Identifying Essential Competency Areas for Occupational Therapy Education: A Scoping Review

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Abstract

This scoping review aims to explore the essential areas of competency in occupational therapy as the ability to acquire the necessary knowledge, skills, and values for the profession is not easily quantifiable. The objectives of this study were two-fold: (1) identify the key competency areas of occupational therapy and (2) identify assessments that measure the competency areas. The review was conducted by a team of a librarian and two independent reviewers to systematically search the peer-reviewed literature. The search yielded 296 articles and 52 articles that met the inclusion criteria. These articles were categorized under four overarching themes: (1) professional attitudes that include cultural competence and the ability to uphold ethical and legal responsibilities; (2) professional communication such as engaging in active participation with the client; (3) ability to work in collaboration with inter- and intra- professionals; and (4) provide quality service with a focus on evidence-based practices. Additional research is warranted to further build the evidence base of occupational therapy competence to improve outcomes for patients. The results of this study contribute to the ongoing collective work of researchers and practitioners who wish to continually improve a client-centered holistic approach through the recognition of these key themes. Identifying the relevant measures that assess these themes establishes the foundation needed to support the continuous effort to educate and support entry-level occupational therapists by paving the way for further development and refinement of measurement tools.

Keywords

Competency, professional competence, soft skills, client-centered therapy

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ABSTRACT

This scoping review aims to explore the essential areas of competency in occupational therapy as the ability to acquire the necessary knowledge, skills, and values for the profession is not easily quantifiable. The objectives of this study were two-fold: (1) identify the key competency areas of occupational therapy and (2) identify assessments that measure the competency areas. The review was conducted by a team of a librarian and two independent reviewers to systematically search the peer-reviewed literature. The search yielded 296 articles and 52 articles that met the inclusion criteria. These articles were categorized under four overarching themes: (1) professional attitudes that include cultural competence and the ability to uphold ethical and legal responsibilities; (2) professional communication such as engaging in active participation with the client; (3) ability to work in collaboration with inter- and intra- professionals; and (4) provide quality service with a focus on evidence-based practices. Additional research is warranted to further build the evidence base of occupational therapy competence to improve outcomes for patients. The results of this study contribute to the ongoing collective work of researchers and practitioners who wish to continually improve a client-centered holistic approach through the recognition of these key themes. Identifying the relevant measures that assess these themes establishes the foundation needed to support the continuous effort to educate and support entry-level occupational therapists by paving the way for further development and refinement of measurement tools.

Introduction

In recent years, delivery of healthcare has shifted from a fee-for-service model to a value-based system in efforts to associate payment with quality and value of care (Ray & Kusumoto, 2016). In order to meet the new demands of value-based care and meet their clients' needs, occupational therapists (OTs) must be equally knowledgeable and competent in their practice by applying expertise developed progressively through clinical experience and education. Like other healthcare professionals, OTs should also be able to mobilize resources in order to deliver client-centered care as members of interdisciplinary teams with emphasis on evidence-based practice (EBP). However, there is limited information in the current literature regarding specific attributes required by OT for competent practice that extends beyond the scope of technical skills in this field.

Prior to entry to the workplace, OTs are required to successfully complete the National Board for Certification in Occupational Therapy (NBCOT) examination, which aims to certify those who have the necessary knowledge of OT to practice according to entry-level standards. These entry-level standards are covered through four domains: 1. evaluation and assessment of factors that influence occupational performance, 2. analysis and interpretation of client needs and priorities to develop and monitor an intervention plan, 3. intervention management through a client-centered plan, and 4. competency and practice management of self and relevant others as guided by evidence, regulatory compliance, and standards of practice (NBCOT, 2017). However, these domains may underemphasize some important aspects of professional clinical practice including, but not limited to, interpersonal skills, professionalism, and the ability to integrate expertise acquired through education into practice. Evidently, NBCOT primarily focuses on technical skills, but the delivery of quality healthcare services should extend beyond technical skills as non-technical skills have become a relatively new area of consideration for healthcare practitioners. Non-technical skills have been widely accepted as soft skills, which were defined by Heckman and Kautz (2012) as personality traits, goals, motivations, and preferences that are valued in the labor market, or in this case the healthcare sector. Thus, practitioners should feel comfortable and confident in both technical and soft skills for optimal outcomes, which are essential especially for client-centered therapy approaches.

