounter everyday and how their responses support or limit their participation. Several caregiver and self-report measures are available.
Coping practice model	Insights into how an individual experiences internal and external stressors and responds to them.
Behavioral practice model	Insights into factors that reinforce or extinguish a given behavior. A systematic way to examine the antecedents and consequences of a specific behavior through functional analysis has grown out of this model, as have other specific interventions focused on increasing or limiting specific behaviors.

4. The focus of school occupational therapists

Occupational therapists (OTs) believe that a student's learning and participation at school is achieved through his or her engagement in meaningful occupations. As occupations are defined as the multidimensional and complex "everyday activities" (AOTA, 2008, p. 628) that provide structure to life, children engage in numerous occupations that can be divided into several distinct "areas of occupations" (p. 630), such as school, work, activities of daily living, and social participation (AOTA, 2008). Some examples of occupations that students engage in during elementary school, for example, include completing school assignments, socializing with peers, developing work and study habits, organizing personal spaces (e.g. lockers and spaces to

complete homework), and participating in extracurricular activities (Polichino, Frolek Clark, Swinth, & Muhlenhaupt, 2007).

Occupational therapists appreciate that learning occurs when a child has the benefit of a supportive environment and his or her skills match the challenges associated with the educational task (Royeen & Marsh, 1998; Swinth, Spencer, & Jackson, 2007). School-based occupational therapy evaluations often include observations that are focused on identifying factors that interfere with learning and participation in activities and routines in various areas of the school environment (e.g., classrooms, hallways, cafeterias, bathrooms, playgrounds, and gymnasiums), as well as understanding the curricular demands presented to the child and the available accommodations and modifications (AOTA, 2004).

Services provided by occupational therapists in schools are designed to help children with and “at-risk” for disabilities gain authentic access to the curriculum, the general education environment, and the community (AOTA, 2004; Polochino et al., 2007; Swinth et al., 2007). Occupational therapists address the educational needs and promote the participation of students by providing services focused on increasing performance skills (i.e., motor, process, and communication and social interaction skills), performance patterns (i.e., habits, roles and routines) and personal factors (e.g., strength, sensory processing and dexterity) (AOTA, 2008). In addition, occupational therapists intervene to make adjustments to aspects of the learning environment and to make recommendations for instructional strategies, as well as associated tools and materials (AOTA, 2004, 2008).

Over 20% of the occupational therapy workforce in the United States provides services in America’s public schools and over 60% of the occupational therapists that work in schools are employed directly by local education agencies or school districts (AOTA, 2010). Occupational

therapy is designated as a related service under the Individuals with Disabilities Improvement Act (IDEA, 2004). According to IDEA, related services are, “developmental, corrective, and other supportive services as are required to assist a child with a disability to benefit from special education” [§300.34]. The roles of occupational therapists prior to IDEA 2004 had been limited to screening and evaluating students that receive, or are being considered to receive, special education; providing direct services to students who were found eligible for occupational therapy services and special education; and consulting with general and special education teachers, as well as other personnel, to support students receiving special education (Dunn, 2000). The 2004 IDEA legislation also allows for occupational therapists to act as potential providers of early intervening services for students in general education who do not receive special education or related services (OSER, 2007).

Despite the inclusion of occupational therapy in the federal legislation, some administrators, teachers, and other related services providers are unaware of the scope of occupational therapy. Handwriting concerns continue to be the number one reason that a student is referred for school-based occupational therapy (Case-Smith, 2002; Chandler, 1994; Hammerschmidt & Sudsawad, 2004; Sepanski & Fisher, 2011). For example, in a phenomenological study completed by Casillas (2010a, b), six teachers from four different elementary schools in the same district reported that they were unaware of the range of services that could be provided by occupational therapists who work in schools. Teachers who participated in this study suggested that having a clear understanding of the nature of occupational therapy would facilitate their active use of occupational therapists as consultants to address the needs of students in both special and general education.

C. Use of Response to Intervention

Response to Intervention is an early intervening service (EIS) solution put forth by policy makers to address the problems of over-identification of students who are found eligible for special education under the specific learning disability category, the overrepresentation of minority students in special education, and to provide the needed support to students who do not qualify for special education services under the discrepancy model (Brown-Chidsey & Steege, 2010; Fuchs et al., 2003). It is estimated that as many as 30-50% of students receiving special education services prior to IDEA (2004) did not meet all of the eligibility requirements and that school personnel in some districts found these students eligible for services in an effort to provide them with the intensive support that was needed and not typically available in general education (Scruggs & Mastropieri, 2002). Early intervening services are meant to address such misidentifications so that only students who legitimately meet the criteria for different disability categories are found eligible for special education. At the same time, EIS are meant to provide the instructional support that struggling students need to be successful without placing an undue burden on the special education system (Fuchs et al., 2003).

The problems that RtI is designed to address are not new. Congress passed the Children with Specific Learning Disabilities Act (PL-91-230) in 1970 and since then there has been a great deal of debate regarding how children with learning disabilities should be identified in our nation's public schools (Fuchs et al., 2003). It is estimated that approximately 45% of students who receive special education do so under the category of Specific Learning Disability (SLD) (OSERS, 2011). Specific Learning Disability is defined under IDEA (2004) as:

a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations... [and do not include those that are a result of] environmental,

cultural, or economic disadvantage (34 Code of Federal Regulations SS 300.8 (c) (10).

Under previous legislation, SLD was determined solely by the ‘discrepancy model’ (Ardon, Witt, Connel, & Koenig, 2005; Fuchs & Fuchs, 2006; Vaughn & Fuchs, 2003). The discrepancy model is based on a student’s performance on measures of intelligence and achievement. Students who qualify for Specific Learning Disability (SLD) under the discrepancy model should have at least a one standard deviation difference between their intelligence quotient scores and their achievement test scores (Ardon et al., 2005; Fuchs et al., 2003; Fuchs & Fuchs, 2006; Vaughn & Fuchs, 2003; Shinn, Tindal, Spira, & Martson, 1987). In other words, students who are found eligible for SLD under the discrepancy model show a marked difference between their ability, as indicated by their intelligence quotient score, and their achievement in one or more academic areas, such as reading, math, or language arts.

In the 1980’s, the United States Congress introduced a competitive request for proposals to challenge the existing Specific Learning Disabilities paradigm that was grounded in the discrepancy model (Fuchs et al., 2003; Shinn et al., 1987; Ysseldyke, 2005). Researchers who received funding under this competition were ultimately unable to distinguish students with learning disabilities from those without learning disabilities (Shinn et al., 1987; Ysseldyke, Algozzine, Shinn, & McGue, 1982; Ysseldyke, 2005). In addition, it was suggested that the process of referring, and eventually finding students eligible, for special education services had as much to do with providing teachers with verification of the challenges they saw students face in the classroom as it did with the student’s performance on psychometric measures (Ysseldyke 2005; Ysseldyke et al., 1983). In other words, many students, were “found eligible” for special education services, despite their performance on standardized tests which would suggest otherwise.

Shepard (1980) also pointed to some of the hazards of using the discrepancy model as the primary means for determining SLD eligibility. Further, she suggested that the misidentification of children with typical learning profiles may be due to several reasons including: lack of comparison norms for measures of intelligence and achievement, test reliability, and other factors, such as a student's low motivation or lack of experience.

Additionally, scholars believe that another factor contributing to the inflated number of children who qualify under SLD is the blurring of eligibility criteria by school personnel in an effort to provide services to students in need or at-risk for learning difficulties who otherwise would not qualify (Scruggs & Mastropieri, 2002; Vaughn & Fuchs, 2006; Ysseldyke, 2005; Ysseldyke et al., 1983). In some instances, special education teams do not even review the eligibility criteria if they believe a student can benefit from the intensive services (MacMillan, Gresham, & Bocian, 1998). Granting special education eligibility to students who do not meet the eligibility criteria places additional burden on an already stressed system and has the potential to inadvertently funnel resources (i.e. dollars and the time of special education teachers and related service providers) intended for special education students to general education students.

In other cases, school teams holdfast to rigid criteria for finding students eligible for special education services under SLD. Due to the discrepancy model, many students with "flat profiles", or those with low intelligence quotient scores and low achievement scores, are not found eligible for special education services (Fuchs et al., 2003). Fuchs et al. (2003) suggested that there is a danger in not providing any supportive services to students with such profiles as there is no way to determine retrospectively whether or not their low achievement scores are a result of insufficient instruction versus achievement. Ysseldyke (2005) also suggested that low

achievement scores can be related to instruction; however, he cited a potential mismatch between a school's curriculum and achievement measures, rather than inadequate instructional delivery.

Overrepresentation is another challenge that proponents of RtI hope to address.

Overrepresentation or disproportionality occurs when a significant number of minority students, greater than one would expect given a school's general enrollment, are found eligible for special education (Blanchett, 2006; Guiberson, 2009). Most historians, educators, and policy analysts agree that *Brown v. Board of Education* changed the landscape of the American education system (Green, 2005). However, some would argue that not enough has been done to fully integrate schools since the 1950's and that over-identification and placement of minority students in special education perpetuates the educational disparity between white students and students of color (Ferri & Connor, 2005; Guiberson, 2009; Sullivan, 2011). Further, Fore, Burke, and Martin (2006) suggest that intelligence and achievement tests are inherently culturally biased and perpetuate the perceived performance differences between non-Asian minority students and their white peers.

This disproportionality is most obvious in categories that are more subjective and based on the educational team's judgment (Fore et al., 2006; Green, 2005; NRC, 2002; Skiba et al., 2006). The contribution of poverty, inconsistent school experience owing to transience, and decreased academic readiness have all been cited as factors leading to the overrepresentation of minority students in special education (Skiba et al., 2006). Some researchers and practitioners believe that disability is purely a social construction (Fore et al., 2006; Skiba et al., 2006). Others believe that, even if disability is a social construction, the label placed on struggling students is warranted and will lead to the student experiencing the benefits of special education (i.e. individualized attention, accommodations, and modifications); further, they believe that

these benefits outweigh the more negative consequences of receiving special education services, such as social stigma, low academic expectations, and increased risk of dropping out of school or not receiving a traditional diploma (Arnold & Lassman, 2003; National Research Council, 2002).

Others view the problem of over-identification as systemic and see the impetus of change outside of the child. In some cases, culturally and linguistically diverse (CLD) learners often live in highly populated urban school districts and attend neighborhood schools that have limited resources to maintain up-to-date curriculum materials and retain highly qualified teachers (Mandlawitz, 2003; NRC, 2002). In this respect, CLD are overrepresented because the system has failed them. Children who are black or African-American have a 2.75% higher chance of being identified as having an intellectual disability and a 2.28% higher chance as being identified as having an emotional disability (OSERS, 2011). Children from Latino or Hispanic decent have a 1.19% higher chance of being identified for services under the specific learning disability category (OSERS, 2011). Inadequate resources may contribute to this disparity as the already overburdened system may be unable to accommodate the rich cultural differences posed by children of color. Research suggests that typical instructional practices used by teachers in the United States are not culturally responsive and some believe that these practices are continued with the intent, either consciously or subconsciously, to further marginalize students from minority backgrounds (Arnold & Lassman, 2003; Blanchett, 2006). Further, there is a shortage of highly qualified teachers who reflect the diverse student population, are critically reflective of cultural practices, and receive adequate pre-service preparation to teach students who are culturally and linguistically diverse (Artiles & Trent, 1994; Artiles & Harry, 2005; Fore et al. 2006; Green, 2005; Sullivan, 2011).

Since the inception of the SLD category, several models have been proposed to reduce the number of students who are wrongly found eligible due to issues related to disproportionality and general misidentification. The current model is Response to Intervention or RtI. The commonly held definition of RtI is that it is a team-based, multi-tiered problem solving model that is designed to support students who are at-risk for academic failure due to learning or behavioral difficulties (Brown-Chidsey & Steege, 2010; NASDSE, 2005; NCRTI, 2010; Vaughn & Fuchs, 2003; VanDerHeyden & Burns, 2011). The process of problem solving has its roots in behaviorism and the systematic implementation of the problem solving process has much in common with the functional analysis process that also grew out of this tradition (Fuchs et al., 2003). Problem solving consists of the educational team engaging in a four step process that includes: 1) the identification of the problem, 2) the generation of hypotheses that account for the cause of the problem, 3) the development and implementation of a plan to address the problem that is conceptually congruent with the proposed hypotheses, and 4) the evaluation of the effectiveness of the plan to diminish the problem (Fuchs et al., 2003; Telzrow, McNamara, & Hollinger, 2000).

Personnel who use a problem solving focused RtI framework rely heavily on continuous progress monitoring supported by student data for decision-making throughout each of the tiers (Batsche et al., 2005). The key components of RtI include: a scientifically-based core curriculum, universal screening, progress monitoring for students receiving intervention, and evidence-based interventions that intensify based on a student's progress or needs (Bradley, Danielson, & Doolittle, 2005; VanDerHeyden & Burns, 2011).

The foundation of RtI models is Tier 1. Tier 1 consists of a scientifically-based curriculum, sound instructional practices, and quarterly universal screenings with curriculum-

based measures (Brown-Chidsey & Steege, 2010; VanDerHeyden & Burns, 2011). Fuchs et al. (2003) suggest that the purpose of this tier is to provide a type of quality control framework to ensure that all students receive a scientifically validated base for learning. Tier 1 instruction takes place in general education and the curricula, as well as the instructional practices, are to be appropriate for all of a district's students, including those who are considered culturally and linguistically diverse learners (Collier, 2010). In theory 80% of the students should have their learning needs met by the interventions that are provided in Tier 1 (Burns, Appleton, & Stehouwer, 2005; NASDSE, 2005).

It is estimated that approximately 15-20% of students will not be successful with Tier 1 interventions alone (Burns, Appleton, & Stehouwer, 2005). Students that are not making adequate progress with Tier 1 interventions, begin to receive Tier 2 interventions. Tier 2 interventions are generally provided in small homogeneous groups based on continuous progress monitoring data (VanDerHeyden & Burns, 2011). Tier 2 interventions and data collection are geared towards understanding what prerequisite skills and contextual factors maximize a student's learning based on the student's response to these factors when they are systematically introduced; data is collected on a weekly or bi-weekly basis (VanDerHeyden & Burns, 2011).

Only 2-5% of students should move on from Tier 2 to Tier 3 (Burns, Appleton, & Stehouwer, 2005). Interventions at Tier 3 are based on an individual student's needs, often provided to students individually or in pairs, and data is taken, at a minimum, on a weekly basis (VanDerHeyden & Burns, 2011). In many cases, Tier 3 interventions are designed to provide the team with information related to the cause of a specific student's learning difficulty and in some cases, a student in Tier 3 may participate in a comprehensive evaluation to determine eligibility for special education and related services (Brown-Chidsey & Steege, 2005).

A great deal of the RtI literature is focused on examining the efficacy of specific instructional or assessment practices at various tiers (see for example Fuchs, Fuchs, & Compton, 2004; Fuchs et al., 2007; McMaster, Kung, Han, & Cao, 2008; Nelson, Stage, Epstein & Pierce, 2005). Additional literature has been focused on describing how teams implement RtI. These accounts often emphasize the contributions of various professionals, including teachers, school psychologists, social workers, and speech and language pathologists (see for example Ardon et al., 2005; Barnett, Daly, Jones, & Lentz, 2004; Kovalski, & Glew, 2006; McIntyre, & Phaneuf, 2008; VanDerHeyden, Witt, & Barnett, 2005). Little is written outside of the field of occupational therapy about the role that occupational therapists can play on RtI teams.

The role of occupational therapists in school systems is evolving. Occupational therapists are no longer only providing services to children who qualify for special education and related services. As more school districts across the country begin to implement an RtI framework, occupational therapists are in a unique position to expand what has been viewed as their traditional role in schools. However, because the scope of occupational therapy is often reduced or misunderstood, occupational therapy practitioners are obliged to ensure that all students, including those without IEPs and in general education, benefit from their expertise. One way that occupational therapists can do this is about being explicit about what they can and do contribute to the educational team, as well as how they arrive at their recommendations so that key stakeholders are more inclined to afford them the opportunity to participate in RtI.

D. The Expanding Focus of School Occupational Therapists

The current role of occupational therapists in educational systems is expanding beyond providing services to students with Individual Education Plans (IEPs). Occupational therapists are collaborating with teachers and other team members to support general education students

within the context of RtI (Cahill et al., 2008; Cahill, 2010; Frolek Clark, Brouwer, Schmidt, & Alexander, 2008; Reeder, Arnold, Jeffries, & McEwen, 2011). There are only a handful of examples in the literature that describe how occupational therapists work with educators to support general education students in RtI frameworks. Besides directives from the American Occupational Therapy Association (AOTA) (2007), which outline the functions that occupational therapists can be engaged in while working within an RtI model, there are several papers that provide examples of recommendations that therapists can provide at each tier (see for example Cahill, 2007; Cahill et al., 2008; Chandler, 2010).

A literature review was conducted to locate articles related to the interventions that occupational therapists developed in RtI using several databases, which included: Academic Search Premier, Primary Search, Professional Development Collection for Educators, ERIC, and CINAHL. The query was set up so that the keywords were searched in all fields. The terms that were used included combinations of the following words: occupational therapists, occupational therapy, response to intervention, and school-based problem solving. In addition, abstracts from the *American Journal of Occupational Therapy*, the *Journal of Occupational Therapy in Schools and Early Intervention* and *OT Practice* were reviewed since 2004. Research articles from these publications were included if the articles focused on research about how occupational therapists participate in RtI or rigorous case study examples that described how occupational therapists worked within an RtI framework. Position papers, best-practice recommendations, practitioner guides, and studies that were co-authored by occupational therapy faculty, but not related to occupational therapy (see VanDerHeyden et al., 2008), were not included. The results of this search yielded two studies which will be reviewed below.

Frolek Clark et al. (2008) describe a case where an occupational therapist worked with a teacher to identify a first grade student who was at-risk for handwriting difficulties, as well as the Tier 2 interventions that were developed to support the student. The traditional implementation of RtI models involves universal probes that are given systematically throughout the school year. This universal screening process assists in the identification of students who are at-risk for learning difficulties. In the case described by Frolek Clark et al. (2008), the student was not identified through universal screening measures, but rather her teacher presented her case to the school's Teacher Assistance Team (TAT). According to VanDerHeyden and Burns (2011), TAT teams are a precursor to RtI implementation teams, though many TAT teams have evolved to implement RtI. Once the student was identified as having needs by the TAT, Frolek Clark et al. (2008) used the *Iowa Writing Assessment and Norms* (IOWAN) (Frolek Clark, 2005) to compare the student's performance with handwriting tasks to that of her peers. The occupational therapist working with the student also administered the *Print Tool* (Olsen & Knapton, 2006) which is a functional assessment of handwriting that also provides corresponding intervention activities based on a student's areas of need. Based on the information from the *IOWAN* and the *Print Tool*, the occupational therapist, along with the student's teacher, mother, and the school's at-risk teacher, developed a plan for remediation. In addition, this team established target handwriting outcomes for the student based on the *Print Tool* (e.g., the student will correctly space words 90% of the time during the next *Print Tool* administration). The at-risk teacher worked with the student in a small group and followed recommendations from the occupational therapist. The at-risk teacher collected progress monitoring data every two weeks based on the handwriting outcomes that were developed by the team. After eight weeks of intervention, it was determined

by the TAT that the student exceeded the established outcomes and no longer needed tier 2 interventions related to handwriting.

Finally, Reeder et al. (2011) completed a case study where occupational therapists participated in the implementation of RtI in two schools in one district in Texas. The occupational therapists volunteered to assist with screening 60 pre-kindergarten students using the *FirstSTEP* (Miller, 1993) (a screening tool to evaluate preschoolers for developmental delays) at one of the schools included in the study. In addition to participating in the screenings, the occupational therapists provided recommendations to teams and regularly attended Problem Solving Support Team (PSST) meetings at both schools. One of the outcomes of the occupational therapists' participation was the development of a flowchart which outlined how and when occupational therapists participated in RtI. For example, at tier 1, the PSST identified students with sensory or motor concerns. At tier 2, recommendations were made by the therapists and implemented by teacher and other classroom staff. At tier 3, the occupational therapists observed the student with parent's consent and made specific recommendations based on the findings from the observation. At the 4th tier, the PSST would determine whether or not the student needed to be referred for an initial special education evaluation, including related services such as occupational therapy. In addition to the flow chart, other outcomes included the teachers' understanding of occupational therapy. As a result of participating on the PSSTs, general education teachers requested technical assistance with fine motor, handwriting, and supporting students "who were in constant motion" (p. 51). Finally, twenty one students received OT-related RtI services during the course of the study with eight students receiving tier 3 supports, and 13 students receiving tier 1 and 2 supports. The specific outcomes for the students receiving OT-related RtI services were not reported. However, it was noted that eight of the

students had needs related to handwriting, six of the students had needs related to fine motor skill development, and six had needs related to maintaining focus and/or sensory processing.

When one compares accounts in the current literature to the scope of occupational therapy, it is apparent that the range of concerns that OTs can address in the context of RtI has not yet been fully realized. Two factors might explain this phenomenon. First, historically, school administrators who are responsible for making decisions related to program funding and staffing patterns, as well as the educators who often sit at the RtI table are unfamiliar with the broad scope of occupational therapy and the *potential* contributions that occupational therapists can make in the school setting (Bloom, 1998; Szabo, 2000; Tennyson, 2006). Second, individual occupational therapy practitioners in the field may lack the conviction to explain the core constructs of occupational therapy as they apply to the school setting. Molineux (2004) suggests that this lack of conviction may actually be due to a blurring of professional lines between occupational therapy and other disciplines (e.g., physical therapy) that occurred as a consequence of the profession's paradigm shift in the mid-20th century, which moved more towards the mechanistic or medical model viewpoint. Molineux and other scholars suggest that this shift may have left many occupational therapists feeling reticent about the use of occupation as their primary modality.

Despite the presence of a few studies related to occupational therapy and RtI, there is a dearth of information in the literature that describes how occupational therapists contribute to the RtI process and the clinical reasoning process they employ to arrive at their recommendations in this context. Therefore, the purpose of this study was to investigate how occupational therapists used clinical reasoning to make recommendations in the context of Rt.

III: METHODOLOGY

The need for the current investigation was grounded in the findings of a pilot study that examined the contributions that were being made by occupational therapists in one district as part of a district-wide initiative to implement RtI and include occupational therapists, along with other related service providers, on school-based problem solving teams (Cahill, 2010). The results from this study suggested that the occupational therapists most often used clinical reasoning, or an individualized rationale, to form their recommendations, in absence of occupational therapy theory or frames of reference or evidence gleaned from current practice literature.

The purpose of the current investigation was to examine how occupational therapists use clinical reasoning in Response to Intervention (RtI). This investigation started with the question *how do occupational therapists use clinical reasoning to make recommendations in RtI?* This investigation led to a deeper understanding of the processes that occupational therapists go through to make clinical decisions, their perspectives regarding their role in RtI and how they define the influencing factors and boundaries of their contributions.

A. Design

Qualitative research methods are selected by investigators who wish to gain insights into an individual's perspective and to learn about the meanings that specific individuals assign to people, places, objects, and situations (Merriam, 1998; Patton, 2002; Strauss & Corbin, 1998). Qualitative research methods are particularly effective in answering questions that go beyond quantification, such as those that focus on examining the complexities of dynamic relationships and perceptions (Luborsky & Lysack, 2006). Qualitative investigators often come to queries

with an interpretivist view; they are process-oriented, driven by inductive reasoning, and focused on the experiences of the individuals that are at the center of their studies-or the way that these individuals experience certain aspects of their lives (Merriam, 1998). Qualitative studies that are driven by a phenomenological design are focused on illuminating the subjective experiences of the participants to construct the meaning that a certain phenomenon has for those individuals (Patton, 2002).

The experiences of occupational therapists working within RtI frameworks were examined through the use of semi-structured interviews. This method was selected because it is closely aligned with the phenomenological perspective and because interviews could be used to call on the occupational therapists' subjective and personalized perspectives of their specific experiences, intentions, and actions across time (Hamilton, 2008; Patton, 2002). Through the interview process, the occupational therapists had the opportunity to tell their own accounts of 'their stories' of participating in RtI through their own "personal cognitive organizational scheme[s]" (Hamilton, 2008, p. 131). Each occupational therapist that participated in the study had the opportunity to share his or her unique experience. The details of the therapists' stories, as well as the order in which they told them and what they chose to include and omit provided insights into the factors that contributed to their experiences. Mattingly (1994) highlights the importance of the temporal sequence of an individual's narrative, which includes a beginning, middle, and end, rather than a detailed and specific chronological timeline.

My guiding conceptual framework was based on Mattingly's seminal work in clinical reasoning and guided by the following assumptions:

- Occupational therapists use two paradigms to frame their thinking: the mechanistic paradigm and the phenomenological paradigm (Mattingly, 1991a, 1991b);
- Occupational therapists use three different modes of reasoning: procedural, interactive, and conditional (Mattingly, 1991a, 1991b);
- Occupational therapists understand performance and participation in terms of how an individual engages in habits, roles, and routines within dynamic social contexts and based on his or her own volition (Kielhofner, 2008); and
- The RtI context (potentially) provides a context in which teachers and other professionals can collaborate to support students' learning.

B. Role of the Researcher

As a qualitative researcher, my role involved collecting, analyzing, and interpreting data gained from occupational therapists who participate on problem solving teams. I was a non-participant (Creswell, 2008) in this study as I did not directly interact with the problem solving teams, make recommendations related to RtI, or directly observe how the recommendations made by the occupational therapists translated into outcomes for students. In this way, I lacked access to the actual contexts that the occupational therapists were practicing in and had to rely solely on their accounts of what took place in their settings. My hope is that this distance provided the occupational therapists with an opportunity to candidly communicate their thoughts and perceptions about how they made decisions in RtI without regard to whether or not I would place judgments on the recommendations that they made or did not make based on what took place in various contexts.

My own experiences as a school-based occupational therapist working on a problem solving team, however, allowed me to understand the occupational therapists' accounts from an insider's perspective (Patton, 2002). I practiced as an occupational therapist in the schools for six years before pursuing a Masters degree in educational administration, working as a special education program supervisor, and eventually moving into higher education to prepare pediatric occupational therapists. I approached my practice using the model of human occupation (MOHO) as my primary theoretical orientation and included other frames of reference and conceptual practice models when I could not support my clients using MOHO alone. My experience as an occupational therapy educator inspired my interest in this topic as I am constantly striving to teach my occupational therapy students to approach the occupational therapy process, from developing an evaluation plan through discharge planning, with a top-down, participation-oriented, and theoretically grounded perspective. My experiences engaging in problem solving team with my teacher and related service provider colleagues gave me a deep appreciation for the potential role that occupational therapy could have in RtI initiatives and the contributions that could be made by OTs working in this area.

I believe my training as an OT and my prior experience also helped me to gain trust and build rapport with the OTs that participated in this study. I had an understanding of and was comfortable using the terminology associated with school-based practice and occupational therapy. My insider knowledge made it possible for me to share common expressions and discuss concepts with my participants in a way that might not have been possible with another researcher from outside of the field.

As a qualitative researcher, I also had to assume an outsider's perspective (Patton, 2002). This required me to pause and consider the information that the participants shared as if I were

not an occupational therapist. At times, I had to assume the role of a person outside of the profession of OT and ask the occupational therapists to explain concepts to me as if I were unfamiliar with them; for example, I asked them to imagine that I was a teacher or an occupational therapy fieldwork student. I also had to encourage them to dissect their rationales for making a certain recommendation without appearing as if I were judging the recommendation or the thought process that they used to arrive at that recommendation.

My role as a researcher in this study was both enhanced and challenged by my experiences as a school-based occupational therapist and as an occupational therapy educator. The act of switching back and forth between the insider and outsider perspectives required a great deal of reflexivity on my part. Creswell (2008) defines reflexivity as the process the researcher goes through to reflect on her own biases, values, and assumptions throughout the research process. To address reflexivity I employed several strategies, such as journaling and peer review, which I discuss in subsequent sections. Engaging in the process of reflexivity was sometimes challenging, especially when my own beliefs about the potential roles that occupational therapists could have in RtI was questioned at times by the perspectives held by some of the occupational therapists who participated in this study.

C. Setting

This study was conducted with occupational therapists who work in northern Illinois, excluding the city limits of Chicago. Occupational therapists who worked in the following counties were eligible to participate in this study: Cook, DeKalb, DuPage, Grundy, Kane, Kendall, Lake, and Will. This region was targeted due to the density of the population in these areas. Therapists who worked in the City of Chicago schools were excluded in this study because the policies and procedures that are used in that large district do not often reflect those that are

found in relatively smaller districts and special education cooperatives in this part of the State. Even though the Illinois State Board of Education (ISBE) required that districts begin full-scale implementation of RtI beginning in the academic year 2010-2011 (ISBE, 2008), schools have the opportunity to exercise local control and develop their own processes given the considerable parameters of the three-tiered RtI framework adopted by the state of Illinois. Due to this local control, school-based teams may call their problem solving teams by many different names (e.g. pre-referral teams, student services teams, and child study teams) and occupational therapists who have worked with such teams, regardless of what they are called, were eligible to participate.

D. Sampling

Participants were recruited once the University's institutional review board (IRB) approval was obtained. Criterion sampling was used to identify participants who had experience making clinical decisions within the context of RtI or on school-based problem solving teams. Initially, I sought information-rich cases (Patton, 2002) and collaborated with the Northern Illinois OT/PT Coordinators' group to identify occupational therapists who worked with problem solving teams since the statewide implementation of RtI in 2010. A well-known occupational therapy coordinator from one of the bigger special education cooperatives in the target area acted as a gatekeeper (Creswell, 2008) and provided me with entry into the coordinators' group. To ensure that a breadth of perspectives related to OT participation in RtI implementation, I also used a snowball recruitment strategy (Patton, 2002) and asked participants to identify additional occupational therapists who they knew were active in implementing RtI across different tiers.

An email inviting participation (Appendix A) was sent to my main contact from the Northern Illinois OT/PT Coordinators' Group and then forwarded on by my contact to the

therapy coordinators for each district or cooperative who identified occupational therapists working in RtI. The therapy coordinators then forwarded the email on to occupational therapists they identified. The email included my name and telephone number, as well as the name of my advisor and her contact information in case the potential participants had any questions. This email directed interested individuals to contact me by phone to review the participation criteria and then potentially to schedule an interview, via telephone or face to face.

All of the occupational therapists who participated in this study self-identified as being registered and licensed occupational therapists or OTR/Ls. Certified occupational therapy assistants or COTAs were not included in this study due to the licensing requirement that OTR/Ls must oversee evaluation plans and that problem solving activities associated with Tiers 2 and 3 of RtI may, in some cases, include evaluation activities. All of the OTR/Ls who participated in this study worked in Illinois public schools (either as a direct employee or through a contract agency) and with teams that had implemented RtI since the fall of 2010. Licensed occupational therapists that were trained at any professional level (i.e., Bachelor's degree, Master's degree level, or doctorate) were included, as there is no difference in the services that professionals from any group can perform. Because clinical expertise, as it is defined in occupational therapy, is not based on the length of time one has spent working in the discipline, but rather emphasizes practical knowledge (Rassafiani, Ziviani, Rodger, & Dalglish, 2008), a criterion related to the minimum number of years an individual had worked as an occupational therapist was not included.

A sample of eight to 13 participants was initially anticipated to represent the depth of knowledge and practice variability needed to thoroughly investigate this phenomenon. Individuals were interviewed as they were recruited and consent was secured. Sampling

continued until no new information was collected (Patton, 2002). A final total of 10 individuals participated in this study.

Written informed consent (Appendix B) was obtained from each participant prior to the initial interview. Individuals who participated over the phone were asked to return the written informed consent form to me prior to our phone conversation and were then re-consented using the oral informed consent form (Appendix C) at the time of the phone call.

All of the participants were invited to complete a second interview over the phone. A final total of eight individuals out of the original 10 individuals elected to participate in this portion of the study. Prior to our second interview, participants who elected to participate were re-consented using the oral informed consent form (Appendix C).

E. Data Collection and Procedures

Data were collected through semi-structured interviews that were audio-recorded. Seven out of the ten initial interviews were completed in person. Three of the initial interviews were completed over the phone at the request of the participant. The initial interviews were anticipated to last between 45 and 90 minutes each. The actual length of the interviews ranged between 35 minutes and 75 minutes each. The in-person interviews took place at a time and location of each participant's choosing, which included after school hours, during the school day, and on weekends. Interviews took place at various community locations, including local Starbucks coffee shops and Panera restaurants. The interviews that were conducted over the telephone were also scheduled at the participants' convenience. One interview took place at a participant's school during her planning time and another interview took place in a participant's home.

At the onset of the interview, participants were asked to refrain from stating the name of their school or district. They were also asked to refrain from using the names or any identifying

information of any of the students or personnel they worked with and asked instead to refer to these individuals in general terms (e.g. “a third grade boy” or “the school psychologist”). A semi-structured interview guide (Appendix D) was used to structure the interview. The interview guide was developed based on my conceptual framework and Mattingly’s findings from the Clinical Reasoning Study. The interview began with a single question (e.g. “describe your role in the RtI process and the extent to which you think clinical reasoning comes into play; please provide examples”). A list of follow up questions was used to obtain additional information only after the participant finished his or her first response. Handwritten summaries were developed after each initial interview to assist me in locating critical information in the transcripts later on and the participant’s demographic information was added to a table (see Table 3).

Table 3

Participant Table

Pseudonym	Location of first interview	Background
Theresa	Phone	9 years of experience as an OT and working in the school systems, with additional experience working for an outpatient clinic for children with sensory needs. Training at the Bachelor's level with requisite continuing education in work-related topics.
Joanne	In person	26 years of experience as an OT and working in the field of pediatrics in CA and IL, including school systems, private therapeutic day schools, and a clinic inside of school.
Melanie	In person	Trained at the Bachelor's level in OT, Masters in Child Development, and currently pursuing OTD. NDT certified. 8 years of experience as an OT and working in pediatrics, with experience in a hospital-based pediatric outpatient clinic, pediatric intensive care unit, neonatal intensive care unit, and schools. Trained at the Master's level with requisite continuing education in work-related topics.
Amy	In person	AOTA Board Certified in Pediatrics 5 years of experience as an OT and 4 years working in the school systems, with additional experience in an outpatient pediatric setting.
Pat	In person	Trained at the Master's level and completed OTD 6 years of experience as an OT with 2 years of experience in an adult acute care rehabilitation setting and 4 years working in the school systems.
Carol	In person	Master's level with requisite continuing education in work-related topics. Mentor to other therapists from his contract agency and creative director for a community arts group for children with special needs. 25 years of experience as an OT with 12 years of experience in the school systems. Other experience in a hospital setting working the individuals with neurological conditions from birth to older adults.
Linda	In person	Trained at the Bachelor's level with requisite continuing ed. Entrepreneur and creator of a handwriting tool that is commercially available. 5 and ½ years of experience as an OT and in pediatrics with work in the schools and an outpatient pediatric clinic. Employed through a contract agency.
Marie	Phone	Trained at the Master's level with requisite continuing ed. 20 years experience as an OT with 10 years of experience in the school systems, with additional work in inpatient and outpatient pediatrics, nursing homes, and a hand therapy clinic.
Ellen	Phone	Trained at the Bachelor's level with requisite continuing education in work-related topics, emphasis in hand therapy. 2 years experience as an OT in the school systems and 2 years as a general education second grade teacher. Has had experience working with problem solving teams as both a teacher and as an OT. Employed directly for her district.
Callie	In person	Trained at the Masters level with requisite continuing education in work-related topics. 10 years experience as an OT in the school systems, with additional experience working in Early Intervention and outpatient pediatrics. Trained at the Bachelor's level with requisite continuing education in work-related topics. Currently pursuing her OTD and active in an OT association RTI workgroup at the national level.

After all of the initial interviews were completed and an initial analysis took place, all of the participants were contacted and invited to complete a second semi-structured interview. All of the second interviews took place over the phone and began after the participant had re-consented to participate in the study. These interviews lasted between 20 and 75 minutes. The purpose of the second semi-structured interviews was to clarify points brought up during the initial interview and to follow up on the themes that had emerged as a result of the initial analysis, to engage participants in member checking to assure that I had accurately captured their accounts, and to verify that I had accurately portrayed each participant's voice (Kvale & Brinkmann, 2009). A semi-structured interview guide (Appendix E) was used to guide this interview. All of the therapists, with the exception of Callie and Marie participated in the second interview. Both of these participants were repeatedly contacted about the second interview and failed to respond.

During all of the interviews, I used follow-up questions for clarification or to encourage participants to share examples (Patton, 2002). As I completed more interviews, I added additional questions based on topics or concepts that were brought up by participants during preceding interviews. I also made sure that during the second interviews, I included all of the questions that may not have been asked during the initial interview.

All of the audio-files of the interview were given a numeric code that was known only to me and each participant was also given a pseudonym. All of the interviews were transcribed by me or a paid Masters-level occupational therapy student and each audio-file only retained the participant's code. Both the OT student and I used *Express Scribe Transcription Software* (<http://www.nch.com.au/scribe/index.html>), a free online tool that allows one to use their

personal computer as a transcription machine, and *Microsoft Word* during the transcription process.

Information related to specific individuals, schools, or educational staff was not included in the transcripts. Rather, general phrases (e.g., “the school psychologist” instead of “Ms. Jones”) were used in their place. Before the OT student transcribed the interviews, she went through a training process which involved the transcription of a sample interview. During this training process, she became familiar with my specific transcription process (e.g., how to indicate pauses or emphasis in dialogue). I also transcribed the sample interview and we met to debrief and refine our process. In doing so, we established reliability with the transcription process. Establishing reliability in this way allowed me to more accurately make linguistic comparisons between interviews (Kvale & Brinkmann, 2009). To further address reliability, as I listened to each interview that the OT student transcribed, I revised the transcripts as necessary (e.g. in the case where she was unsure of an acronym or a phrase, I could fill this in based on my notes). The OT student transcribed all ten of the audio recordings from the first rounds of interviews. I myself generated the transcripts for the seven second round interviews that took place.

F. Data Analysis

Data from this investigation was analyzed using the constant comparative method (Glaser & Strauss, 1999; Miles & Huberman, 1994). According to Glaser and Strauss (1999), the constant comparative method has four steps: comparing segments of data to coding categories, associating categories and their properties with other categories and properties, “delimiting theory” (p. 105), and developing theory. Each of the four steps will be described in detail below. Although they are presented in a sequential order, researchers using constant

comparative analysis are encouraged to engage in all four of the steps or phases simultaneously and begin analysis while data collection is still taking place.

Comparing segments of data to coding categories requires the researcher to first categorize all of the data. Unlike other methods of analysis, constant comparative analysis does not require the researcher to use a limited number of a categories or a predetermined list of categories; rather at the beginning of the analysis process, researchers using constant comparative analysis are encouraged to generate as many possible categories as possible (Glaser & Strauss, 1999; Miles & Huberman, 1994). Once a unit of data is categorized, the researcher compares the unit to all of the other units in the category, as well as to units in other categories. This comparative process helps the researcher to conceptualize the various properties or dimensions of each category. New categories and new dimensions or properties of categories can be added and existing ones can be revised throughout the coding process.

During the second stage of analysis, the researcher examines all of the categories and associated properties and begins to make associations between specific categories and properties (Glaser & Strauss, 1999). Integrating or associating categories and properties with one another helps the researcher to begin to see relationships between the data and possible explanations for what is taking place; this is the foundation for developing theory.

According to Glaser and Strauss (1999) once a preliminary theory has emerged, the researcher further modifies the theory in the “delimiting theory” process. For example, this may mean that the researcher combines two categories under one higher level concept. At the same time, the researcher is also establishing the boundaries of the theory and determining how it can be used to explain real world situations or how it can be generalized.

The final step in constant comparative analysis is writing theory (Glaser & Strauss, 1999). The theories that are a product of constant comparative analysis can be used to describe the phenomena or situation that was observed. Researchers can use the theories generated through constant comparative analysis as hypotheses for future studies. Components of the theory, or the entire theory, can be examined.

Informal data analysis began after the first interview was conducted. The data collection and data analysis involved in this study were not separate from each other, but rather reflexive (Dillaway, Lysack, & Luborsky, 2006). In an effort to assure that important themes from early interviews were not lost, data were collected and then I automatically began searching for the participants' perceptions and their views concerning clinical reasoning in RtI. I listened to each audio recording of the interview before I sent it for transcription. During my initial review of each interview, I also kept notations regarding side comments or conversations that appeared to be off-topic, in the event that they might later shed light on a particular phenomenon (Riessman, 1993).

When I was analyzing data, I also kept a research journal. My journal entries are in the form of handwritten and typed notes that reflect both my thoughts about the process of conducting this research, as well as my impressions of the interviews that I conducted and the data that I was analyzing (Patton, 2002). These notes were combined with the notes I took after each interview. I used my research journal during analysis as a source for ideas in how to further approach or organize my data (Dillaway et al., 2006). In addition to a journal, I kept an electronic file that included my audit trail (Lysack, Luborsky, & Dillaway, 2006; Patton, 2002). My research journal reflected my audit trail and contained a list of all of the data that was

collected for this study, explanations of all of the procedures I used during data collection and analysis, and notes about decisions that I made regarding refining my data.

Formal data analysis began after the first interview was transcribed. Once the first interview was transcribed, I read the transcript while listening to the interview. Transcripts of the interviews were initially reviewed and analyzed while the audio of the interview played in the background. This way I could ensure that the transcript was accurate and I could listen for the subtle emphases that were used by informants in their speech as this information is sometimes not captured in transcripts. I also listened for times when participants spoke with emotion, laughed, or paused when answering a question. Listening for this sort of information gave me insights into the participants' feelings regarding certain topics that they felt strongly about or uncomfortable discussing (Dillaway et al., 2006). Once I felt like I had an understanding of the transcript, I completed a summary of the interview.

Because I used a semi-structured interview guide, I was focused on a clearly defined set of data which aligned to a specific set of questions. I had to approach my data set more broadly and begin to look at comparisons across participants and try to gain a deeper level of understanding of their experiences (Dillaway et al., 2006; Miles & Huberman, 1994). For example, when I was reviewing Marie's transcript and listening to her interview, I noticed that she said, "You know, and maybe our unique expertise is not necessary, but I'm just worried that we're not going have a place at some point". When listening to the audio, I heard that Marie emphasized the phrase, "not going to have a place" and believed that her emphasis, beyond communicating a belief, communicated one of her fears about working as an occupational therapist in the schools. Once I had identified that and documented it, I went back through the rest of the transcripts looking for examples of when a participant either said that they were

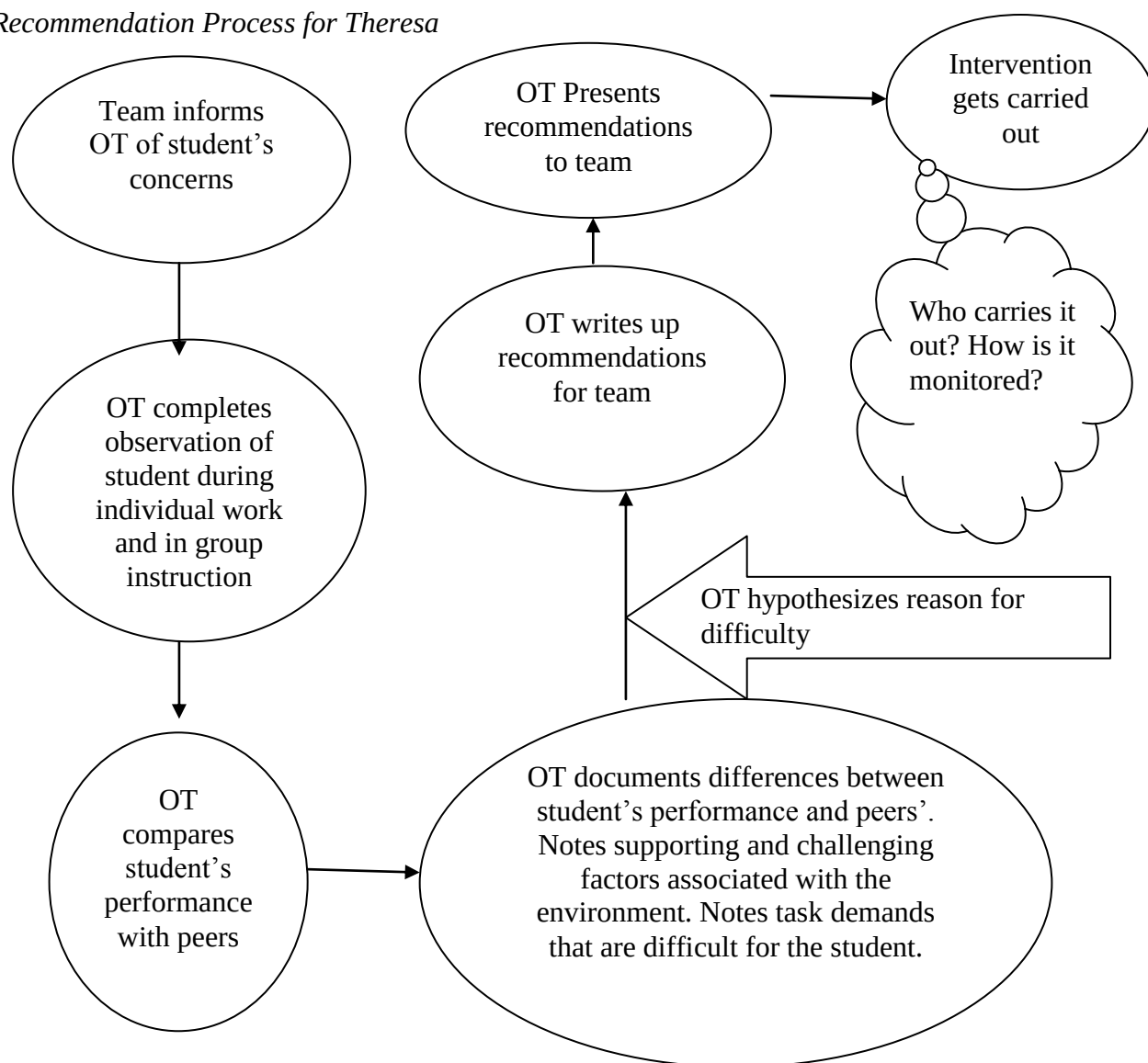
frightened or described a situation in which may have felt like something was unfavorable or distressing to them. I continued to code the transcripts in this way, stopping each time I felt like a participant brought up a new noteworthy aspect that contributed to the richness and wholeness of the collective story that the occupational therapists were trying to tell.

I bound the group of 10 therapists as a single case with each occupational therapist representing an embedded sub-case (Miles & Huberman, 1994). I organized the data using within-case (i.e., all of the therapists) displays and cross-sub-case displays (i.e. each individual therapist) based on different themes that emerged. In some cases the cross-sub-case displays became the basis for a more encompassing within-case display. For example, I used this type of display to depict the recommendation process used by the occupational therapists, that is the *logistical* steps that took place from the time that the problem solving team referred a student to the OT until the time he or she made a recommendation. In this instance, I represented the clinical reasoning process of each occupational therapist as a causal flow chart and then used the casual model procedure explained by Miles and Huberman (1994) to develop an overall flow chart to depict the summarization of this process for all the therapists. The casual model procedure required that I develop a flow chart for each occupational therapist, examine the dimensions represented in each of the flow charts and develop a matrix that was inclusive of all of these dimensions. To develop the flow chart for each therapist, I reviewed his or her transcript and pulled out instances where they described the process of RtI in their school or district, talked about when they were brought in to problem solving, discussed the factors they used to make their decisions, and outlined the steps they took to make a recommendation. I included quotes from each therapist related to these factors in a matrix. Figure 1 is an example

of one of the flow charts I drew. The flow chart in Figure 1 represents the process that Theresa described to arrive at recommendation in RtI.

Figure 1.

Recommendation Process for Theresa



From there I explored how each of the therapists' recommendation processes was similar or different from one another; examining their processes gave me insights into the occupational therapists' clinical reasoning processes. I examined all of the flow charts and

made a matrix that included the key dimensions included in each process, then ordered the dimensions by the frequency across all of the therapists and looked for where variance was present. I looked for outliers and attempted to understand why they were present. In some cases, I went back to the transcript to review the quote that had led me to name the dimension the way that I did in the first place. After reviewing the quotes, I made some adjustments to the dimensions and developed a single flow chart, or model, to depict the overall process used by all of the occupational therapists. I then tested this model by reviewing the transcripts for examples of when therapists discussed using this process and seeing if it fit the model. I adjusted the model until it was representative of each case. (Please see Results section for model.)

I developed additional cross-sub-case matrices to display data supporting other patterns or themes. For example, I developed a matrix that included the characteristics of a student's profile that might warrant further investigation by an occupational therapist. I then collapsed this matrix so that one category might represent a broader dimension. In working with the data, new themes often emerged. When this happened, I would note the emergence in my audit trail and develop a new matrix display. I would then go back through all of the transcripts to find evidence of the new theme and include it in the display. According to Miles and Huberman (1994), this cross-sub-case analysis requires that the investigator move across cases to locate similar topics and ideas and code those topics or ideas in similar ways.

In my final phase of analysis, I took a step back from comparing my sub-cases to draw some general conclusions about themes that emerged (Dillaway et al., 2006). This allowed me to think about how I would present my findings in the reporting stage. It also helped me to consider the nuances I found during my analysis and select examples of the commonalities

across the therapists' accounts. Finally, it was the beginning of my reflection on the overall significance of my focus and how it contributes to the current literature.

A qualitative researcher and expert in special education research reviewed my initial transcripts. She independently coded the transcripts and we met to compare our findings. The researcher also reviewed my sets of matrices and summaries and we met several times during the analysis process to assure that I did not miss particular dimensions associated with my topic of study. In addition, four external reviewers provided feedback on portions of the initial draft and the study's findings: one reviewer was a school-based occupational therapist that had worked in RtI, but did not participate in this study; another reviewer was an occupational therapy educator and scholar with school systems experience; another reviewer was a parent of a child who had previously received occupational therapy; and finally, the last reviewer had experience providing literacy services to small groups of at-risk students in an elementary school.

IV: RESULTS AND FINDINGS

The purpose of this study was to understand how occupational therapists (OTs) use clinical reasoning to guide their decision making in RtI and to better understand: 1) the process that occupational therapists employ to make RtI recommendations, 2) the boundaries associated with the contributions that occupational therapists make in this initiative, and 3) the perceived barriers, as experienced by the occupational therapists, to fully realizing those contributions. In an effort to understand how occupational therapists use clinical reasoning, the participants in this study were asked to provide examples of the work that they do in RtI and to reflect on times when they used different frames for making decisions (i.e., phenomenological and mechanistic) and different forms of reasoning (i.e., procedural, conditional, and interactive).

Pseudonyms are used throughout the presentation of this study to protect the anonymity of the individual occupational therapists that participated. Eight out of the ten OTs that were included in this study participated in two interviews. Despite the incomplete participation of Callie and Marie, pieces of their accounts are included in the study's results. Although Callie only completed one interview, she engaged in the conversation with passion and a willingness to share rich details associated with her practice, so her voice is prominent in the findings. Readers may notice, however, that Marie's voice is heard less frequently than the other occupational therapists. This is a function of her limited participation and the extent to which she spoke openly during her one and only phone interview.

All ten of the OTs described how students were introduced to them by the problem solving team. Some of the therapists, like Melanie, Ellen, and Amy had fairly regular opportunities to attend problem solving meetings. Other therapists, like Theresa, Carol, Linda,

Callie and Pat were invited to meetings occasionally. All of the therapists, including Joanne and Marie, talked about engaging in the problem solving process with teachers outside of the formal meetings. These often quick and impromptu conversations were usually centered on one or two concerns that the teachers identified as “OT issues”. All of the therapists talked about how they wanted to help teachers when concerns were brought up to them in this manner, but some described the frustration associated with having to make an “on the spot” decision without additional background information about the student, what was going on in his environment, and what expectations were placed on him. Through their examples, the occupational therapists described a complex process which is presented below.

A. The Process that Occupational Therapists Employ to Make RtI Recommendations

The OTs who participated in this study were asked to talk about how they used clinical reasoning and how they defined their role in RtI and school-based problem solving teams. Five main themes emerged with respect to how the OTs used clinical reasoning. They reported using clinical reasoning to: 1) consider a child’s participation in the student role; 2) to identify the mismatch between the child, the task, and the environment; 3) matching the recommendation to the teacher; and 4) to help the team maintain a holistic view of the student. In addition, a fifth theme emerged related to how the occupational therapists tacitly used theory in their decision making.

1. Considering Participation in the Student Role.

The occupational therapists all discussed how they approached a team’s concern about a student from the standpoint of viewing a child’s overall success in school as being a result of their performance in the role of student. They described how performing routines, such as walking in line down the hallway and moving between centers, were as much a part of this role

as reading and completing math assignments. Ellen described the tasks or occupations associated with the student role:

[Students have to be able to] manage their school supplies, [manage] their backpack and coat, go to the restroom, get their lunch. All of those self-care things at school. Also, being able to sit and listen and follow directions, and produce written work. Being able to communicate and talk to their teacher and their peers. Also being able to move about the school and get from point A to point B safely.

The occupational therapists also described how they began clinical reasoning in RtI. They explained how they initially contemplated whether or not a child was “functional” in the role of student, that is, successfully able to meet the role expectations that were established by his or her teacher. When a child was not able to meet the role expectations, the therapists considered whether or not the child had an understanding of what it meant to be a student at school, whether or not they had all of the skills necessary to complete tasks that are associated with being a student, and whether or not they had the opportunity to experience success with these tasks and skills in that role. The occupational therapists described the recommendations and interventions that they provided to support a child in understanding his or her role expectations, to build his capacity to meet those expectations, and to allow him to experience opportunities to master skills and expectations in a low-stakes, practice environment.

Amy described how she first starts to look at a child’s participation in the classroom. She referenced the top-down evaluation approach which emphasizes starting one’s assessment by looking at an individual’s roles and broader participation in his or her environment, then examining the performance skills that are associated with participation in a given task or activity, and then examining the underlying factors related to those performance skills (e.g. strength, fine motor dexterity, or time on task). Amy described a situation where the problem solving team called her in because they had a concern about a student’s handwriting:

It might be that [I take that] person-centered approach, that top-down approach, instead of just addressing the typical handwriting goals. Yes, that student might need to work on that writing, but not without taking into consideration what else I might need to be working on that might be even more important. Starting with participation first. Where is their participation inhibited? Where is it negatively impacted? And then I determine where to go from there.

Amy went on to describe how she begins an observation of a student who is brought up to her by the problem solving team:

I always go in to observe a student. I'm looking at that overarching role of student. If there are concerns from a teacher or another staff member about that student, I consider them and then I just try to step back and look at what is it that is impacting that student. So I'm looking at all of those different areas [in the Occupational Therapy Practice Framework] to look at the barriers to participation...Any aspect of them being a student, so it isn't just, can they get As? It is any aspect of them being in school and, you know, do they have friends? Can they get from class to class on time? Are they organized and prepared? Every aspect of being a student.

Pat talked about how important it was for children to understand what it meant to be a student and expressed that to some children, this concept of the student role is not obvious and that they may need explicit instruction to develop skills that are commonly associated with this role. Pat said:

You know, we expect the students to assume certain roles and do certain things. But did we tell them what [the student role] is? [Do] they know what that is? And have you modeled that? ...If you're not going to teach them in early childhood or kindergarten what it means to be a student, what the expectations are, then how can you expect them to be able to follow the rules if they don't know them?...And granted, I know every teacher says, "Oh you can't do that" or "Don't do that" but, you have to look at the learning styles of all the kids and are they getting it. Are they grasping it? If they're a visual learner, do you have your rules visually? If they're an auditory learner, do you review them every day out loud?

Joanne and Theresa both talked about children needing to establish confidence in the student role and having competence in themselves as learners. They talked about helping teams and the students themselves to see the significance of this, as well as the strategies that they might use to help a child develop this confidence. Joanne described a student that she worked

with who was introduced to her by the problem solving team for difficulties related to reading and handwriting. The team had initially suspected that the child had a sensory processing deficit.

Joanne explained her perception:

So now he's in first grade and he's walking away. I think he's avoiding work because he doesn't get it. He doesn't know what he's doing. He doesn't have any confidence as a learner, you know. So, they initially thought this was a sensory issue. I'm not so sure it is. My recommendations [are to start with] ten minutes of work and then gradually increase that. Maybe create a workstation where he can do simple stuff that he knows and starts to feel confident [with] and good about doing...so that he's more receptive to taking [in] information. So that's an idea.

Theresa talked about how children who are struggling with learning have a sense of where they fall in their class ranking, without explicitly being told. She talked about how children need to experience some successes to feel like they are meeting their teacher's expectations so that they have the impression that they are valued in the same way as their peers.

Theresa talked about how this scenario plays out depending on the composition of the class:

Like if you have a classroom where most of the peers are high average and the student you're observing or working with is significantly discrepant maybe in social, motor, and academics as well, I think [that] having that student recognize their role, as you know, as a learner and feeling equal and being able to do what the other peers do is important.

Theresa considered how the lack of preschool or formal preparation for school might influence a child's success in the student role as she described a kindergarten student who presented with global delays:

I can think of a kindergarten student who was brand new to the school district and then school as well. [He was] a student who had not participated in any preschool at all and he presented with significant fine motor delays, fairly significant gross motor delays and, as time went on, cognitive, social, behavioral, and emotional [delays]. So his whole picture was in need of a lot of support. And, of course no one knew this because he just got dropped off on the first day of kindergarten. He's a student who was not able to sit and attend at all and walked all around the classroom knocking things over. So, right away after the first day of school, the second day of school, the team met and we decided to put in a plan. I thought that as an OT, I could help with breaking down tasks for the student, setting up a work station for the student, putting in a work-break system for the

student, and also kind of helping the teacher to learn some cues of how to handle him behaviorally and what language to use with him to help start training him about how to be a student [as he was] someone who truly had never experienced a class of any sort before.

Theresa went on to talk about her assessment of this same child's frustration and how his unfamiliarity with the student role and the frustration he experienced led him to using aggressive behaviors towards his teachers and his classmates. She explained how the behavioral and academic demands for this student were too great and that the team first had to help him develop student work behaviors, before they took on the challenge of helping him learn:

[He was] very loud, very aggressive and [he didn't] have self-control. But, he didn't know what school meant or that there was a teacher and he would have to sit and listen to her. He definitely wasn't a student who could hear the bell ring and independently walk to the next station and begin the task. So, instead [we made] each task something that was truly a single-step and we kept him at a work station and we [gave him a] green basket and a red basket. We would put his work in the green basket. He would finish that to the best of his ability. Even though it might not always be accurate [it didn't matter]. We were trying to just get the idea of not even worrying about fine motor yet just that you mark the paper three times and it's finished, now put it in the red [basket]. So we kind of set up a workstation for him to change his routine and instead of having it be a three-step task, all his tasks were one-step and [then he was] finished.

Marie talked about how important it was for children to be able to follow the daily routines associated with being a student, as well as some of the self-care and self-management tasks associated with those routines. She talked about how important it was for her when she was working on problem identification to observe the students while they were engaged in these routines or to ask their caregivers about them. Marie described what she looked for and asked about when working with children in kindergarten or early primary grades:

I either look for or ask the teacher, or if the parent is involved [I ask] the parent, how [the child] is able to do things. You know, like their routine in the morning, coming into the classroom or at home and how much they're able to do for themselves. You know, when they go to the bathroom, [is it] by themselves? And [do they] wash their hands by themselves? [Can they] use the water fountains and open the doors? Can they access everything they need to within the school? [Can they] be as independent as possible?

Carol, a therapist with 25 years of experience, told a story of coming back from summer vacation year after year and finding that she had numerous referrals for kindergarten students from one school district that enrolled more students from a lower socioeconomic bracket than the other districts in her cooperative. She described the kindergarteners from that district as not understanding what it meant to be in school, not using appropriate school behaviors, and having extreme difficulty completing many kindergarten activities, especially those related to cutting and drawing. Carol hypothesized that these difficulties were due to not having access to preschool programs. Carol worked with a colleague to get grant funding to establish a kindergarten screening and summer intervention program to identify and provide services to students from that district that were at risk. Carol and her colleague collected data related to specific learning objectives that were the target of their program. Carol also talked about the gains that the children made in relation to feeling ready to be students and how their parents were also encouraged to get them ready for school:

Well their self-esteem [improved]...for sure their self-esteem, for sure, socialization. Because one other thing we did was we had parent days. So we had two parent days where the parents came and we showed THEM what to do. So the parents took home things to do, things we gave them and materials to do with their kids at home... We did [collect] parent feedback at the end [with] a parent questionnaire [and asked] what did they like about [the program]. So, many said, "My daughter/son wants to do work at home now. My daughter or son is more willing to do things at home, like housework those kinds of things. They're more willing to follow the rules." So it was really nice, very nice information to get that back. We felt like it was, on so many levels, a good thing. Their self-esteem for sure [improved] and for the parents. It took away the anxiety of coming to kindergarten. Can you imagine these kids [who previously hadn't participated in the program] going into that classroom and feeling discrepant? They know now, you know, when they look around, they know they're doing things differently. And so, we took tours through the school with our stop signs to practice walking in a line. We just did so many fun things.

Carol also shared her experience of working with students who struggled with certain skills, like handwriting, which are sometimes viewed as minor in the overall landscape of

academics. She discussed how she saw these struggles greatly influence a child's perception of their abilities as a student and how this perception influenced how the children felt about school.

Carol said:

Uh, well, I think, I think from what I see, [based on] my clinical expertise, kids that struggle with writing or those motor skills, if they are struggling, it spills over into their entire life. It spills over to their ability to follow along with the sequence in the classroom...it spills over into their relationships with their friends because their friends are doing something they can't... So I think that when kids have motor difficulties, it spills over every aspect of what they do.

Melanie attended most problem solving meetings at her school and described how she was listening for any behavior, like crying or other emotional changes that might suggest that a child was not fully engaged in the student role or lacked a clear understanding of his or her expectations. Melanie said:

Oh, [I pay attention to the] students who cry all the time because sometimes you know they're crying because something is truly a social-emotional issue. But sometimes they're crying because they're overwhelmed by their environment...They can cry because they're frustrated. They can cry because they don't understand their classroom routines and they are, you know, they're just lost.

Callie equated a team's understanding of the scope of occupational therapy and addressing a child's participation in the student role with the experiences the team members have had with occupational therapists in the past. Callie contrasted the staff's attitudes from two different schools she worked at. Callie talked about how in the course of working at one school she would have to educate the staff in understanding the scope and intention of her practice:

I asked [the staff at school A] to define OT and they said fine motor. And I was like, "Oh God" because this is really like sort of a basic understanding. My other school uses the language of occupation. They'll say, "Well you are here to help them function in their role as student". And I'm like, "I love you guys!" This is so great that they get it.

Finally, Linda talked about a conflict that she experienced with one of her colleagues when she tried to explain that her focus was tied to a child's participation in the role of student

and that “there was more to life than handwriting”. Linda acknowledged the importance of children spending time in their academic subject areas and discussed her hesitation regarding removing students from class that she felt were past the ideal age for handwriting remediation. She described how handwriting intervention was merely a means to supporting a child’s written expression and that direct handwriting intervention was not appropriate for all students:

With the junior high kids, I’m working more on adaptive strategies for written communication. It’s more of the [supervisor] who doesn’t really grasp that you’re not supposed to be working on handwriting skills with junior high kids. You aren’t supposed to be taking them out of their class and just working on handwriting skills. You can’t do that. And I’ve tried to explain that to this supervisor. And she’s sort of looked at me like, “What? Are you being lazy?” [Handwriting instruction] is not helpful [for children in junior high]. The students need to be in math, or reading, or science, or whatever...

The occupational therapists felt that the primary service that they could provide in the school setting, and particularly, in RtI was tied to helping children fully participate in the student role. The occupational therapists explained how they viewed the importance of academics, as well as all of the tasks, or occupations, that they were called to work on with a student (e.g. being able to write letters or numbers, maintaining an organized desk, or being able to open up ketchup packets in the cafeteria) as smaller objectives which were leading to the larger goal of supporting a child to feel competent and successful in his role of student.

2. Identifying the Mismatch between the Child, the Task, and the Environment.

The occupational therapists described how a child’s capacity to carry out their student role expectations was a function of his or her level of fit with a given task or a given environment. They conceptualized difficulties with meeting role expectations, or a student’s performance difficulties, as being a result of a mismatch between his or her personal characteristics and abilities compared to the demands of the task and/or the environment. In some cases, the mismatch was a function of the student not knowing or understanding the

established role expectations or social norms. In other cases, it was a function of the student not having the skills to meet those demands or the environment not facilitating his or her participation. Some of the occupational therapists described this process in general and others provided specific examples.

The occupational therapists talked extensively about making accommodations or modifications to classroom environments and learning activities to reduce the mismatch and support the student's participation. For example, Linda talked about placing an elastic band around the legs of chairs to provide sensory stimulation to children who have difficulty sitting still and placing Velcro under the desks of children who repeatedly play with or throw their pencils. She described how important it was for the child's teacher, an important part of the child's social environment, to be accepting of her recommendation in order for it to be successfully implemented. Linda said:

I like to stick to regular materials, but basically if that's going to interfere with everyone else or their learning, then...I try to keep it as simple as possible with the sensory stuff...seeing what the teacher's reactions are helps me gauge what's appropriate for the child....

Some of the therapists described their process of looking for the mismatch as detective work. This detective work required keen observations of the physical environment (i.e. the physical space, temperature, lighting, environmental noises), the ability to compare students with their peer group, and the ability to perform a detailed task analysis of the learning activities (i.e. breaking down the activity into discrete motor, cognitive, and social behaviors). Amy described the process this way:

I think what we do, I think we might think it is common sense to everybody, but what I'm learning is that it is just common sense to OTs. It might not be common sense to parents or to teachers. I think it goes back to our education and task analysis and looking at environments, and looking at the task, and looking at the person and looking at the best way to going about doing things. It might not be the normal way to do things but it might

be the best way for that particular person. Just being used to making accommodations and just being creative and that we just become, we get used to seeing different ways to do things.

One therapist, Melanie, discussed how the training she received in her occupational therapy Masters' degree program helped her to easily target the mismatch. She mentioned the use of the Person-Environment-Occupation (PEO) frame of reference specifically and how she used PEO to frame her observations of students. Melanie said:

So if it's a fine motor concern, I'll sometimes use that fine motor checklist [developed by my district] but otherwise...I'm really using that clinical reasoning and looking at the student and really doing some analysis...I think because in graduate school we focused on PEO as our larger model, our frame of reference that we worked under—and so I tend to kind of do a PEO look at things when I come in. So, I look at the person. I look at the child, what his abilities are and any differences that I'm seeing in the environment. And then I look at the occupation, what are we asking him to do and how are we asking him to do it? And I look for those mismatches. So that's probably really what's going on in my head when I'm in there.

All of the occupational therapists described how they framed a child's participation at school in terms of the fit the child experienced with his or her environment and a given task. While this frame was common across all ten therapists, only Melanie specifically mentioned PEO as a guiding model.

a. Observations of the Environment

Ellen talked about how important it was that the classroom environment was set up so that it was conducive for a student's learning. She talked about the physical, auditory, and social aspects of the environment. Ellen talked about providing sensory supports for some students as a way to counterbalance or, in some cases, minimize the negative effects of the environment on their learning and participation at school. Ellen shared her concern for students who are in classrooms that are too “busy” for them and how taxing it is for some students to stay engaged. Ellen said:

If a student is not in that “just right” place for learning, not able to take in all of that auditory information, the visual, the tactile information and integrate and provide the correct output... For example, the classroom is a really busy place and a lot of the students have trouble filtering that information. So, if they aren’t able to do that there are wide ranges [in their performance]. Basically for sensory needs, we are trying to figure out for the student how we can provide input and exercises for them throughout the day to help them be a successful student. Without the supports, they aren’t as successful. They don’t feel as good, they aren’t that actively engaged, they aren’t able to pay attention, and listen, and follow directions, and just be happy and do the best job that they can. It’s hard for them. And a lot of times, we talk to parents, and these are the students that when they go home, they just fall apart. They can’t even function at home. They are holding it together at school and they are trying so hard, and then they really fall apart at home.

Ellen went on to provide a concrete example of a time when she was called in by the problem solving team to provide recommendations for a student who had difficulty with handwriting. She describes what she saw in the observation and how she realized that an object in the environment, specifically the student’s desk, was not supporting his performance in handwriting. Later she talked about how important this observation was to her “getting to the root” of this student’s difficulty and that without spending time looking at the environment, she could have missed the information she needed to offer this effective solution. Ellen said:

I have an example of a student who was brought up for handwriting. I went into the classroom, and no joke, the student’s desk was so full that it was inclined and so it was much higher than his body. The student couldn’t even extend his wrist. The desk was like downhill. So, I just talked to the team about the proper position for writing...your wrist has to be up and back in extension so that the student can actually see the lines on the paper. It was a quick fix, It was so much better.

Carol also described how she addressed working with students who have difficulty with handwriting and how she started by systematically observing the environment and whether or not adjustments need to be made to put the student in the most optimal, or ergonomic, position for writing. Carol said:

I certainly look at the physical space. I look at how that seating position impacts [his performance]. If that child’s having difficulty writing or staying in his seat and his feet aren’t touching the floor and he’s not anchored to anything, then he’s going to feel all

loosey-goosey. And so I, you know, I'll often change those things. And so that's what I mean by being a detective too is that, okay so you go one thing at a time. So is the writing difficult? They're not seated properly so square that away. Check it off. If they're still having trouble, is it the paper? Check it off. Is it the pencil? You know, you kind of go through a process of elimination to see, well what is it that's the trouble.

Carol also talked about considering the environment and how her emphasis on the environment is something unique and different she brings to the problem solving team. Carol gave an example of a student engaging in a self-injurious behavior and how she would approach finding the cause of this behavior in a slightly differently way than other school personnel. Carol said:

So, for example, maybe a child who has been biting the back of his hand...I might look at that child and say, why? I know the psychologist would look at precipitating factors too but we might look at, well was he with the TA who had the loud voice? Was he with someone who wore perfume? We might go through that checklist of the senses whereas a teacher might not or a psychologist might look at, well every time he comes in the room he's biting his hand before math but might not look at all those other factors. Like, is the radiator still knocking all the time? You know, is it making a noise that annoys him? Is the temperature different in the room or in that room versus another room? So I think that we always look at...well what other things could be affecting that child and causing those behaviors. And then I think when we put things in place too, we look at it differently. I always feel like how I was trained was to put things in place methodically and see how the behavior changes [after those supports are put in place]. And then I look at whether or not those [negative behaviors] reduced or increased based on what we put in place?

Pat gave an example of time when he worked with the problem solving team to address the concerns of a student who was visually distracted and had a difficult time attending throughout the day. Pat discussed how his observation of the interaction between the student and the environment helped him to understand that the student was focusing on the beautiful classroom artwork and not on the teacher's lesson. He described how he met with some resistance from the teacher when he suggested that they reduce this student's visual distractions. Pat said:

One of my initial suggestions was for the teacher to limit the visual distractions she had in the classroom. And the reason I got resistance is because she was a fabulous artist. I

mean, on her one entire wall of the classroom, she had—it almost looked like a forest, including, you know, a three-dimensional tree that went up with branches out across the ceiling. Gorgeous. But when you have a visually distractible student, there's no chance you're getting him to pay attention to what's happening at the front of the class. So, I said, "You either need to get rid of it or tone it down or teach in front of it." (Laughs) You know, and teaching in front of it was a little hard just because of the layout of the classroom. And I said, "I'll help you move desks after school if you want. But I mean, that's just my suggestion. But you know, if you want to do it, do it. If you don't, you don't." And she didn't.

b. Comparison of the Student to Peers

The occupational therapists described the importance of observing a student in his or her natural learning environment and comparing the student's performance against that of his or her peers. For example, a student with low average reading skills might appear like he has more difficulty with reading if he is placed in a small group with students who are reading a grade level ahead of him. About identifying these students, Ellen said, "Sometimes I go in and pick the child out before the teacher points him out to me." The OTs described how a student's performance, in relation to peers, was influenced by the teacher's instructional style, classroom management system, and general behavioral expectations. For example, a child who might be frequently "in trouble" in one classroom, might be a model student in another classroom. In addition, the occupational therapists indicated that a child's peer group also played a role. Pat said:

It's again one of those common sense things, where to me it makes sense that if the person next to you is also off the wall and bouncing out of your chair, then maybe we shouldn't put those two students together.

Joanne talked about how a student who presented with inappropriate classroom behaviors could appear to be "better" or "worse" depending on the peers that were in his classroom and whether or not they demonstrated similar behaviors to a lesser extent. Joanne said:

I think you definitely have to look at the class...I don't know if that comes a lot from me [bringing it up to the problem solving team], other than acknowledging it. The one little

boy I was just telling you about [who is distracted and has memory issues], he's running out of the room and I'm involved with that problem-solving [team]. He was in a classroom that had a couple of kids with some issues, regular ed. kids, so not special ed. [They were] high energy, maybe new learners. It's a pretty diverse neighborhood and there's a lot of transient movement. Um, they actually moved some kids over to the other first grade classroom... which I was surprised at because it's like three weeks into the school year when they did this. It has made a huge difference...

Theresa framed this difference in performance using terminology that is common in the specific learning disability identification process. She used the term "discrepant" to describe the differences she saw between one student's ability to following the classroom routine in comparison to his peers. Theresa said:

I'm thinking about a second-grade boy... I like to see both independent work and especially group instruction. I think that's really telling about, uh, like when the teacher says "take out your notebook" do they do that or does it take a really long time, do they need a personal invitation to get those little things done. So I like to observe and then I kind of like to look around the classroom and see how discrepant does the student look compared to peers. Like just eye-balling it, is this person out of their seat? Are they creating so much frenzy around them that your eye is always drawn to them?

Theresa went on to describe how comparing students to their peers was particularly important in RtI and that by regularly doing this, she was able to identify an opportunity to provide a Tier 1 support in a classroom. Theresa said:

I can think of an example in a kindergarten classroom when a teacher was struggling with handwriting for specifically two kids. But as I kind of looked around the classroom, it appeared that really a lot of kids had come in from preschool learning to just draw their letters and it really wasn't age-level. This was about halfway through the year, like in January so at that time, I actually did the *Handwriting without Tears* lessons. I kind of worked with [the teacher] on that. For example, [I recommended] just reviewing the very basic book. I think it's the one that is called *My First Printing Book* and I had her do a lesson everyday for the morning kindergarten kids and then every other day I would come in. So, it was twice a week. I would come in and help co-teach the lesson with her and I would always make sure that it was some other media that they were using if they were writing, like with their fingers in the air, drawing on the carpet...really trying to incorporate a lot of multi-modal, multi-sensory ways of making these letters so they could really learn the correct strokes and be able to form the letters. And we did that for four months and truly at the end of those four months, we saw improvements in the two students who were referred but also the whole class made a lot of improvements with just forming their letters correctly and their writing speed improved as well.

Linda described a time when she was asked to come to the problem solving team meeting to review three students with potential OT concerns. Linda described how she compared the students' work samples to one another as the first step in determining which child or children might require further observation. Later she talked about her observations of the boys when she attended their resource RtI group. Linda said:

There were three kiddos that they wanted me to think about. [The first boy], I looked at his writing and I could see that he didn't need OT services. I could tell that if he just went along with the RtI resource strategies, he could just go along with that...with learning the letters and just completing the written portion of that [language arts intervention] and still learn those letters. With [the second boy], he just had trouble. He had fine motor delays. You could just tell by looking at his paper that he needed that...I go into the [resource RtI group] every two weeks. I work with the special education teacher and I actually saw [the first boy] following along pretty well with the handwriting portion [of the language arts lesson]...So, I could also tell that it wasn't a fine motor issue and he didn't need services. If he needed OT, what would he have done? He would have had trouble writing on the line...he would have been more like [the third boy]. We got to the point with [the third boy] that we were needing an evaluation. We were still testing things out. If [the first boy] was more like [the third boy], then I'd say, hey, he needs an eval. When I go in there, [the third boy] is squirming around, he can't sit still, he's looking all over the place. It is a relatively quiet classroom. There are five to six kids and the rest of them are pretty ok, they are just focusing on the written task, but [the third boy] is just all over the place.

c. Detailed Task Analysis of Learning Activity

The occupational therapists talked about how they break down academic tasks into smaller components to determine the required skills that are necessary to complete the task successfully. Callie said, "We are able to look at the task itself and analyze the task. Just break it down and restructure it." For example, some of the therapists discussed how they would analyze all of the components involved in copying an assignment from the chalk board. The therapists talked about how they do this analysis very quickly, in some cases automatically. They described how they use the results of their analysis, essentially a list of task demands, as a checklist for assessing the student's performance with the given task. The gap or mismatch between the task

demands and the student's performance gives them clues about where to start with intervention. Joanne discussed the importance of task analysis. She said, "I keep saying [it helps me to be] functional, but there's probably a better word for it. What does the kid need right now? How can we give them what they need and teach them what they need to do?"

Amy talked about how task analysis is "second nature" to her and how being able to quickly break down tasks helps her to consider creative solutions to support students and reframe concerns that other team members view as "behaviors". She felt that her ability to do this was a result of the practice she had doing task analyses in her preparation program. Amy said:

I think they see behavior problems and I think I can do that task analysis and it's almost second-nature to me to look at tasks from a different angle... Well I think [I can do this because] of those first classes [in OT school] that were, you know... we had to make a greeting card, for example, and then talk about every little minute thing that went into that process. And when you actually break it apart, it's amazing how much you actually have to do in order to do that.

Pat also talked about learning how to do task analysis during his preparation program and how this process helped with finding the next goal to work towards with a student. Pat said:

I think it's um... (Laughs) maybe all the activity analyses we had to do in school, I don't know. (Laughs) No. I think it has to do with the fact that our primary job in no matter what setting we're in is to grade what we're doing, you know, and meet what is it, it's called the "just-right challenge"... So, you know, finding that just-right challenge, the flip side of that is... you know, finding the problem. You know like, what is it? What's the problem? Identifying the problem almost and seeing it for what it is at all angles. Because I mean, we literally, it's drilled into our heads to break every single thing down, you know. And so activity analysis when you first start, you're like, "What? What do you mean 'take a shower?'" You just turn on the water and you just get in." (Laughs) But then when you realize all the steps that are involved when you put muscles and movement and... thought processes and everything, you know, it's more complicated. So then you're breaking down every problem into so many little categories that I think that's why we have that skill, to look at something and just see every way. You know, when other people aren't expected to do that.

The occupational therapists all talked about how they were able to identify the mismatch between the student, the environment, and the task after they had an understanding of how a

given task was broken down. Some of the therapists talked about how they only formally complete task analyses for activities that are new or unfamiliar to them or when they are presented with a student who is particularly challenging. The therapists talked about how the knowledge of a task's breakdown, especially those that they are regularly confronted with, like handwriting, was always in the "back of [their] mind" as they observed a student. Further, they shared that it was this background knowledge that allowed them to quickly identify recommendations to address the mismatch. In some of their examples, the therapists moved quickly from explaining the task to identifying the recommendation in a manner which, seemed to suggest that they were not breaking down the task to identify its component parts. Yet, they were able to provide specific recommendations. For example, Theresa talked about how many of the younger children in her district are referred to occupational therapy by the problem solving team due to difficulties with handwriting. Theresa had a firm understanding of the components that made up the task of handwriting and talked about how, from her perspective, the children in her district had the ability to perform handwriting. She attributed this mismatch to a contextual issue, her district's lack of formal handwriting instruction. Theresa said:

If I had to guess [why so many children with handwriting difficulties get referred to me], truly in my district there is extremely limited instruction in handwriting. Not that handwriting has to be the end-all be-all but the truth is, the kids who start initially just coming into school DRAWING their letters instead of writing them you know, kind of segmenting them and drawing them together to form the letters that RESEMBLE the alphabet...I think that they are so remiss in not teaching handwriting as an actual skill that by the time a student's in second grade, it is very difficult to change the actual LOOK of the writing. That's one part; that they don't really teach actual handwriting, you know like an actual handwriting method like *Zaner-Bloser* or *Handwriting without Tears*.

Marie also provided an example related to handwriting and talked about how a teacher's concern with a student's letter placement clued her in that the mismatch might be related to the underlying visual skills necessary to complete handwriting. Marie said:

A teacher came and said, you know, “This kid is not writing on the lines, the letters are all over the place.” I want to know the kind of paper they’re using and if they’re using a solid lined paper. Then I’ll recommend, “Why don’t you try making the bottom line bold and the top area in a highlighted yellow so only the tall letters and the capital letters go into that area.”...Because I think the kid probably needs some simple visualization. I think a lot of the times the paper has like those different colored lines, I don’t know if you’re familiar with? Like the red on the bottom, the yellow in the middle? I mean, yeah, the yellow in the middle, and the green on top or some variation of that. And I think all those visualizations are great but I think it can get very confusing for a kid who is disorganized or has a problem with it. So I think it’s simply having a bold line so they know that’s where you stop or that’s where you bump. All the letters touch; you know, go down [to the bottom line] and then having a yellow area to visually identify only the tall letters touch that area, go inside of there. I think that gives them a really concrete description of what to do.

Linda talked about a time when she sought out a speech and language pathologist to discuss a student’s mismatch related to handwriting and how together, they were able to identify the problem. Linda found that the complexity of the mismatch was compounded by two factors that she arrived at through task analysis, the student’s difficulties with perceptual motor skills (i.e. not knowing how big to make the letters and where they should start and stop on the line) and receptive language. The initial strategy that was offered by the OT had to do with naming the writing lines so that the student could conceptualize where to start and stop certain letters. Through their discussion about the student’s mismatch, Linda and her colleague were able to agree to habitually use a common vocabulary when cuing the student, thus reducing the task demands requiring him to deconstruct the language that they were using while simultaneously applying it to the writing task. Linda said:

And we talked about a particular student that we both share and how his ability to form letters is affected by his speech skills. He can’t really follow along. He can’t really understand what I’m asking him to do and it’s not just fine motor, its receptive language. So, we talked about using that same language for those [guide] lines and, you know...using it as a routine all the time and speaking that language all the time for him.

Melanie, who is a regular participant in her school’s problem solving team, went on to describe a time when she was called in by the team to help with a boy who was having a “social

issue” in the lunchroom. Melanie described how she was able to identify the task demands associated with eating a messy rib sandwich at a lunch table with peers and then work with the student to address the area of difficulty. She went on to describe the intervention she provided.

Melanie said:

There was this one student in particular who was having social issues at lunch. He was getting into fights with other kids at lunch. And that’s one where I think that if I had just seen it on paper I probably would have been like, “Social worker!” and not gone to that [meeting]... But it turned out [the other kids] didn’t want to sit with him because he eats with his hands and he’s messy and gross. And so they’re saying mean things to him, so he’s pushing them. And so it actually was like a functional skill deficit in the area of self-care. It was a feeding issue and not as much of a social issue. I mean there were social pieces as well because no matter what anybody says to you at lunch, you probably shouldn’t push them. So the social worker was involved as well to work with some of those things and to work with those peers, but then I was involved to assist the student with some lunch guidelines and just a little bit of training on how we eat at school... The student actually had a brother with special needs who ate with his hands and was really messy at home and I think he had a single mom and she only had time for so many things and so many priorities and eating was not one of them. You know like, I mean like they ate but you know manners were not [the priority]. Eating was the priority.... And so I really think that if I hadn’t stepped in on that one and done some of that skill training and some of that just really quick easy intervention... I didn’t see that student for very long, it was really like three weeks and the problem was solved because somebody just needed to tell him and, you know, train him on those expectations and he was good to go. But I think if I hadn’t been there and I hadn’t done that, the social worker probably would have pulled him out. She would have talked about hitting and keeping your hands to yourself and a space bubble. And I don’t think it would have solved the problem.

The occupational therapists all shared examples of how they framed the factors that worked in concert to afford a child with the opportunity to successfully meet the role expectations associated with being a student. The occupational therapists talked about how they attributed a student’s difficulties with meeting role expectations to an existing ill-fit or mismatch between the student’s personal characteristics and abilities compared to the demands of the task and/or the environment. The occupational therapists also discussed why looking at the child, the environment, and the tasks, was not enough to truly maintain a “client-centered perspective”.

3. Matching the Recommendation to the Teacher

The occupational therapists talked about how an important piece of identifying the best recommendation for a student was in understanding the teacher's perspective about that recommendation. The therapists talked about how the teacher's capacity to implement the recommendation was instrumental in understanding whether or not it would be successfully implemented. The OTs talked about capacity in terms of the teacher's skills, their understanding of the purpose of the recommendation and the support they had to implement it.

Ellen talked about the benefits of working with teachers to make changes to their classrooms and how these changes could potentially benefit all of the students. She also talked about how many of the teachers are "bogged down" with teaching academics and do not always have the time to "be proactive". Ellen said:

...Because if we work with the teacher, it would not only benefit those students, but it would help everyone and throughout the whole day. So we are trying to put it into the teachers' hands and build it throughout the day in the district. The teachers are recognizing the need for [the recommendations], the majority of them. But, they don't always understand the proactive aspect, like building it in before they see a need. Many teachers are more reactive than proactive about it. It depends on the climate of the school and it just depends. Some are really good... You know they are all bogged down with reading and math and trying to get these foundational things down that they need support with technology and knowing positioning and accommodations.

Ellen also talked about how she made different recommendations based on certain teachers. Ellen talked about a time when she made some recommendations to a new teacher who was working on establishing her classroom management style. Ellen said:

My recommendations can be completely different depending on the teachers. I know some teachers already understand sensory diets or the Alert Program. They completely get it. They talk like an OT. They understand it. Other teachers I have to give them a visual...keep it very basic. Try these 2 or 3 things and then let me know...Just take it slow. And then I have some second graders right now who are a squirrely group of kids and they need a sensory diet and they have a new teacher who literally bursts into tears

whenever we, the SPED team, meets with her and I try to give her the Drive Thru Menu [a tool from the Alert Program]... Like one of the sheets that has 12 different exercises to try with her kids and she was like, “I don’t know if I can do this, this is going to send my kids over the edge”. Some of the exercises are actually pretty silly. Because she is a new teacher I think she is still trying to get her classroom management down and this is scary. We talked about her just going back to the drawing board and, you know you just need to give the TA in the room some activities to do with the students where she just pulls them out. It seems to be working better. It just depends on the teacher, the situation, the group. At another school I could give a teacher all 4 Drive Thru Menu posters...It just depends.

Melanie also told a story about a teacher who was struggling with a classroom management challenge. Melanie talks about how a teacher was hesitant to take on the team’s recommendation because the student was “testing [her] confidence”. Melanie said:

We have a student that came up this year and it’s a student who is demonstrating a lot of behavioral issues; so, a lot of shutdown behaviors and he’s a new student to our district, so he’s coming from another state. We don’t have a lot of background on him but his mom said that he did have extra help at his last school but he didn’t come in with an IEP. So we’re thinking maybe he was in their problem-solving or their RTI system but he’s really, I think TESTING his teacher’s confidence a lot and she’s coming into these meetings and she’s ranging from being sad and despondent because she can’t help this kid to angry and defensive when we’re bringing up strategies. Like, we were talking about giving him choices that are irrelevant to the task at-hand. Like, “We have to do math. Do you want to use your blue pencil or your red pencil?” Just giving him the opportunity to make a choice and not choose whether or not to do his math. And she really felt very upset and was like, “It is not about pencils!” And I was like, “No. It’s not about pencils.” You know, we really had to, I think, address HER issues you know, and kind of calm this teacher down and really develop some rapport with her before we could address...you know before we could take it to the point where we were assisting the student.

Amy shared some insights into why teachers may feel overwhelmed when OTs, or other problem solving team members, suggest recommendations that may be time consuming or logistically difficult to execute. Amy said:

Because I’ve never been a classroom teacher and so I KNOW that some of the ideas that I think might work as a strategy are just not feasible. In MY mind it is but in the reality of the classroom where you have, you know, thirty students, you just can’t put some of those strategies into place or you can’t carry out some of the things that might be optimally the best idea for a student. Some classroom teachers just can’t...they can’t carry those out. And so I have to be very aware of stepping on toes and making sure that I, you know, make recommendations that I think that they’ll actually buy into.

Theresa suggested that the teacher's level of experience influenced his or her willingness to implement recommendations. She talked about how one of the ways to get teachers to "buy in" is to explain to them why one is making a certain recommendation. Theresa said:

Then as far as the years of experience of the teacher, if you have a brand new teacher who doesn't have experience with special needs students, your interventions might be... I mean you know what the child needs but you might have to work a little more to explain to the teacher what it is you're looking for... what it is you're hoping to DO with the student, like the changes that you're hoping will occur and then maybe help that teacher with the intervention more than you might expect with a very experienced teacher.

Linda also felt like the level of experience that a teacher has in the classroom and working with different types of learners influences whether or not they will implement her recommendation. Linda said:

I'm trying to implement *Handwriting without Tears* [handwriting program] kind of strategies within their [school] kind of structure because it's very structured and I'm new to the school so I don't want to, like, force myself on them. That's kind of what I'm doing and I feel like the Special Education teacher whose implementing it, she seems like a more experienced teacher. So she's very open to my suggestions.

Marie talked about gauging a teacher's capacity to implement recommendations by introducing general recommendations first and then increasing their level of specificity once she knows that the teacher is going to "follow through". Marie said:

I probably make general recommendations first if I can see a teacher's not going to follow through with [my recommendations] or doesn't agree with them. If they can, or try to, then, you know, I try to zero in on some other skills. But I try to do the evidence-based work [of seeing if the teacher will implement the general strategies] before [I recommend more specific strategies] and try to see if that works first. It doesn't always work, but I try it.

Joanne talked about a time when she was frustrated that a teacher would not follow through with her recommendations. She talked about how she tried to get the teacher to see her view of the recommendation by bringing in the theory behind her decision. Joanne said:

I have a kindergarten teacher who is very rigid and she frustrates me to no end because she just is not very flexible if she tries anything, it's for a very limited time and then it

doesn't work. Like, okay, whatever. You know you just try to be sympathetic, "I know you're really busy and this isn't, may not be the best way, but maybe we could try it for a little while. Maybe you have other ideas..." I think the bottom-line that I've found...is that if you explain the theory and not so much the ACT. "I'm trying to get him to calm down. I'm thinking this might be a way to do it. Generally, if you keep things in a routine, or you, you know, that would do it. Maybe you have other ideas for that..." And then that's how sometimes the teachers go, "Oh, I get it. Okay, how about if we try it this way." Because she's the one in the classroom...It's her system. [Then I say], "Oh, that would be great. That's a way better idea than I had!" So I think if you can try to talk about the theory, the GENERAL theory...

Joanne went on to talk about how she tries to be sympathetic to how busy the teachers are and how they are ultimately responsible for the classroom and that she, as the related service provider, is a guest in the teacher's classroom and has to fit in to the norms established by that teacher. She also talked about how difficult it is for teachers to be responsible for the learning of students ranging from those who are gifted to those with special needs. Joanne said:

And then if you throw the ownership on the teacher to come up with the solution, because again it's HER classroom, HER protocol, HER curriculum, so she's got to help come up with the way to figure it out in HER setting in a sense. But you can't dump it on her either because she's got a ton to do. I mean, these teachers are SO incredibly busy, oh my God. They've got so much on their plate. I can't imagine...Oh, and it's SO much getting more. You know, and then they have to think of these kids with special needs but then they've got to think about their gifted, and then they've got to think of the range of kids in between. Some [teachers] are struggling. So they have a huge amount on their plate...I just feel bad for them...

Callie also talked about how difficult it is for teachers to meet the needs of all of their students without the support of paraprofessionals or other classroom assistants. Callie shared an example about working with a kindergarten teacher in her building that did not have extra classroom support, but was willing to go along with Callie's plan anyway. She said:

This teacher doesn't have any special education kids in her classroom, so in our district this means that she has no paraprofessionals. So how can I provide her with support besides providing her with a generic list [of suggestions]? I don't mean to say that a list is bad, but how can I provide her with the support that is going to meet the needs of this kid and is backed up by data. So, I talked to her about my thought process, "Well, I know you don't have a [paraprofessional] here, but what could we do if you did... Well, if you did, I could create a binder with data sheets and a schedule to do things to work on these issues

every day. I could create a box of activities that would help and then I could come and look at the data every week or two weeks. But are you able to do this and she was like, “I’ll do anything”. So, perfect. She’s going to do it...

The occupational therapists talked about how an important piece of identifying the most appropriate recommendation for a student was in understanding the teacher’s perspective about that recommendation. The OTs talked about capacity in terms of the teacher’s skills, their understanding of the purpose of the recommendation as well as the support they had to implement it. The therapists used what they assumed to be the teacher’s willingness to adopt a recommendation along with what they identified as the mismatch between the child, the task, and the environment to select the “best” strategies to support the students who were referred to them by the problem solving teams.

4. Maintaining a Holistic View of the Student

The occupational therapists talked in general about how people from their profession look at their clients holistically. Some therapists acknowledged that in the school setting, they were not the only professionals who held this view. However, time and again the therapists used the term “holistic” or the phrase “the whole child” to talk about the unique perspective that they believed they brought to the problem solving team. For some, that meant helping the team to consider additional reasons to explain a child’s academic or behavioral difficulties and manage participation in the student role, for other’s like Amy, it meant trying to understand the student’s unique perspective. Amy said:

I always try to take the perspective of the student, because you know we need to consider what is important to them and where they are coming from. Like do they even know that there is a problem or something and that we are trying to address it...I ask for their feedback and try to find out what is important to them. It goes back to being holistic in my approach and being client- centered in my work. If I don’t pay attention to what is important to the client, the teacher, the student, the parent, the other teachers, then it won’t work. Client-centered goes to the heart of what OT is all about. It is looking at the person first and thinking about how do I fit into this picture? How do I

help this person improve their participation in whatever occupation they want to do or role they want to become?

Melanie talked about how her holistic view helped the team to see connections between different facets of the child's life, as well as how performance strengths or challenges in one area influenced performance in another area. Melanie said:

OTs tend to bring a perspective that um is more holistic overall. I think that, well, sometimes the other specialists on the team will focus... like our PTs are focusing a lot on mobility and strength and they're only seeing that one piece. And our social worker is seeing those social-emotional factors and she's seeing that one piece. But I think the OTs tend to tie all of those pieces together. They might see how that social-emotional factors relates to the student's performance in P.E. or his ability to navigate the school and kind of see those CONNECTIONS where because we do tend to overlap in a lot of those areas with our social workers, with our psychologists, our speech therapists and our PTs and so I think sometimes we can see the connections in those areas that other team members don't see. So I think that's helpful.

Amy talked about how she feels like this unique perspective helps her to see things "that other people don't see" or that they might miss because they are focused on one facet of the student. She discussed how these singular facets are usually based on what the team's perception is of that person's professional domain. For example, the school psychologist looks at time on task, the physical therapists looks at how many feet a child can walk, and a speech and language pathologist looks at phonological awareness. In this way, the occupational therapist is assigned "handwriting" or "sensory issues". Amy talked about how even when she is called in by a team to address issues that are in her "domain", based on their perspective, she stills maintains a more global view and focuses on the child in the student role and what is influencing his participation at school and performance with academic task. Amy feels that her observations help the team stay tied to the "big picture". She said:

I always go in to observe a student. I'm looking at that overarching role of student. If there are concerns from a teacher or another staff member about that student, then I just try to step back and look at what is it impacting that student. So, I'm looking at all of those different areas to look at the barriers to participation. I would take it back to the

[OT Practice] framework and show if there is any domain or any process that is impacting the student's performance, be it functional performance, or academic performance, or social performance. Any aspect of them being a student...so, it isn't just can they get A's. It is any aspect of them being in school and you know, do they have friends, get from class to class on time, are they organized and prepared. Every aspect of being a student. You know the psychologist does these time-on-task observations and you know all they do is take their tallies of whether or not the child is on task during their 15 minute observation compared to other peers. I think that my 15 minute observation gains a lot more information that we can actually work with, I can help understand why there's that time on task or at least I can hypothesize why and then go from there to help come up with strategies to help improve their time on task. We see things that other people don't see. There are nuances about performance that other people might miss. The way we interpret performance comes from a different point of view or mind set.

While Amy cited the *Occupational Therapy Practice Framework*, Melanie talked about other reasons why OTs bring this holistic perspective. Melanie said:

You know, I mean we have specific training and knowledge in all of those areas. I mean OTs are educated in, you know, anatomy and physiology AS WELL AS you know, psychology and some of the sociology. Like all of that is really touched on I feel like, or at least it was for me in my undergrad and in my graduate education and so I have that more diverse knowledge base just coming in right out of the gate. Whereas, you know our PTs, you know are really focused in their education and are really experts in those things but my—like my PT colleagues have NOT taken psychology class...I mean, I'm sure some have. I'm sure many have, but I don't think it's always a requirement in the way it is for OTs to take that broad range of coursework so I think that really was beneficial and...I don't know, like I just feel like I had classes in like everything from like Chemistry to cultural awareness and it just spanned the whole gamut.

Melanie went on to talk in greater detail about her preparation program and how she was influenced by faculty members from disciplines outside of occupational therapy, as well as how she took some coursework that was focused on seeing the big picture and understanding the “client's perspective”. Melanie said:

I mean just on our faculty we had sociologists, we had neuroanatomists, we had psychologists. We kind of had a little bit of everybody. Not everybody on the faculty team was an OT, which I think was helpful for us in understanding the perspectives of a lot of different professions and then they all brought their own sort of perspective to things. You know they brought their own information, their own backgrounds, and their own priorities. And we got to learn from everybody which I thought was really helpful. At the time, I didn't realize it was helpful. I was kind of like, “Shouldn't our entire

faculty be OTs?” But then once I got out into the world I realized I NEVER work with OTs. I ONLY work with people of other professions so it’s really helpful to have had experience, you know, working with sociologists and working with psychologists and anatomists and, you know, people who have all sorts of diverse backgrounds so ...and then my graduate school did have—I mean they had specific coursework on evidence-based practice. We had a whole evidence-based practice course which I think was helpful. And we had—I can’t remember what course it was... We had one that was all about client perspectives and cultural awareness and socioeconomic issues and all of those things that our clients are coming in with like at baseline when you meet somebody... that they have all of these things about them and that you have to be sensitive to all of those things. So, sort of a therapeutic use of self. I think that’s been really helpful. At the time, I was kind of like, ‘Why? Why am I here cooking Japanese food in graduate school? I’m not really sure how this is going to make me a better OT.’ But it really did! It really was helpful in the long-run.

Carol and Pat both talked about a disposition in some occupational therapists that makes them better able to see the “big picture” and approach children holistically. Pat called it a “gift” and talked about how he could easily identify this “gift” in the pre-service occupational therapists that he prepared during fieldwork for whom looking at things holistically “came naturally”. Carol also thought that skilled occupational therapists that were able to maintain a holistic view were “gifted” and acknowledged that this perspective is hard to teach some individuals. Carol said:

So we look at so many more things than a teacher might. And I think that’s the perfect, that’s the beauty of the OT is that we are trained so holistically. We look at that child so holistically that THAT’S our unique expertise and I hope we never lose that. And I do think though that there are therapists of varying levels. There are some therapists that are just gifted at that and then there’s some who just struggle because it just doesn’t...it’s not innate to their practice. You know, sometimes I think it’s related to their creativity and their level of resourcefulness and their problem-solving ability and if they can do those things spontaneously... I think you just think on a different plane and it’s...It’s just how you’re made. I think that people try to get those skills but they don’t... they’re just not attainable sometimes. They are to a degree, but some are just gifted and I just think that’s how we’re made and I do think though that’s what drew us to this profession. I think that that many, many therapists just gravitate to it because they see that’s a skill that they have. I know that’s what drew me.

The occupational therapists shared how teams viewed students who were brought up for problem solving in a fractured manner; the teams often discussed a student’s concerns as if each

issue existed in a silo and that these issues were not influenced by other factors that were both intrinsic and extrinsic to the child. A child's struggle to assimilate to a learning environment and be actively engaged in an instructional activity because he had never had a formal school experience was, according to the occupational therapists' perspective, reduced to "his problem with sitting in his seat". The occupational therapists shared how they were frequently called in by the team to "fix" a student. Theresa described how a problem solving team at school where she worked less frequently would call her in to address OT issues. Theresa said:

I did not feel that I had a strong rapport with the team and they just wanted...they would actually say that they just wanted me to fix him. "You've got to fix him. It's an OT thing. You've got to fix him."

Marie talked about how she usually does not get an opportunity to go to the problem solving meetings and how, as a result, many teachers stop her in the hall to see if she can provide them with a strategy or a recommendation "on the spot" for a student whom she has never observed. Marie expressed frustration with not being able to observe the child in his or her classroom environment and preferred to at least have some information about the strategies that were used with the student previously, in order to form a rudimentary clinical understanding of the situation. Marie said:

I usually don't go to the problem-solving meetings. It's usually interaction with the teacher or with the resource teacher or with the learning coordinator...So, a teacher might come up to me in the hall and say, "Hey I have this kid" or I might get a referral, you know, like a referral slip. "This is an RtI kid. Can you take a look?"... "Could you give some recommendations to the teacher?"

Joanne talked about how sometimes "fixing" was not only desirable from the team's standpoint, but also a comfortable way for the occupational therapist to approach a student's concern. Joanne talked about how occupational therapists should not be resigned to the "fixing" mentality and brought up using theory as one way to try to move beyond it. She said:

You know I think coming from the medical model that we do, I know as I said before, like we want to fix things. We want to come in with a sure-fire strategy. So I think we go in there with a lot of strategies and maybe we should step back and think about the theory and then, as a team, come up with the strategy.

Joanne also talked about how she perceived occupational therapists helping problem solving teams to maintain a big picture or holistic view of the student. Joanne said, “I think OTs really do look at all facets of the child. Um, you know: What have they eaten? What’s going on in their life?” Joanne’s sentiments were echoed by other occupational therapists that participated in this study.

The occupational therapists shared how they strived to maintain a holistic view of the children and to share this view with the problem solving team. They talked about how teams often discussed students’ concerns as if they existed in isolation and could be addressed without considering that the concern, and the student himself, were part of a larger system. The occupational therapists shared why they think they bring a unique and holistic view to the team and how because of their training, they are able to do so.

5. Tacit Use of Theory

The occupational therapists talked about how OT theories, or conceptual models, influenced their decision making. Seven of the OTs easily called practice models to mind and most were able to describe how they influenced their decisions. Two therapists circumvented the use of theory. In these cases, even after being asked directly if they used theory, the OTs explained how they prioritized other factors when making their decisions. One of the therapists, Theresa, initially “talked around theory”, but then described a particular OT frame of reference. Another therapist, Carol, did not name any particular OT theories, frames of reference, or conceptual models, and spoke in general terms about how OT theories are “just part of her”. Therapists also used words to suggest that they value the explicit use of theory differently. For

example, Callie was a strong advocate for using OT conceptual models in school-based practice.

Callie said:

I see it just like regular practice, you know? Best practice OT. You have to have a firm handle on theory, which forms a framework for what we observe and the decisions that we make. Some of what we do [like working on certain skills or using certain strategies], I feel, are shared by other disciplines. I think the unique thing that OT does is, because we are trained from so many different perspectives, like psychology, biology, social sciences, and all of these different frameworks... So, what we bring to the team is to sort of look at the big picture. Look at things from the level of participation. So, it's not just like we give this test and it equals this thing. No, I mean occupation is way more complicated than that. So our ability to sort of use all of our training to see how a student is participating in their overall context is a huge thing that we do.

Amy and Ellen both talked about using the model of human occupation, or MOHO (Kielhofner, 2004; 2009), and how they combined this model with others to guide their practice.

Amy said:

I'm a MOHO girl at heart. So I'm constantly thinking about performance capacity and all of that kind of stuff. I think I also look so much at sensory integration because I see so many students affected by difficulties in that area. Always at the back of mind I'm looking at motor control theory and just my background in biomechanics and how students are performing certain things.

Ellen said:

Being a grad [from a certain OT program], MOHO is ingrained in my brain as the umbrella model and how I think as an OT. Also, dependent on the student, I might also use some of the concepts related to sensory integration. Those are probably the two main models.

Linda talked about how she uses sensory integration (SI) because she feels that it helps her see her students more holistically. She also talked about how using assessment tools that are based on theory help her to connect theoretical concepts to practice. Linda said:

Using SI kind of helps me to be more holistic because you are dealing with auditory, vision, tactile and kinds of movement and how it affects everything...behavior, cognition, and attention. I think bringing that in helps us be more holistic. We are looking at all of these different aspects and how they affect everything, including handwriting. It can affect every aspect at school. The big thing about sensory is that it affects attention and attention affects everything at school. That's kind of why you are forced to look

holistically, because it is affecting everything. As far as assessment tools, I have used the *Sensory Profile [School Companion]*, I have used the *Sensory Processing Measure* and I think they are great because they measure by looking at the teacher's view. That brings in the holistic view because it brings the teacher's view and it is most of the day...I wouldn't necessarily go into [traditional SI theory], because it is more clinic-based and we can't necessarily use clinic-based [models] in the schools. I'm always very cautious whenever anyone mentions anything clinic-based in the schools.

Linda also talked about how she sometimes incorporates other conceptual models depending on the needs of the student. In addition, Linda commented on how she does not always think so explicitly about theory and that participating in this interview reminded her of being asked questions in graduate school. She shared how she felt more confident talking about theory in that context:

I somewhat use MOHO, because you need to know what is motivating to the kid, what's fun for the kid. Biomechanical models...what is actually going to produce the right fine motor skill that he needs to produce written communication...SI because he has to be able to use the right sensory skills in order to create that written communication, wow...I'm going back to grad school... I like having OT students and going back to that. I think I could be more articulate [about theory] when I was a student. I think it helps to talk about this and practice these things. I like knowing the foundation and where does this all come from and remembering and then being like, yeah, this makes more sense. I don't know if I think about this stuff on a daily basis.

Pat discussed how thinking about theory reminded him of being in OT school and the advice he gives to OT students who he is supervising on fieldwork when they raise questions about theory. Pat talked about how theory is in the background of his work and how he feels that he integrates when he is working with students, even if he is not "thinking about it". Pat said:

I don't know if I knowingly use theory. I think if I look back on what I've decided to do with students in the past, I know that I definitely mean to. I mean personally, I think for me personally, that I'm very sensory-based and even for students who don't have sensory NEEDS, I just know that the sensory approach is really beneficial... We both know that OTs, that we're always looking for evidence and that there's not always a lot out there on that... but just knowing that the sensory model is something that I often go to because it is almost instinctive to me. It's what I understand the most. ...and then, you know, I guess, if I were to pick one... I don't know that I've actually thought that I was doing this, but I'd say MOHO because to me that's probably the biggest model that looks at the big picture. I look at what does my student need to do that he is not able to do right now

or what does he WANT to do that he's not able to do right now. And so I guess that's really the model of human occupation. I guess. When I have OT students for example, a lot of time, that's what they're supposed to do. They're supposed to list out the models they've used and I tell them, you know, "As a clinician, you're never going to have to say, you know, I'm doing the biomechanical model here"...unless you're on an interview like this. (Laughs) So, not to say don't worry about it, but I remember really focusing on this stuff at school...you just need to know what they are and where they are and to go back and get them if you needed to. But I've really just integrated the models, so to speak, into understanding my students.

Joanne, who is currently pursuing a doctorate in occupational therapy, talked about how she is not very confident in using sensory integration theory, even though she has a vast amount of experience and training. She recognizes that she encounters situations where teams expect her to do so on a regular basis:

Well, I always...I guess I sort of start with the visual motor piece first because that seems like I can at least watch what they're doing, I can watch their assignments, I can pull them out and ask them to do simple things... As far as the sensory piece, it's not my favorite. Because it seems like it's a catch-all. And I don't know if, even after all these years of experience, I don't know if I am that confident in my skills as a sensory-based therapist. I mean I've been to tons of theory classes and a lot of other classes on it, but I don't know. Sometimes I don't see it. Sometimes I'm like, "Well I'm not sure if this is [just a negative] behavior. Maybe it's sensory, maybe." I almost see that most of the kids, they just are frustrated with school. They either don't know what to do or maybe the environment is too overwhelming for them for whatever reason, if it's the sensory reason or the demands are too high... they're just DONE with it. So they need a break. They don't always need a "sensory break"...

When Theresa was asked if she used theory to guide her decision making, she talked first about how she uses the knowledge that she has gained by working with other students to make many of her decisions. She also described the person-environment-occupation (PEO) frame of reference, but did not label it as such:

I think that I'm someone who does use a lot of accommodations listed in 504 plans and IEP plans previously used. I think I used a lot of knowledge of previous students and use that for students who are just being referred...Just really going by the needs that are identified after observing the student and reviewing their work. I think we use [theory] without really thinking through it. The framework that I most often look at, I don't know, maybe you have a label for it, is the student, their physical skills, their cognitive skills,

and the environment, and then the activity as well. That's what I'm ALWAYS thinking of.

Carol talked about how her knowledge regarding how to address specific concerns that a student might present with is in the foreground of her thinking and that she does not have to think about theory. Carol said:

I think that for me, personally, so much of it is that my repertoire is big because I've done this so long. I make those decisions based on what I know about visual processing, coordination, handedness or balance. All of those things come into play automatically with how I modify materials or adapt things with the kids. I have all of those things in my head already and I don't have to think about [theory] because [those strategies] are in my head and I can just quickly pull that out.

Finally, Melanie discussed how she uses theory in her practice and provided an explanation of why occupational therapists may not be comfortable talking about using OT theories. She said:

I think that theory is important. I think that a lot of OTs will tell you that they don't use theory or that they use an eclectic theory. They don't really want to get too into it because it can be cumbersome to talk about. But I think that in practice, we all really use it. For me it's important because it helps me structure my observations. So I know that I'm looking for those person and environment and occupation factors and that sort of structures my thinking, what I'm looking for and it also helps to clarify the interventions that I'm recommending. So, I think if I weren't using a particular theory, I would be more muddled in the way I'm thinking and less direct, and less, sort of, logical or sequential in my interventions.

The occupational therapists talked about how OT theories, or conceptual models, influenced their decision making. All of the OTs acknowledged OT theory, but some were more easily able to call specific practice models to mind and describe how they influenced their decisions. Others appeared less comfortable talking about theory or described how theory remained only in the background of their thinking.

The occupational therapists who participated in this study talked about how they made clinical decisions in RtI. They described looking at the concerns raised by the problem solving

teams first in terms of understanding who the student was and how he or she functioned in the student role. The therapists also discussed how they viewed specific performance problems as a mismatch, or an ill fit, between the child, the task, and the environment. The OTs discussed how they helped school teams to see the “big picture” and maintain a holistic view of the students. Finally, the OTs described how OT theories influenced their decision making in RtI. In addition to examining how occupational therapists make clinical decision in RtI, this study aimed to address two additional questions: 1) what are the boundaries associated with the contributions of occupational therapists in RtI and 2) what are the barriers to the participation of OTs in RtI.

6. Boundaries Associated with the Contributions of Occupational Therapists in RtI

The occupational therapists also talked about the boundaries associated with their contributions in RtI. Some of the therapists described “lines drawn in the sand” that indicated where one personnel member’s turf ended and another one’s began. These lines or boundaries, in some cases, had come to exist because the school team had come to expect a certain set of services from their occupational therapist. These views were often based on the practice habits of the previous occupational therapist and they were difficult to change. For example, Callie talked about moving to a new building that had previously been serviced by another occupational therapist who did not share her views on doing integrated (i.e. in the classroom versus pulled out to another location) therapy. Callie said:

When I started at a new school where the OT before did a lot of pull out, it was a huge culture change for them [when I started integrating my services into the classroom]. Before it was like you pull kids out and you ‘fix’ them. Now it’s like we work with the team and both of us, me and the teacher, have mutual accountability for this outcome. I’m coming in with a different model and there isn’t an understanding of why I’m not just fixing the child.

The occupational therapists also talked about where they felt that their domain ended and the teacher’s domain began. Some of the therapists acknowledged that by the nature of looking at

participation in occupations that their services sometimes intersected with other professionals. The broad nature of occupations and the array of possible causes for the mismatches between the student, the environment, and the task often caused the therapists to step back and allow other professionals to take the lead in addressing a concern. The therapists felt strongly that academic skills, for example those specific with learning how to read or do math, were out of their realm. Social emotional skill development and organization habits were two areas where the occupational therapists felt like there was a great deal of overlap. They acknowledged the expertise and training that other professionals brought to addressing these issues and felt comfortable stepping back as long as these things were being addressed by someone on the team. The culture of the school and an individual provider's preferences often influenced who claimed certain territory. For example, Melanie talked about the overlap between her service and those that were provided by other professionals in her school. She said:

Reading fluency issues or math computation issues, they are beyond my scope as an OT. I tend to stay in the motor and functional performance issues and also some things like visual perceptual skills, functional performance skills, navigating the school, exchanges with other students, all of those sorts of things fall into the scope of where I think if fit in with problem solving. We overlap most in the area of organization. The teachers cover the academic skills and if it is a really skilled teacher, the teacher can address [organization skills] or attempt to handle those situations on their own before there is a need to call the related service members in. OTs overlap with both social workers and speech therapists for social skills. And since I've worked in other schools, [who works on social skills] kind of depends on the lines that are drawn at that school. In some schools I have more of a role in social participation, but in others I have less.

The therapists discussed how in some schools, they had the opportunity to carve out the practice that they wanted to have. For example, Melanie was invited to be a regular part of her school's problem solving team and was autonomous in deciding which meetings to attend. She regularly reviewed the pre-meeting paperwork and talked to teachers to get a sense of whether or not a student had "OT concerns" from her perspective.

In another case, Linda collaborated with a resource teacher to support a group of “at-risk” students who struggled with reading and written expression. Carol and her colleague developed and implemented a summer preparatory program for students from one school district who were entering kindergarten. Joanne set up sensory-based activity stations in the hall at one of her schools so that the students could take supervised movement breaks with their teachers.

In addition, many of the therapists talked about attending grade level meetings and whole school faculty meetings to do trainings and workshops related to concerns that are frequent causes for referrals to OTs through the problem solving team or through special education. Ellen described some of the professional development meetings that she had planned for the teachers at her school:

[My plan is to] educate the teachers and give them testimonials and anecdotal information. So, some of them are already doing this stuff so I’m going to have the teachers who are already doing some of these [strategies] talk about how it is working, how it is helping out. They’ll hear it better coming from another teacher and then I’m also going to talk about why you would even [use those strategies]. For example, with slant boards, I went into a building explaining positioning and ergonomics. So, the teachers didn’t even understand why we were recommending them for some students, but then when I had them look at what happens to your fingers when you position your wrist right and it brings your fingers up, they were like ‘oh’. So I think it is showing them and then also bringing in those other teachers who can help you make your case.

The therapists discussed the types of concerns that teams had about particular students when they referred to them to occupational therapy. The therapists all talked about students with certain profiles. The occupational therapists called these students “the sensory kids”, “the kids who chew on everything”, “the kids who are always moving and in trouble”, and “the kids with messy handwriting and messy everything else”. Issues related to sloppy or illegible handwriting, frequent out of seat behaviors, and difficulty attending to a lesson were some of the concerns that were named by the therapists. All of the occupational therapists indicated that they received referrals from the problem solving team for two reasons: 1) children who had inattentive or

hyperactivity issues and 2) children who demonstrated poor handwriting. More than half of the occupational therapists said that students got brought up to them by the problem solving team due to “sensory issues”. Pat described children with sensory issues like this:

You know, the kids that have their shirts in their mouths or, you know, they’re bouncing their legs or they just kind of get up or the kids...someone bumps into them and they are, you know, [they have] this crazy emotional reaction to that. So, the big sensory red flags. That’s most often what I’m called in for honestly, is the sensory stuff.

Table 4 includes a list of the student concerns that were brought up to the occupational therapists by the problem solving team.

Table 4

Types of Student Concerns Referred to Therapists

Therapist	Type of Referral Concern								
	Inattentive or Hyperactive	Limited work completion with poor organization	Poor handwriting	Global delays	Sensory issues	Poor fine motor	Poor self- care or adaptive skills	Poor visual perceptual skills	Social emotional issues
Theresa	X	X	X	X					
Joanne	X		X		X	X			
Melanie	X		X		X	X	X	X	X
Amy	X	X	X						
Pat	X		X		X				
Carol	X		X			X		X	
Linda	X		X		X	X			
Marie	X		X		X	X	X		
Ellen	X	X	X		X	X	X	X	
Callie	X	X	X		X				

The therapists also talked about how they were pushing the boundaries of their practice as it related to what was viewed as “traditional occupational therapy” in the hopes of expanding their role in RtI and their schools. In some cases this meant volunteering and getting involved with special committees or initiatives. In other cases it meant collaborating with a social worker to lead a social skills group or talking to the team frankly about how occupational therapists address social emotional concerns in a way that complements what is traditionally done by other professionals at school. Still, in other cases, the occupational therapists took the initiative to delve into uncharted territories. For example, Amy talked about being part of her school’s curriculum night and sharing information related to the American Occupational Therapy

Association’s *Back Pack Awareness Campaign* among other resources:

This year I expanded it to a bunch of different strategies that I could give to parents. So, for all three grade-level curriculum nights, I had information available on backpacks, bike safety and helmets, a lot of the AOTA Fact Sheets about, you know OT tips for homework and school success. I passed those out. And then health...physical health, you know, in terms of exercise recommendations and knowing your own physical activity. [I passed out] information about MyPlate.gov instead of the food pyramid. So, at the top of my little display board, I think the title was, ‘Strategies to help your child’s physical and mental health’ or something like that. I think, you know, just by me trying to help the parents understand that, you know, I always made sure to say like, ‘Oh, I’m the occupational therapist. These are, you know, just strategies or links to websites. Feel free to use them, if you find them helpful.’ I think just getting that information out there to the parents too was a form of RtI.

Amy also talked about why being involved in the curriculum nights and sharing information about “physical and mental health” was important to her as an occupational therapist. Amy said:

I wanted to make sure that (sighs) I did something about physical health in general because more and more I’m hearing about students playing video games all day after school, you know, for three hours a day. And, a goal for the future that I want to do is set-up a club of some sort after school to help promote physical activity instead of just sitting in front of TV all day. I actually was talking with the school nurse about this at the

beginning of the school year because you know, when I'm looking at my role in the problem-solving process, that's the one area I think is... not being addressed through problem-solving right now. We're doing a really good job of addressing academic needs. We're doing a really good job of addressing mental health needs and behavioral issues, but we don't really have a lot in place for, for physical health and, you know, I mean it's quite obvious, you know when you're looking in the hallways and you can see these kids need to get more physical activity. And, that you just hear that they're NOT doing it after school. You know, the kids that participate in school sports, that's a small majority of the kids and then just when you're hearing what these kids are doing after school every day, it...that's something that we need to target moving forward....It's going to take a lot of effort and (laughs) um, a lot of red tape administrative-wise to work through all of that but, that's what I want to focus on, moving forward.

Linda talked about how therapists from her cooperative developed RtI kits to be passed out to different schools or classrooms. She described what was in the kits, as well as how she might talk about the kits with the teachers:

I just gave them an RtI box that our department has [put together]. [Inside], there are cushions in there, there are grippers... Tomorrow I'm going to be sitting down with a couple of sped teachers to see which things in this box they could use for kids who don't get services. ... That's what the box is for with the grippers and the different strategies, and the different weights for the pencils and there's some information about development and...I want them to come with questions...I think that I would still have to do some training with teachers.

The occupational therapists shared their perspectives on the scope of their practice in the school systems and the boundaries that guided what they were able to do in RtI. They talked about common concerns that the teams had about students which ultimately lead to referrals. They also discussed ways that they expanded their practice. Despite these advances, many of the occupational therapists mentioned barriers to participating in RtI.

7. Barriers to Making Contributions

The occupational therapists talked about the barriers they faced when attempting to make contributions to problem solving teams in RtI. Those barriers centered around the educational team not understanding the scope of occupational therapy and the pitfalls that come with being an itinerant therapist.

Some of the therapists talked about the school personnel not having knowledge about occupational therapy or the awareness of what occupational therapists could contribute in the school environment. Some therapists joked about teachers taking the word “occupation” and defining it as “vocation” and asking teachers asking what sort of job skills the therapists planned on teaching to first graders. Others talked about teachers and other educational personnel having a very narrow view of what sorts of student concerns could be addressed by occupational therapists and how occupational therapists should deliver their services. Ellen said, “Teachers see us almost as only handwriting teachers”.

Joanne brought this confusion and the teachers’ narrow view of how occupational therapy can benefit students back to the “fixing” mentality. She expressed how teacher’s viewed her as a medical professional and as long as she was fixing a student, then she was doing her job. Joanne emphasized her ability to make accommodations and modifications to support students in accessing instruction and participating in the learning environment. She talked about how she did not want to “fix” students or get rid of their disabilities, as much as she wanted to provide them with tools to learn given their disabilities. She suggested that the lack of financial resources in today’s educational system might make her ideal difficult to realize. Joanne said:

Part of me gets tired of being the advocate and I’ll get upset, well not upset, but I’ll...you know if they want me to pull them out, then I’ll pull them out because they are paying for it and whatever they want is fine... [Sometimes] I’ve got to push in. It comes from my philosophy that I don’t believe that in the schools, in terms of OT services, we should be changing their disability. I think they look at OTs as ‘how do you fix them?’ and I don’t think that’s our role in the schools...that’s why I think it should be consult. Ok, a child comes in with cerebral palsy, here, use this type of grip, and let’s sit him up this way. I shouldn’t have to be pulling him out to strengthen and all of that kind of stuff. I should be providing a program for the school. I think that if we could do that, I almost think that the student would make more progress in a way. I think we’re getting there, but there are so many cuts now. There are no aides. There are no TAs. So, if you wanted a child to be on a strengthening program or if you wanted them to take sensory

breaks throughout the day, there has to be an adult with them. And, if there's only a teacher, how is she going to take a kid out on a sensory break, you know? We have to adapt it into the classroom and that doesn't always work either...I could see it working in some classrooms and some classrooms not. I think part of it is that the teacher has to take ownership of the child. You know they aren't special ed. students, so I think it is a mind shift for the teachers too. I think that's all part of the RtI process. That's just my feeling. I just don't think we should have the mindset that OTs come in and REHAB students in the schools. That shouldn't be the school's purpose and I'll say that as a taxpayer too. It shouldn't be our purpose. Our purpose is to support students within their disability in the classroom. I keep throwing out CP because it is an easy example because it is physical....but [supporting students in their classrooms] needs to be part of the entire program.

Theresa talked about how some teachers cared little about the skilled services that occupational therapists could provide and instead viewed the therapists as highly paid teacher assistants or volunteers, in other words as “an extra set of hands”. Other therapists held this view as well and acknowledged that the teachers were not necessarily wrong in trying to secure the maximum amount of support for their students as possible, but that they did not understand where an occupational therapist's expertise was warranted. Time and again, handwriting practice was mentioned as “not a skilled need”, despite many teachers feeling like this is where occupational therapists could best help their students. Theresa talked about a time when she got involved with a student to gain a better understanding of his needs and once supports for the student were in place, she removed herself from the case and was met with some resistance from the teacher. Theresa said:

There was this fourth grade boy who was new to the school and came in with [what we thought were] some undiagnosed learning disabilities; he was an English language learner and had some other hardships. He'd been homeless, though not at present, and recently experienced the death of his father at the end of the school year last year...he was identified as needing a lot of support and [the team was] pursuing an RtI model, but we felt like things need to be implemented a little faster...even though he was a fourth grader, he was probably working at the second grade level in all academic areas. I was called in right away to help. The teacher was very hung up on his handwriting. It truly wasn't anything with motor. His printing was beautiful. But, he wrote the way he read, with spelling errors, and he couldn't put together a paragraph...I volunteered to go in during his writing time...to be a coach. Then I worked with the social worker so he could

have access in the morning to a toothbrush and some soap and water and some clean clothes if he needed them as well. As an OT, I felt this was okay because they are ADLS [activities of daily living]...As we got going, I determined that this wasn't someone that I needed to spend time with if all of those things were met. So, after some time I excused myself from working on writing because he was going to have an evaluation...The teacher, she wasn't very happy with that. She felt that his fine motor was terrible, he couldn't write, he couldn't read. .. As an OT, I didn't think me sitting there saying "ok, make your letters look nice" was a good use of my time and I also felt like it was a little disrespectful to him...to have someone sit there and coach him on how to write his letters was not really a very kind way to treat a boy who has all of these other things going on. Although I think the teacher has accepted me backing off...I think she still wants me to come back and help out. I think we have him going in the right direction and I think now the people who have the background in actually teaching reading and math and writing can actually help him....He is just one of five kids in the problem solving model at present....out of 22 [in the class] who need constant redirection and attention on academics and it is really taxing to the [teacher] and I think she just wants to have as many hands in the classroom as she can.

Many of the therapists talked about the itinerant nature of being a related service provider and how their caseloads caused them to spread their time over a number of schools. Not being a permanent fixture in a school building often resulted in the occupational therapists feeling as less powerful or less "substantial" members of the team. Some of the therapists discussed how difficult it was to build rapport with teams when they were constantly being moved from one building to the next year after year and how it was challenging for some teams to accept them as trustworthy and valuable colleagues when they did not have a history. Melanie talked about how she had worked in 14 different schools over the past five years. Amy talked about how you needed to spend more than one year in a building to establish a presence and gain a foothold:

One of the biggest barriers to defining our role is that we are moved around so much and we might not spend years at one school. That team approach is so important and if we are constantly changing schools and having to learn about new teams then it isn't really giving us time to establish a role. This is my second year at the school so I have been able to take my role further. My team mates have gotten to know me, know my style and I've gotten to take on more things because I am there more often than a couple of days a week and that has helped me define my role. Having to constantly go from school to school inhibits us from doing that.

Callie talked about how building trust works both ways and that the itinerant nature of being a related service provider makes occupational therapists “professionally vulnerable”. This vulnerability causes some occupational therapists to approach working alongside teachers in classrooms with hesitation. The reluctance to “expose” themselves and the work that they are doing drives some occupational therapists to continue to use methods of service delivery (i.e. “pull out”) that are not aligned with best practice. Callie went on to talk about how important it is for occupational therapists to encourage the pre-service therapists that they mentor to adapt to an integrated service delivery model and that until occupational therapists do this, they will not be viewed as full members of the team. Callie said:

We are a related service, but that doesn't mean we are periphery members of the team. We are a related service. So we can't keep things that [we can do] hidden from view of the team. So we are full-fledged members of the team...I think on the periphery is a comfortable place to be, but you know I have an OT student and I was walking by a classroom and I took a picture of her and she was on her knees working with a student and I was like “yeah” and I showed it to her and I was like “here's your feedback for today”. When you are doing that, you are on display. What you aren't doing and what you are doing is on display. It can be a little more uncomfortable. If you aren't up on how OT is changing you might still do it...but, I think [pull out services] is a dangerous model and that it is bad for our profession.

Finally, Marie talked about the fear of “sharing all the secrets”, meaning the strategies that occupational therapists often recommend while remaining in an itinerant role. She was the only occupational therapist out of the ten who participated in this study that contemplated whether or not the problem solving teams would feel like the costly expertise of occupational therapists would no longer be warranted. Marie said:

I think sometimes we're getting so...like we're stepping back so much that we're not going to have a place there. You know, we did the recommendation and...I mean it's at the same time, the teacher can just start doing things without asking for help and sometimes we're like probably giving away all the tricks of our trade and then we'll not have a place. You know what I'm saying? They can just go ahead and try the strategies. They can go ahead and try this strategy and that strategy and then they don't need me to...because they've already...but at the same time, that's good because I mean we've

educated them... You know, and maybe our unique expertise is not necessary but I'm just worried that we're going...we are not going to have a place at some point.

All of the other therapists felt the opposite way of Marie. Some of the occupational therapists wondered if they were able to be assigned to one building and work with one team if they would experience an increase in referrals. Ellen talked about how in some of the buildings in her district, the more education the teachers were given by the occupational therapists on specific strategies, the more referrals they received. Pat talked about feeling like most students could benefit from "a little support". Finally, Linda talked about teachers not understanding that, "I can't just GIVE a kid services".

The purpose of this study was to understand how occupational therapists used clinical reasoning to guide their decision making in RtI. The occupational therapists who participated in this study were asked to reflect on the times they worked directly with problem solving teams and to answer questions about when they used different frames for making decisions (i.e. phenomenological and mechanistic) and different forms of reasoning (i.e. procedural, conditional, and interactive). The accounts provided by the occupational therapists provided insights and understandings related to their perceptions of how they proceed when making recommendations in RtI, the boundaries that they believe are associated with their contributions, and the barriers that they feel they encounter when working in this context.

V: DISCUSSION AND IMPLICATIONS

The current role of occupational therapists in educational systems is expanding beyond providing services to students with individualized education plans (IEPs). Occupational therapists are now collaborating with teachers and other team members to support general education students within the context of RtI (Cahill et al., 2008; Cahill, 2010; Frolek Clark, Brouwer, Schmidt, & Alexander, 2008; Reeder et al., 2011). The focus of this study was on how occupational therapists use clinical reasoning when working in RtI or with problem solving teams to support students in general education. The results of this study have the potential to change how pre-service occupational therapists are prepared and the types of professional development opportunities that are designed for in-service therapists. In addition, the results of this study point to implications and recommendations for practicing OTs, as well as school administrators who are responsible for making decisions related to program funding and staffing patterns. The findings also speak to the importance of stressing the involvement that OTs can have in RtI activities to those educators who may not be familiar with the broad scope of OT or the potential contributions that OTs can make in the school setting (Bloom, 1998; Szabo, 2000; Tennyson, 2006). Further, the results of this study may encourage occupational therapists to refrain from blurring the professional lines between their discipline and others and to hold fast to their established guiding theories, which bring a unique perspective to the problem solving team (Molineux, 2004).

A. The Use of Clinical Reasoning by Occupational Therapists in RtI

Clinical reasoning has been defined in the occupational therapy literature as the art of making decisions related to a client's intervention based on the cues that have been gathered through formal and informal assessment, personal interactions, scientific evidence, and expert opinion (Rogers, 1983). Clinical reasoning has also been described as a process based on tacit

knowledge; that is, a process that appears to be executed expertly by experienced professionals who inherently call on their wealth of knowledge and experience, but who struggle to explain their most basic action (Fleming, 1994a). Tacit knowledge is generally approached by people as acceptable when the focus of that knowledge is something that is extremely complex or viewed by them as outside of their understanding. If tacit knowledge is perceived as complex or substantial, it is viewed as valuable; on the other hand, when tacit knowledge is focused on something that is viewed as mundane or ordinary, it is considered to have less value (Fleming, 1994a).

Occupational therapists, and particularly school-based occupational therapists, are at risk of teachers, parents, and other professionals perceiving their tacit knowledge as common and shared by everyone who works in the schools. After all, the priorities of school-based occupational therapists (e.g. handwriting, listening to a teacher's directions, sitting at a desk, eating in the lunchroom, and putting papers in a folder) are, typically, commonplace activities that most children can achieve independently or with little more than coaxing and a few reminders. The question remains one of how to help children who cannot complete these everyday tasks as expected after conventional wisdom has been applied to the situation.

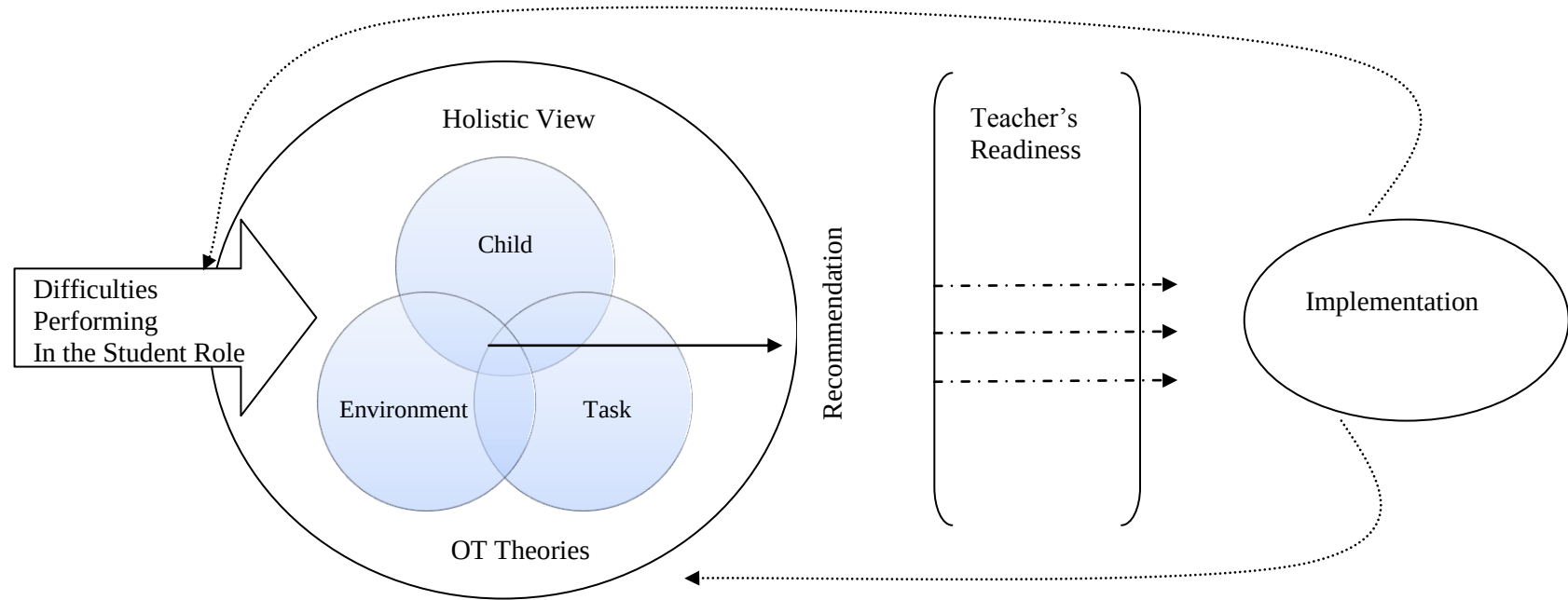
The occupational therapists who participated in this study were interviewed and asked to talk about how they used clinical reasoning to help children who experienced difficulties with commonplace activities in general education settings with the purpose of exposing their tacit knowledge and highlighting the unique contributions that they make to problem solving teams. Five main themes emerged with respect to how the OTs used clinical reasoning. They reported using clinical reasoning when: 1) considering a child's overall participation in the student role; 2) identifying the mismatch between the child, the task, and the environment; 3) considering the

teacher's readiness regarding adoption of the recommendation, and 4) maintaining a holistic view of the child. In addition, a fifth theme emerged related to how the occupational therapists tacitly used OT theories, specifically an occupational therapy frame of reference and several conceptual practice models as defined by Kielhofner (2004; 2009), to guide their practice in this context. Through their collective accounts, the OTs described a procedural reasoning process (Fleming, 1991) that addressed the participation difficulties that children have when functioning in the student role. The process was dynamic, client-centered, aligned with an overarching occupational therapy frame of reference, and respectful of the teacher's perspective.

Consistent with the results from the clinical reasoning study completed by Creighton et al. (1995), the occupational therapists in this study initially framed their answers about how they made decisions in RtI in a procedural fashion. That is, the ten therapists consistently spoke first of a step by step process whereby they received a referral or were invited to attend a problem solving meeting, listened to the teacher's concerns, observed the student in context, documented their recommendations, and then presented those recommendations to the team. However, in response to further probes, the occupational therapists were able to discuss the array of factors that were involved in making a decision for "this" student, who presents with "these" difficulties, in "this" context. Once they started speaking in terms of specific students, the complexity of their reasoning process emerged. Figure 2 depicts this process and each component is addressed in detail below.

Figure 2

The Clinical Reasoning Process used by Occupational Therapists in RtI



The process described by the OTs and represented in figure 3, was one that meshed the mechanistic and phenomenological paradigms that were described by Mattingly and Fleming (1994). The occupational therapists framed their work in schools as being focused on how a child participates in his or her student role. Functioning in the student role is both where the OTs began their clinical reasoning process and what they ultimately hoped to alter as a result of their recommendations. The OTs listened for and observed cues related to a student's behavior that helped them to create a clinical picture and generate hypotheses as to why certain performance difficulties existed. Cues were evident to the therapists in the student's behavior, the environment's capacity to support or limit a particular student's participation, and the demands associated with a particular task. The OTs framed the resulting performance difficulty with an ecological perspective and closely examined the interaction between the student, the task, and the environment to identify a "mismatch". The process of collecting and interpreting cues was dynamic and the hypotheses that were generated as a result of this process were subject to revision based on the new cues that would emerge, as well as what the therapist believed to be the best course of action for the student at the time. When determining a recommendation, the OTs adopted a holistic view of the student and considered the child's experiences inside and outside of school, his or her motivation to participate in activities, as well as his or her understanding of the expectations associated with the student role. The OTs also considered the teacher's readiness to adopt their recommendations and how they were implicitly influenced by occupational therapy theories.

B. Considering Participation in the Student Role

Occupational therapists believe that roles give children a sense of identity, as well as a sense of the expectations that are assumed with that identity (Kielhofner, 2008, 2009).

Individuals often choose the tasks that they engage in based on the roles with which they identify. School OTs should be concerned with helping children to construct a concept of the student role so that children can develop habits to more efficiently and enjoyably participate at school (Kielhofner, 2009). The occupational therapists who participated in this study maintained an intense focus on supporting a child's participation in his or her role as student. The OTs viewed this as their primary responsibility in the school setting and connected the strategies that they recommended back to the tasks that they perceived to be aligned with the student role. In doing this, the therapists blurred the lines between the mechanistic and phenomenological paradigms found to be associated with the clinical reasoning process (Mattingly & Fleming, 1994). The therapists were unable to de-contextualize the child's performance difficulties and operate in a purely mechanistic paradigm. In other words, they had difficulty focusing exclusively on a child's impairments without considering a broader sense of the context, the child's story, and to what extent those concerns impeded his or her role participation.

The therapists' emphasis on roles and participation is aligned with what is considered best OT practice in the United States, which is guided by the *Occupational Therapy Practice Framework: Domain and Process* (OTPF) (AOTA, 2002, 2008). The language included in this framework is aligned with the *International Classification of Function Framework* (World Health Organization, 2001) which constructs dysfunction (or disability) to be situated outside of the individual and a result of an ill-fit between the individual and the environment. The *Framework* provides a vision for OT practitioners to incorporate a clear focus on roles and occupations in their practices and to de-emphasize the focus on impairments, while at the same time, considering how the environment and the larger context shape what is considered to be a child's "impairments".

Despite the OTs emphasis on addressing a team's concerns from a "top-down" (or starting with participation and moving towards impairment) perspective, the problem solving teams most frequently referred students to OTs for issues related to "impairments", such as handwriting difficulties or sensory processing concerns. The occupational therapists who participated in this study appeared to be guided by their vision of who each child was as a student or "a learner" and held fast to this vision as they considered the best way to intervene and ultimately bring the child closer to the team's goals for that student. For example, Carol identified a need in her school district and developed and implemented a pre-school program for "at-risk" children to support their motor development. She shared how the children's improvements with motor skills increased their confidence as students and better prepared them and their families for the challenges of kindergarten.

In addition to being aligned with best practice OT, the therapists' commitment to addressing the student role in school is needed in today's educational climate. Kindergarten, which was once a place where children learned foundational social skills, habits, and routines to support later school success, is becoming increasingly focused on academic achievement (Parker & Neuharth-Pritchett, 2009). Further, students are expected to enter kindergarten being able to demonstrate skills that they might not be developmentally able to master at that time, such as learning how to write their names (Marr, Windsor, & Cermak, 2001).

The occupational therapists in the current study explained how they viewed the importance of all of the tasks, or occupations, that they addressed with children as a part of their being students (e.g., being able to write letters or numbers, maintaining an organized desk, or being able to open up ketchup packets in the cafeteria). The significance of inducting children into school or new school environments, as in the case of transitioning from elementary school to

middle school, should not be minimized and occupational therapists are well-equipped to address this need.

C. Identifying the Mismatch between the Child, the Task, and the Environment

The occupational therapists combined the use of procedural, interactive, and conditional reasoning to examine the interaction between the child, the task and the environment. This is consistent with the findings from the studies completed by Unsworth (2005) and Ward (2003). Consistent with the findings presented by Mattingly and Fleming (1994), these forms of reasoning were used nearly simultaneously and, due to the complexity of the examples and the multitude of factors involved, one form of reasoning was sometimes interwoven with the others. Melanie's example of supporting the student in the cafeteria who was a messy eater reflects this. Melanie used procedural reasoning when analyzing the task of eating to determine where the student's skills were breaking down. She discovered that he was able to feed himself, but that he did not attend to the manners which are commonly associated with dining in the lunchroom. She used interactive reasoning when considering the student as an individual and the unique experiences that he brought with him. Melanie empathized with the boy's desire to eat with his peers and defend himself from their harassment when he forgot to use a napkin. She also recognized that he ate meals at home with a sibling who was unable to model appropriate manners. Finally, Melanie used conditional reasoning to consider what eating in the lunchroom might be like for the boy in the future if his eating habits were not addressed in the current context.

In blending these forms of reasoning together, Melanie and the other therapists were able to continually attend to the interaction between the child, the environment and the task across time and space, and make judgments about adequate or inadequate performance or "fit" between

these components (Law & Dunbar, 2007). This approach to examining the interconnected relationship between the child, the task, and his environment is in keeping with the OT ecological frames of reference (Brown, 2009). The person-environment-occupation (PEO) framework (Law et al., 1997; Law & Dunbar, 2007) and the person-environment-occupation-performance (PEOP) framework (Brown, 2009; Rigby & Letts, 2003) are two ecological frames of reference that appear to be in line with the therapists' decision making because it emphasizes how a change in one component (i.e., the child, the task, or environment) results in changes in the other two components. The utilization of an ecological frame of reference helped the therapists to understand that both the person and the environment were constantly in flux, and therefore needed to be assessed continually to ensure that the student had maintained a goodness of fit between the associated factors (Letts et al., 1994).

Rather than providing a prescriptive protocol to address a child's concerns, the ecological orientation offered the OTs a frame to guide their decisions. Carr and Shotwell (2008) discussed how OTs use frames that include "semantic concepts, attribute-values, structural variants, and constraints" (p.44) to store their professional experiences and that these frames become increasingly complex as more experience is gained and more concepts are included. Frames allow professionals to move beyond simply identifying objective information (e.g., the boy cannot sit with quiet hands and attend to the teacher for more than two consecutive minutes) to a better understanding of how pieces of objective information relate to one another. Frames also help professionals to identify and explain patterns that emerge from their synthesis of this objective information and direct them towards actions. Ecological models appear to be appropriate frames for making recommendations in the schools and has been the basis of several practice models related to helping occupational therapists select and make decisions about how,

when, and what types of assistive technology should be introduced to their students (Schoonover, Grove, & Swinth, 2010).

The use of an ecological model when making decisions in RtI expands on the findings of Mattingly (1991a) who noted that the OTs in her study engaged in an automatic and habitual use of information that was described by the therapists as a trial-and-error method of matching the therapeutic strategy to the individual. Mattingly suggested that the use of such knowledge in this way to inform decision making occurred at the unconscious level, where therapists were no longer aware that it was happening. The OTs in the present study appeared very aware that they were using information about the environment, the task demands, and the child's intrinsic qualities and skills to make decisions, though many did not mention an ecological model explicitly. It is possible that the conscious use of this information is related to the changes noted in the professional language above (i.e., adoption of the *OT Practice Framework*) which may have allowed the therapists to frame their observations and subsequent recommendations with a set of terminology focused on reducing the mismatch between a child, a task, and the environment, rather than going through a process to systematically rule out possible solutions. Further, the use of this language suggests that the selection of recommendations or intervention strategies is more rigorous than random.

The magnitude of the interplay between the child, the task, and the environment and how these factors influence a student's participation at school is well represented in the occupational therapy literature (Coster, 1998). Although the interaction between the child, the task and the environment was very clear to the OTs that participated in the study, the therapists may consider using standardized assessment tools to facilitate their discussions regarding their decision making with members of the problem solving team. There are several standardized assessment

tools which can be used by occupational therapists to lend increased credibility to their assessment of a mismatch between a child, the activity that he or she is presented with, and the context in which the activity takes place. However, some of these tools may not be appropriate for use in RtI, such as the *School Function Assessment* (SFA) (Coster, Deeney, Haltiwagner, & Haley, 1998) and the *School Setting Interview* (SSI) (Hemmingson, Kotttor & Bernspang, 2004), due to the length of time that is required to complete them or the population that was used in the standardization process.

The *Assessment of Motor and Process Skills-School Version* (School AMPS) (Fisher, Bryze, Hume, & Griswold, 2007), however, is one example of a tool that may be used by occupational therapists in RtI. The School AMPS is an observation-based assessment that is used to examine a child's performance on school tasks taken from two out of five categories (i.e., pen and pencil writing tasks, drawing and coloring, cutting and pasting, computer use, and math manipulatives). A therapist who uses the School AMPS is able to assess 16 motor skills and 20 process skills in the context of the child's natural classroom environment and based on the expectations that the child's teacher has for task completion. The purpose of the School AMPS is to facilitate a student's performance so that he or she may accomplish purposeful and meaningful activities that will further yield benefits in the educational environment (Fingerhut et al., 2002).

Despite the benefits of the School AMPS, it does not include a section on school-related self-care, which is an area identified as a need by the occupational therapists who participated in the current study. The identification or development of a self-care related assessment to be used in RtI is needed. The literature suggests that children as young as six years old are able to identify self-care tasks (e.g., tying shoes, using the bathroom, and managing belongings) and categorize them into play, work, or self-care based on the pressures they experience from the

environment (Chapparo & Hooper, 2005). Addressing the mismatch between the student, the task, and the environment, be it a self-care task or an academic one is important for a student's success. Further, care should be taken to evaluate the cognitive load that is required by students across grade levels in relation to balancing self-care and academic demands across the day and the week. The identification of performance patterns (AOTA, 2002, 2008), or habits and routines, that support and limit participation are also examples of ways that OTs can address student-environment-task fit on problem solving teams.

D. Matching the Recommendation to the Teacher

Besides identifying the mismatch between the child, the task, and the environment, the occupational therapists described how they had to take into consideration the teacher's readiness to adopt their recommendation. They discussed how having teacher "buy in" was an important factor in supporting the student's participation. They described how the teacher's capacity and willingness to implement the recommendation was highly contextualized and based on the "back story" that they constructed for the teachers. Capacity is defined here as having adequate time, resources, knowledge to implement a recommendation, and available support from someone such as a paraeducator. The number of years of experience a teacher had, his or her familiarity with differentiated instruction, his or her classroom management style, as well as his or her relationship with the OT all factored into the teacher's readiness to adopt the recommendations. For example, Joanne talked about how she "felt sorry" for the teachers with whom she worked. She sympathized with teachers and acknowledged the challenges that they encountered related to the increasing demands that were placed on them. In addition, she recognized her role as a related service provider and that her recommendations had to be perceived by the teacher as something that was both valuable and worth the effort to implement.

Several of the therapists described working with new teachers who were beset by challenging students and their behaviors, but willing to explore recommendations made by the OTs. Ellen, on the other hand, described a situation with a new teacher who was overwhelmed and feeling like she did not have the capacity to implement the recommendation. The phenomenological view (Mattingly & Fleming, 1994) that the occupational therapists used to understand the teachers, allowed them to situate themselves in the teacher's story and gain a deeper understanding of how to approach making the recommendation and use themselves therapeutically to gain acceptance for the recommendation (Taylor, 2008). This understanding is particularly important for OTs who work in RtI because a single teacher, and not necessarily an entire team (as in the case of special education), is the "gatekeeper" and ultimately responsible for determining whether or not a given suggestion will fit in with his or her classroom or expectations. Without federal mandates requiring who is included on a team or how a team implements the problem solving process in RtI, much is left up to the discretion of the general education teacher. The occupational therapists in this study understood the significance of the general education teacher and his or her role of "gatekeeper" and described a step in their process where they considered the teacher's perspective regarding their suggestions before they made their recommendations.

The occupational therapists' emphasis on working with the teacher to find an agreeable solution to the student's need allowed the therapists to embed the recommendation into the student's natural environment and typical routines (Hanft, 2008). The use of daily activities and routines as both the means and the end to occupational therapy intervention is considered best practice and is well aligned with the historical roots of the profession (Chandler, Schoonover, Frolek-Clark, & Jackson, 2008). Setting the recommendations in the student's natural

environment allowed for them to be applied consistently throughout the day and also provided an opportunity, when appropriate, for the teacher to replicate the recommendation or apply it to another setting (e.g., cafeteria) or subject area (Clark, Polochino, & Jackson, 2004; Hanft, 2008). For example, Theresa described how she introduced work baskets into one of her student's center time activities and how these baskets became part of his routine.

Many of the recommendations made by the occupational therapists in RtI were associated with written communication skills, organizational skills, and remaining on task which are consistent with the findings from Reeder et al. (2011). This finding is also supported by the work done by Wehrmann, Chiu, Reid, and Sinclair (2006) who found that teachers valued being provided with suggestions in these areas and also welcomed further education (e.g., in-services) on these topics from occupational therapists. The OTs in the present study also commented on the types of supports that they provided in the context of RtI and suggested that those recommendations that required little or no equipment were often welcomed by the educators.

The therapists framed the teacher's support for a recommendation as their "readiness" to accept and/or implement that recommendation. Although the OTs were suggesting strategies that would take place in the student's natural classroom environment and they sought the approval for these strategies from the teachers, the therapists assumed the role of a consultant, rather than a collaborator. The purpose of consultative services is often focused on the implementation of a specific program or strategy for a student (Bazyk & Case-Smith, 2009). An in-depth understanding of the student's presenting concern, as well as the range of solutions that are appropriate in addressing this concern are viewed as prerequisites for consultation. In addition, effective communication skills (Bazyk & Case-Smith) and pragmatic reasoning

(Unsworth, 2005) are necessary to determine if a given strategy is feasible in a specific classroom.

When therapists in this study acted as consultants, they maintained their positions as “experts” and “fixers”. The therapists spoke about their desire for teachers to refrain from thinking of them as being able to “fix the student”, yet by engaging in the limited role of a consultant, they may have inadvertently reinforced this perception. While a pure consultative model may be appropriate in some OT practice settings, a model of collaborative consultation (Hanft & Sheperd, 2008) may be more appropriate in RtI. Collaborative consultation differs from traditional consultative services in that the occupational therapist and the teacher mutually agree to enter into the relationship, have equally important roles, and agree on the scope and focus of their collaboration. A collaborative consultation model would include the teacher being actively involved in selecting the intervention strategies and evaluating its effectiveness (Bazyk & Case-Smith, 2009).

Using this model in RtI would switch the focus of the occupational therapist from “getting buy in” for a recommendation to working collaboratively with the teacher to design the most appropriate strategy for a student in his or her specific classroom. This mutual approach to strategy recommendation would capitalize on the teacher’s intimate knowledge of his or her classroom environment, as well as the educational tasks that he or she presents. In addition, by including teachers at this level, therapists could potentially expand their knowledge of the curriculum and the instructional techniques that are used by different teachers. In this way, the OTs, who continue to be itinerant, could act as brokers between teachers and share the instructional techniques that they learned from their collaboration as it relates to specific student concerns.

E. Maintaining a Holistic View

In addition to identifying recommendations, the occupational therapists expressed that one of their major roles on the problem solving team was helping the other professionals to maintain a holistic view of the student. A holistic view involves being able to look at the child from multiple perspectives, synthesize information from several sources, and consider how the child functions in a dynamic system both inside and outside of the school (Kielhofner, 2009). The ability to conceptualize a holistic view of the child is not something that is not unique to occupational therapists, but it is consistent with the findings presented in Mattingly (1991a) which point to occupational therapists considering the lived-experiences of their clients and all of the dynamic factors, both inside and outside of a given context, that influence an individual's role competence and task performance.

Holism in the occupational therapy literature is presented as the therapist's recognition that there is: 1) an interconnection between the mind, body, and spirit; 2) that states of function or dysfunction are born out of the interaction of multiple factors intrinsic and extrinsic to the individual; 3) that individuals have the capacity to change their own level of function once they are committed to that outcome; and 4) that the role of the therapist is help the individual adapt to environments and achieve fulfillment (Finlay, 2001).

The therapists in this study were not only concerned with the issues that led the problem solving team to a referral, but rather focused more broadly on the child's experience of going to school and what that meant for their lives. For example, several of the therapists discussed how their professional programs prepared them to see the "big picture". Melanie described how occupational therapists can help teams to make connections between areas that are often viewed in silos by different disciplines.

F. Tacit Use of Theory

In addition to having adopted a holistic view, nine of the occupational therapists who participated in this study, with the exception of Marie, spoke about how OT theory influenced their practices. An analysis of their accounts revealed that all ten of the occupational therapists described using an ecological frame of reference to guide their practice in the schools, even though only one therapist (Melanie) explicitly named the PEO frame of reference as such. Kielhofner (2002; 2008), did not identify PEO as a conceptual model, and considered it only as a frame of reference. However, other OT scholars (see for example Dunn, 2011; Law & Dunbar, 2007) do view PEO as a conceptual model. The lack of consistently defined terminology to discuss OT theories, frames of reference, and conceptual models presents a problem in the field occupational therapy.

The finding that an ecological frame of reference was used consistently across the therapists who participated in this study is in contrast to the findings of the pilot study completed by Cahill (2010). In that study, the occupational therapists indicated that theory did not influence their decision making in RtI. However, in the current study, the OTs not only described how they used an ecological frame of reference to guide their decisions, but they also discussed how they incorporated other conceptual models such as sensory integration, the biomechanical model, and motor control into their clinical reasoning. This difference in findings between the two studies could be the result of the nature of the study designs. The pilot study (Cahill, 2010) used a forced-response survey methodology and the current study used semi-structured interviews. The nature of the interviews allowed the participants to tell stories and “talk through” their thinking processes, rather than simply select a choice from a predetermined list. The use of multiple theories by school-based OTs is consistent with the findings from Stork and Eskow (1996), even

though the OTs in that study indicated that sensory integration and neurodevelopmental treatment were the primary models that they used to frame their decisions. In the present study, the model of human occupation and sensory integration were the second most frequently named. The use of the model of human occupation by the therapists in this study is consistent with the finding from Lee et al.'s (2008) study, that indicate that over 80% of occupational therapists from a national survey across practice areas reported using the model of human occupation in some way and believed that the model supported a holistic and client-centered approach to intervention.

As previously mentioned, the occupational therapists' clinical reasoning was initially guided by their view of the child functioning in the student role. Kielhofner (2008) defined a role as the, "incorporation of a socially and/or personally defined status and a related cluster of attitudes and actions" (p. 59). The occupational therapists were concerned with the child's knowledge or understanding of the expectations associated with this role, his or her capacity to carry out the role expectations, and his or her opportunities to practice behaviors and tasks associated with this role. The occupational therapists' emphasis on the student role and their attempts to build competence in this way were mostly not discussed in the context of occupational therapy theory, rather the occupational therapists talked about how addressing the student role was a pragmatic component of their work in the schools. The model of human occupation includes explanations related to the significance of socializing an individual to a role, the factors associated with efficient and successful role performance, and also addresses the consequences of role loss or interruption. Given the therapists' emphasis on the student role, it is surprising that the OTs did not unanimously name the model of human occupation as a guiding conceptual model.

Sensory integration, motor learning, and the biomechanical models were all raised as frameworks to guide the decision making by the occupational therapists in this study; however, the occupational therapists appeared to have difficulty articulating how and why they framed a student's behavior change in relation to these theories. In addition, an ecological frame of reference appeared to be at the crux of all of the therapists' decision making, yet a specific frame of reference was only explicitly named by Melanie in the course of the interviews. Because the focus of occupational therapists is on seemingly commonplace activities (e.g., holding a pencil or eating lunch), occupational therapists have to be vigilant in their explanations of what they are doing, how they are doing it, and why they arrived at those conclusions. It is the occupational therapist's theoretical background that makes him or her approach such commonplace problems differently from other professionals and it is for this reason that theory must always be at the forefront of their minds.

There is also a danger that a lack of knowledge or acknowledgement of theory will cause it to erode over time. Further, there is the potential that the occupational therapists that are practicing a-theoretically will inadvertently minimize or fail to acknowledge the complexities associated with concepts, such as role performance, if they do not have a rich theoretical base to draw upon. It is possible that the OTs in this study attempted to distance themselves from using theoretical language in an effort to communicate with teams in a way that is free of professional jargon (Knippenberg & Hanft, 2004), however the explicit use and discussion about theory might also lend some credibility to the unique and complex work that occupational therapists perform in the school and with problem solving teams. In addition to being able to explicitly use and discuss OT theories that influence their practice, occupational therapists might also benefit from

learning how other occupation-based theories (e.g., Occupational Adaptation) can be incorporated in school-based therapy.

G. The Boundaries Associated with the Contributions of Occupational Therapists in RtI

The occupational therapists described the scope of their practice in RtI. They did this in relation to the boundaries that were placed on them by the team, but also discussed the innovative ways that they expanded their practice in RtI. The occupational therapists discussed how they first considered performance difficulties in relation to the tasks, or occupations that the child needed to complete as part of his or her role of student and then addressed the performance skills and patterns associated with those difficulties. This finding was consistent with the *OT Practice Framework* (2002; 2008) which indicates that occupational therapists address the educational needs and promote the participation of students by providing services focused on increasing performance skills (i.e., motor, process, and communication and social interaction skills), performance patterns (i.e., habits, roles and routines) and personal factors (e.g., strength, sensory processing and dexterity).

All of the occupational therapists identified that they had a role in supporting students with handwriting needs. This finding was consistent with the current literature that suggests that handwriting concerns continue to be the number one reason why students are referred for school-based occupational therapy (Case-Smith, 2002; Chandler, 1994; Hammerschmidt & Sudsawad, 2004; Sepanski & Fisher, 2011). The therapists also identified being called on by problem solving teams to address concerns related to sensory processing. The needs that they attributed to sensory processing difficulties and the strategies that they described to support students who demonstrated sensory-related concerns were consistent with the recommendations put forth by the American Occupational Therapy Association (AOTA) (2009) and designed to support the

student's ability to fully participate in the school environment. The referrals reported by the OTs in this study were consistent with the findings from Reeder et al. (2011) where the primary referrals to OT in RtI were related to handwriting and sensory processing needs.

Many of the occupational therapists also spoke about the social emotional factors that were compounded by stresses associated with the student role. Some of the occupational therapists discussed ways that they could support children's readiness to assume the student role and relieve the associated stress related to being unfamiliar or unable to meet the established role expectations (Chandler et al., 2008). Addressing the social emotional needs of students was explained by the OTs in this study in a way that reflects the concept of the "underground practice" that was described by Mattingly and Fleming (1994). In an effort to treat the whole child, and not just the issues that were raised by the problem solving team, the OTs talked about the dilemmas they experienced in relationship to not crossing territorial boundaries that were established by their colleagues. The OTs discussed maintaining a "narrow scope" (Mattingly & Fleming, 1994, p. 296) to ensure that their services were valued by their colleagues and so that it was obvious that they were addressing the concerns that were initially raised to them, such as a child's illegible handwriting. One therapist, Amy, spoke openly about how she wanted to address the psychosocial needs of students in her school. Other therapists like Carol, focused on addressing the needs that were identified by the problem solving teams and identified social emotional benefits as a by-product of her intervention.

The OTs also spoke about the ways that they were expanding their practices to work in RtI and specifically provided several examples of how occupational therapists can be involved with tier 1 interventions. For example, some of the OTs described new innovative initiatives, like preparing RtI kits; presenting at their school's curriculum night; attending their school's

health fair; and starting a pre-school program for “at-risk” children. These initiatives are well aligned with the scope of the American Occupational Therapy’s Centennial Vision (Moyers, 2007) which urges OT practitioners to accept, among other obligations, their responsibility to become agents of change and work towards making the profession widely recognized. In addition, several of the therapists mentioned specific initiatives to address students’ handwriting skills and these initiatives were consistent with Tier 2 and Tier 3 interventions and supported by the examples of how OTs are involved in RtI from the literature (see for example Cahill, 2010; Frolek Clark, Brouwer, Schmidt, & Alexander, 2008; Reeder et al., 2011).

The findings from the present study are increasingly important to the fields of occupational therapy and education because they expose the range of involvement that OTs can have in response to intervention initiatives. While this study does not present an exhaustive list of possibilities, it may provide the impetus for practicing OTs to consider how they may best fit in to the RtI frameworks that exist in their schools and districts. Further, the findings may illustrate to school administrators and educators alike the value that OTs can bring to RtI initiatives and the potential role that they may have on problem solving teams in general.

Throughout their conversations the OTs talked about how they wanted to be considered full members of the team and only one OT discussed her concerns about providing services in RtI. Specifically, Marie expressed that she was worried that providing strategies for teachers to implement in their classrooms would mean “giving away her secrets”.

Hinojosa (2007) addressed the barriers to practice that were raised by OTs in this study and suggested that occupational therapists frame such barriers as opportunities to advance practice. Rather than abide by the roles that have been assigned to them, Hinojosa urged occupational therapists to be explicit about defining their scope of practice in theoretically

grounded terms. He recognized that the institutions that occupational therapists are working in are places of change and that OTs need to be proactive in securing their position and making themselves indispensable to teams. Hinojosa (2007) indicated that today's OTs "need to be able to reason and solve problems in a timely, efficient, and cost-effective manner" (p. 633). Further, he suggested that the only way to remain as viable contributors to the institutions that they currently work in is for occupational therapists to use theory to guide their practices and their interventions.

The way that the occupational therapists in this study described their role in the schools and the way that they perceived the teachers' understanding of their role was in contrast. It is possible that the explicit use of theory, as suggested by Hinojosa (2007), would provide the therapists with a vehicle to describe the scope of their entire contribution, thereby making themselves appear more valuable to problem solving teams. Further, lead occupational therapists and OT administrators should consider adopting a workload (versus caseload) model (Jackson, Polochino, & Potter, 2006). Such a model would allow therapists with time in their day to perform non-IEP related activities which could include entering into collaborative consultation with teachers regarding students that have been identified as "at-risk" by problem solving teams.

In addition to explicitly using theory in practice and considering the adoption of a workload model, the findings from this study suggest that occupational therapists have to become self-advocates if they hope to expand their role in the schools. Until teachers, parents, and administrators have a full understanding of the scope of OT practice, the role of school OTs may be marginalized. This marginalization has implications for the sustainability of the profession in the educational system, but more importantly, it may have a significant impact on

the participation and perceptions of general education students who would greatly benefit from the unique expertise of occupational therapists.

H. Limitations

The findings from this study must be viewed based on some limitations. First, the results are drawn from the viewpoints of ten occupational therapists in one part of the State of Illinois, a State which adopted a policy mandating the use of RtI beginning in 2010. A larger sample size that was inclusive of more geographic diversity may yield different results as the practice habits and patterns of therapists may vary greatly based on the location of their school, their school's resources, and the knowledge and experience working with problem solving teams in RtI initiatives. Additionally, full participation from all ten of the participants might also have yielded some different results. Second, other methods of data collection including participant observation, review of documentation, and video-based self-reflection, may have contributed valuable insights into how occupational therapists use clinical reasoning in RtI, the boundaries of their practice in that initiative, and the barriers related to their participation. Finally, my background as an occupational therapist and my need to balance the insider and outsider perspectives influenced both the data I collected as well as my analysis.

I. Implications and Recommendations

Despite these limitations, the results of this study have implications for further research and the professional development of in-service and pre-service occupational therapists. In addition, recommendations for practicing OTs and school administrators are presented.

Further research is needed to understand how and why OTs combine conceptual practice models or frames of reference in the school setting and whether or not their approach is similar to or different from the use of theory by therapists who work with children and youth in other

practice settings. Research is also needed to determine if the clinical reasoning process that was indicated by the therapists in this study is one that is used by therapists in other regions of the United States who work with problem solving teams to implement RtI initiatives. In addition, efforts should be made by OT scholars to further develop the technology of application for the PEO model that is specific to the school systems. Environmental assessments and objective measures to identify changes in the student-environment and student-task fit would be beneficial, such as checklists or guidelines for collecting information regarding the student, the environment, and the task for use as a baseline and post-intervention measure. Finally, research should be done to further examine how collaboration between OTs, teachers, and other service providers can be used to support the outcomes of students in general education.

The findings from this study also have implications for OT educators. Occupational therapy educators should design methods and best practice strategies to teach pre-service therapists how to employ a structured clinical reasoning approach that incorporates the explicit use of OT theory in decision making in the school setting. Further, they should seek opportunities to create pre-service interdisciplinary education opportunities that would provide future OTs with the opportunity to define and explain their roles, as well as practice using collaborative consultation skills in a non-threatening environment. In addition, OT educators should consider partnering with school districts and cooperatives to address the RtI and clinical reasoning issues that were raised by this study with the aim of supporting in-service practitioners to consistently implement best practice values and explicitly use theory to guide their decision making.

Practicing occupational therapists should strive to stay connected to their theoretical foundation. They should consider keeping practice journals to reflect on their decision making

processes and engage in case-based discussions with their OT colleagues that highlight their decisions and their recommendations. OTs should also consider having journal clubs where they review research articles that describe instances of when theory was explicitly use to guide practice with children and youth and compare and contrast the use of theory and the outcomes from the study with their own practice and setting. School OT departments should consider developing a list of talking points, handouts, presentations for staff OTs to share with the faculty in their buildings. These presentations should outline the role of OTs in promoting a child's participation as a student and explain how common concerns related to an OT referral (e.g. poor handwriting) are simply a component of the child's overall role functioning. Staff OTs should be comfortable explaining what occupational therapy is and their role to any member of the school staff, as well as to parents and the children to whom they provide services. Further, occupational therapy departments should consider collaborating to share examples of innovative programs and strategies that their therapists have implemented under RtI. This sharing would benefit therapists who are unfamiliar with the scope of what they could accomplish in this context and may also provide an opportunity for therapists to share resources. In addition, the State of Illinois guidelines for OT practice in the schools should be updated to reflect the participation of OTs in RtI and with problem solving teams.

Finally, school administrators should consider adopting a true team approach for problem solving and include occupational therapists on their teams. Administrators should consider partnering with universities and other professional development consultants to develop a formal case-based opportunity for interdisciplinary team members to explore one another's role on the problem solving team. Such an opportunity would allow the occupational therapists to present their scope of practice, while at the same time describing how their services would compliment

other professionals. Administrators should be supportive of the RtI initiatives that occupational therapists want to introduce and should consider providing support so that the therapists can collect baseline and outcome data regarding the number of referrals to occupational therapy and special education in relation to those initiatives. Finally, despite the current itinerant nature of school-based occupational therapists, administrators should begin to consider OTs as full and valuable members of their personnel and include them in both special and general education initiatives.

J. Conclusions

The face of school based occupational therapy practice is changing as a result of the implementation of Response to Intervention (RtI). Occupational therapists need to effectively apply their assessment and intervention knowledge and skills and be prepared to explain the contributions they make and the clinical reasoning process that they use in the RtI process. If therapists do not advocate for themselves, they may lose the opportunity to fully realize their potential in this context. The findings from this study suggest that occupational therapists have to speak out about their unique knowledge and skills if they hope to expand their role in the schools and support *all* of the students that could benefit from their services. Until teachers, parents, and administrators have a full understanding of the scope of OT practice, the role of school OTs may be marginalized.

APPENDIX A

Email Invitation to Participate in Study

Dear OT Colleague,

Hello! I am conducting a study at the University of Illinois at Chicago (protocol number: **FILL IN THE BLANK**) for my dissertation in Special Education. The focus of this study is on the clinical reasoning of school-based occupational therapists who work with teams to implement RtI. I'm writing to see if you would be interested in participating or if you know of someone who you think might be a good fit for this study.

Participation in this study would consist of two interviews. The first interview will take place in person and a location and time that work for you. If meeting in person isn't possible, then we could talk over the phone. The second interview will take place over the phone. The interviews are expected to last between 45-90 minutes depending on how much you have to say or want to talk about. Regardless of how the interviews are conducted (i.e. in person or over the phone), they will be scheduled at a time that is convenient for you and they will be audiorecorded.

You are eligible to participate in the study if you:

- Are an OTR/L
- Work in an Illinois public school (you can be employed by a district, a cooperative, or an agency)
- Work in Cook, DeKalb, Dupage, Grundy, Kane, Kendall, or Lake Counties
- Have worked with teams who are implementing RtI since last year (the Fall of 2010)
- Make recommendations at the pre-referral level (even if you aren't on an "RtI team")

If you are interested in participating or have questions, please email me back (smcahill@uic.edu) or give me a call at 708-214-7174. If I don't answer, please leave me a voicemail with your first name and a call back number. Dr. Lopez-Reyna is my advisor and overseeing this study. If you have any questions for her, she can be reached at 312-996-4526. Her email address is nlr@uic.edu.

Please spread the word about this study!! Please share this email with any OT colleagues you think might be interested in participating. Thank you!!!

Sincerely,

Susan Cahill

APPENDIX B

University of Illinois at Chicago Consent Document

Title: The Clinical Reasoning of Occupational Therapists in RtI.

Doctoral Student: Susan Cahill

Advisor: Dr. Norma Lopez-Reyna

Key Research Personnel: Jamie Breedlove, OTS

Protocol number: 2011-0753

Why am I being asked?

You are being asked to participate in a research study. The purpose of this study is to examine how school-based occupational therapists use clinical reasoning in RtI. You are being asked to participate because you are an occupational therapist (OTR/L) who works in the Illinois public schools in Cook, DeKalb, Dupage, Grundy, Kane, Kendall, or Lake County. You are also being asked to participate because you have worked with a school team who has been implementing RtI since 2010. Your school team might not have an “RtI Team”, but as long as you provide teams with recommendations at the pre-referral level, you are eligible to participate in this study.

What procedures are involved?

If you agree to participate in this research project, we would ask you to do the following things:

- Read this entire document
- Sign the document
- Participate in one face-to-face interview lasting between 45-90 minutes
- Participate in one phone interview lasting between 45-90 minutes

If you choose to participate in this study, you will be asked to complete two interviews. The first interview will be conducted face-to-face, or in person, and the second interview will be conducted over the phone. The interviews are expected to last between 45-90 minutes depending on how long you want to talk and how much you want to say. The interviews will be audiorecorded and then transcribed by Susan Cahill or an OT student (Jamie Breedlove) who has the approval of the university to help with this study.

What is the purpose of this research project and why is it being done?

The main purpose of this project is to understand how occupational therapists use clinical reasoning in RtI or school-based problem solving activities.

This project is being done by Susan Cahill as part of the degree requirements for a doctorate in Special Education at the University of Illinois at Chicago.

Information gained from this study will be used to develop supports for occupational therapists who are new to implementing RtI.

APPENDIX B (continued)

Participation in this study is voluntary and you may stop participating at any time. Your decision to participate, decline, or withdraw your participation from the study will have no effect on your relationship with Susan Cahill or anyone else at the university.

What are the potential risks to participating?

There are no apparent risks involved in participating in this research. However, you may grow tired of answering questions or answering the questions may feel like work. Remember, you can choose to withdraw your participation at anytime.

What are the anticipated benefits to participating?

There are no direct benefits to you for participating in this research. However, one anticipated benefit to the field is that the results from this study may be used to develop supports (e.g. a professional development course) for occupational therapy students and occupational therapists that are new to working with teams to implement RtI.

What other options are there?

Participation in this project is voluntary. You don't have to sign this form. If you do decide to sign this form, you can change your mind and decide not to participate.

Will I be told about new information that may affect my decision to participate?

During the course of the project, you will be informed of any significant new findings (either good or bad), such as changes in the risks or benefits resulting from participation in the project or new alternatives to participation, that might cause you to change your mind about continuing to participate in the project. If new information is provided to you, your consent to continue to participate in the project will be re-obtained.

What about privacy and confidentiality?

If you choose to participate in this study, your identity will be kept confidential. During the interview, you will be asked to refrain from using the name of your school or district and the names of people or students you work with or stating any identifiable information. Saying things like "a third grade boy" or the "school psychologist" is okay, as long as you don't say the name of the school where that individual works or goes to school. If you accidentally say the name of the school or someone's name, it will not be entered into the transcript. Once we're done with the interview, your audiorecording will be given a numeric code. Susan Cahill will be the only one that knows that the code corresponds to you. The code key will be kept in an electronic file on a password protected computer. Either Susan Cahill or Jamie Breedlove will transcribe your interview. Jamie Breedlove won't know your identify, only your numeric code.

APPENDIX B (continued)

The transcriptions will be kept electronically on a password protected computer and backed up on a password protected travel drive. Transcripts and summaries of the interviews will only be printed out for analysis. The hardcopies of the transcripts and summaries won't include your name, only your code. At the end of the study, all of the transcripts and summaries will be deleted or destroyed. The results of this study will be disseminated through Susan Cahill's dissertation, as well as potential publications or presentations. When the results of this study are disseminated, your identity and your participation will be kept confidential.

What are the costs for participating in this research?

There are no costs for participating in this research project.

Will I be compensated for participation in this research project?

You will not be compensated for your participation.

Can I withdraw myself from the project?

You can choose whether or not you want to participate in this project. If you consent to participate, you may withdraw at any time. There are no consequences for withdrawing.

Who should I contact if I have questions?

Susan Cahill is conducting this research under the guidance of her advisor, Dr. Lopez-Reyna. You may call them if you have any questions. Susan Cahill's phone number is 708-214-7174 and Dr. Lopez-Reyna's phone number is 312-996-4526. Susan's email address is smcahill@uic.edu and Dr. Lopez-Reyna's email address is nlr@uic.edu.

What are my rights as a research subject?

If you feel that you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 (local) or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

You will be given a copy of this form for your information and to keep for your records.

APPENDIX B (continued)

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I have been given a copy of this form.

Printed Name of Participant

Signature of Participant

Date

Signature of Doctoral Student

Date

Signature of Advisor

Date

APPENDIX C

Oral Informed Consent Document

PARTICIPANT (First name only):

CALL BACK NUMBER:

Oral consent serves as an assurance that the required elements of informed consent have been presented orally to the participant or the participant's legally authorized representative.

Verbal consent to participate in this telephone interview has been obtained by the participant's willingness to continue with the telephone interview by providing answers to a series of questions related to what the participant thinks about how occupational therapists use clinical reasoning to make recommendations in RtI.

*** Phone Script:**

Hi. Before we get started, I'm going to ask that we take a few moments to get re-oriented to the study. Basically, I'm going to review the purpose of the study, give you an opportunity to ask any questions that you might have, and ask that you give me oral consent-which means that you agree to participate in the study. Ok?

You are being asked to participate in a study that is being conducted by me, Susan Cahill, as part of the requirements for my doctoral degree through the Special Education Department at the University of Illinois at Chicago. My advisor is Dr. Norma Lopez-Reyna and she is supervising my research. The study is called The Clinical Reasoning of Occupational Therapists in RtI.

The purpose of this study is to examine how school-based occupational therapists use clinical reasoning in RtI. If you choose to continue to participate in this study, you will be asked to complete one in person interview and one phone interview. If you can't meet for the in person interview, then we can conduct the interview over the phone. Each interview is expected to last between 45-90 minutes depending on how long you want to talk and how much you want to say. The interviews will be audiorecorded and then transcribed by me or an OT student who has the approval of the university to help me with this study.

Participation in this study is voluntary and you may stop participating at any time, simply by saying goodbye or hanging up the phone. Your decision to participate, decline, or withdraw your participation from the study will have no effect on your relationship with me or anyone else at the university.

There are no apparent risks involved in participating in this research. However, you may grow tired of answering questions or answering the questions may feel like work. Remember, you can choose to withdraw your participation at anytime simply by saying goodbye or hanging up the phone. There are no direct benefits to you for participating in this research. However, one anticipated benefit to the field is that the results from this study may be used to develop a professional development course for occupational therapy students and occupational therapists that are new to working with teams to implement RtI.

APPENDIX C (continued)

If you choose to participate in this study, your identity will be kept confidential. During the interview, I ask that you would refrain from using the name of your school or district and the names of people or students you work with or stating any identifiable information. Saying things like “a third grade boy” or the “school psychologist” is okay, as long as you don’t tell me the name of the school where that individual works or goes to school. If you accidentally say the name of the school or someone’s name, it will not be entered into the transcript. Once we’re done with the interview, I will give your audiorecording a numeric code. I’ll be the only one that knows that the code corresponds to you. I’ll keep the code key in an electronic file on a password protected computer. Either myself or the OT student that I mentioned earlier will transcribe your interview. Again, the audiorecording and the transcript won’t include your name-only your code. The transcriptions will be kept electronically on a password protected computer and I’m going to back the files up on a password protected travel drive. I’ll only print out the transcriptions and summaries for analysis and to share them with my advisor. The hardcopies won’t include your name, only your code. At the end of the study, all of the transcripts and summaries will be deleted or destroyed. The results of this study will be disseminated through my dissertation, as well as potential publications or presentations. When the results of this study are disseminated, your identity and your participation will be kept confidential.

My contact information and my advisor’s information is on the email that I initially sent you or that was forwarded to you, which is how you got in touch with me. It was also on the consent form. Just in case you don’t have them handy, I’d like to give it to you again should you have any questions once we get off the phone. My name again is Susan Cahill and my phone number is 708-214-7174. You could also email me at smcahill@uic.edu. My advisor is Dr. Norma Lopez-Reyna. Her phone number is 312-996-4526. Her email address is nlr@uic.edu. If you have any questions about your rights as a participant in this study or any concerns or complaints, you can contact with University of Illinois at Chicago’s Institutional Review Board at 312-996-1711. This phone number was also included on the consent form that you signed.

Now that you’ve heard about the study again and what you are being asked to do, do you have any questions?

Would you like to get started?

Investigator’s Name (Printed)

Investigator’s Signature

Date

APPENDIX D

Initial Semi-structured Interview Guide

The purpose of this interview is for me to understand how OTs use clinical reasoning and think about making recommendations and interacting with teams when implementing RtI at your school or in your district. You can ask any questions that you'd like to at any time during our interview. Please DO NOT say the names of the people or students you work with. Also, please do not say the name of your district or school. If you do say this information, it will not be included in the transcript of this interview. Again, you can ask questions at anytime.

Before we get started, can you tell me how long you've been working as an OT?

Have you always worked in the schools?

Do you have a bachelor's degree or a master's degree in OT?

Initial prompt

- Describe your role in the RtI process and the extent to which you think clinical reasoning comes into play; please provide examples.

Follow up prompts (to be used only after the participant tells his or her story):

APPENDIX D (continued)

- What information about the student or from the team do you use to inform your decisions? Please provide examples.
- What types of cues do you use to get a diagnostic picture of the specific needs of a particular student or a group of students? Please provide examples.
- Do the specifics related to a student's unique profile, his or her classroom, teacher, or peers play a role in the recommendations you make? If so, how? If not, why not? Please provide examples.
- Can you give an example of a time when you were working with a team and you felt like an OT's expertise was needed to address a student's or a group's needs? What strategies or solutions did you recommend to address these concerns?
- Can you give an example of when you were working within RtI and felt like you had to be conscious of how you used your therapeutic use of self?
- Can you give an example of when an intervention went well because of the unique circumstances involved in a student's case or a time when you think things didn't go well because certain pieces weren't in place? Was this success/failure an outcome that you expected? Why?

APPENDIX E

Second Semi-structured Interview Guide

- Would you please tell me again, what grade levels or age ranges do you normally work with? And, do you work for a school district, a cooperative, or an agency?
- Last time we spoke, you talked about _____, could you tell me more about that?
- Let's say the problem solving team asked for your assistance with a second grade boy. They called you in because they feel like he has difficulty with handwriting and organization. Where would you start?
- Do you feel like you use an occupational therapy theories or related knowledge to guide your practice? Which ones? Can you give me an example?

of how you used this to guide your decision making?
- What do you think is the difference between a good OT and a great one?
- Has anything else happened related to problem solving or RtI in your school or district that you want to tell me about?

Is there anything else you want to tell me about problem solving, OT's role in the school or OT in general?

The specific exemption category under 45 CFR 46.101(b) is:

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(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Since exempt research is minimal risk and when the primary risks involve privacy and confidentiality, written documentation of informed consent (i.e., participant's signature) is generally not required by the IRB/OPRS. In other words, signed consent is not required and use of verbal consent (not obtaining subject's written agreement to participate) may help protect confidentiality.

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
3. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).
4. Information for Human Subjects UIC Policy requires investigators to provide information about the research protocol to subjects and to obtain their permission prior to their

APPENDIX F (continued)

participating in the research. The information about the research protocol should be presented to subjects in writing or orally from a written script. When appropriate, the following information must be provided to all research subjects participating in exempt studies:

- a. The researchers affiliation; UIC, JBVMAC or other institutions,
- b. The purpose of the research,
- c. The extent of the subject's involvement and an explanation of the procedures to be followed,
- d. Whether the information being collected will be used for any purposes other than the proposed research,
- e. A description of the procedures to protect the privacy of subjects and the confidentiality of the research information and data,
- f. Description of any reasonable foreseeable risks,
- g. Description of anticipated benefit,
- h. A statement that participation is voluntary and subjects can refuse to participate or can stop at any time,
- i. A statement that the researcher is available to answer any questions that the subject may have and which includes the name and phone number of the investigator(s).
- j. A statement that the UIC IRB/OPRS or JBVMAC Patient Advocate Office is available if there are questions about subject's rights, which includes the appropriate phone numbers.

Please be sure to:

→ Use your research protocol number (listed above) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact me at (312) 355-1404 or the OPRS office at (312) 996-1711. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sheilah R. Graham, BS
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

cc: James V. Kahn, Special Education, M/C 147
Norma Lopez-Reyna, Faculty Sponsor, Special Education , M/C 94

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