The utilization of soft skills is particularly important as OTs seek to collaborate with clients and their family members to design interventions and facilitate client participation (Thomas et al., 2018). Moreover, these attributes are not only essential in establishing and maintaining the relationship between the client and their healthcare professional, but also in promoting collaboration among healthcare professionals, which will directly affect work performance and organizational culture (Deptula & Chun, 2013; Fernandez et al., 2012; Gonzalez et al., 2013).

Furthermore, when employers were asked about desired attributes for new hires, some stated they did not hire new graduates due to their lack of experience in the clinical environment (Mulholland & Derdall, 2004). More recently published articles indicated that entry-level practitioners believed they were, at minimum, marginally ready for

clinical practice. Very few felt well prepared, especially in regard to tasks such as collaborating with other healthcare professionals and applying evidence-based practice. Many presented lower ratings of a positive transition and higher ratings of likelihood of experiencing burnout and initial job stress than earlier graduates. These findings suggest that while recent graduates may have the knowledge and skillsets, there still may be some gaps in current curricula which could potentially transcend into challenges in the workplace environment. Fieldwork education has played a fundamental role in OT education programs by providing students opportunities for professional development and competency acquisition in efforts to bridge the transition between didactic education and clinical practice. However, fieldwork educators indicated that soft skills, especially those involved in communication and attitude, are attributes that are crucial for fieldwork success (Campbell et al., 2015; Thomas et al., 2018). The under-emphasis of soft skills training in OT curricula not only influences fieldwork, but may also consequently affect the performance of incoming entry-level practitioners as they have not been adequately equipped for enhanced clinical reasoning skills and therapeutic use of self, which will ultimately affect service outcomes.

Numerous studies over the course of the last 15 years have also investigated the perspective of OTs newly entering the field. These studies showed that, regardless of the means of preparation for the workplace through the completion of coursework and fieldwork education, OT students and entry-level OTs perceived they lacked sufficient technical and intervention skills (Hodgetts et al., 2007; Seah et al., 2011; Toal-Sullivan, 2006). In addition to low confidence in their technical skills, recent graduates may also feel inadequately prepared to apply their theoretical knowledge and research skills in the clinical setting—for instance, the contextualization of this knowledge may be difficult as they may not be comfortable with knowing what is needed to do with a client following their diagnosis (Toal-Sullivan, 2006). A study by Adam and colleagues (2012) found that key stakeholders, including academics, practitioners, and employers, perceived new graduates to be adequately prepared, but lacked competence in areas such as case management and report writing. This resulted in conflicts during the transition process. These findings bring forth the need to consider competency-based education (CBE) with heightened focus in OT education curricula since clinical competency lies beyond the boundaries of mere clinical skills and knowledge.

Competence-based education focuses on the development of specific core clinical skills essential for safe and effective practice. More specifically, CBE can be defined as an approach to preparing healthcare professionals for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and client needs (Frank et al., 2010). While CBE has been an ongoing discourse in the general healthcare field, there is minimal literature to support the advancement of competency as a focus in education, specifically in OT. Therefore, this scoping review may serve as a preliminary step in identifying the most efficient approach in measuring competency in entry-level OTs.

Research Objective

This study aimed to identify the essential knowledge and skills that OTs must obtain prior to entering the workforce in order to successfully transition from the academic to the workplace environment. While the ability of graduates to acquire the necessary knowledge, skills, and values for the OT profession is not easily quantifiable, exploring the areas of competency will serve as the preliminary step in working towards a targeted support of autonomous practice. Therefore, the objective of this scoping review was two-fold: (1) identify the key overarching themes of competency in OTs and (2) identify assessments that measure practitioner competency.

Method

This study used a scoping review method to strategically search the existing literature that was applicable to the objectives of the specified project and an inductive analysis process to organize and report our findings. Scoping reviews are the method of choice when the goal of the study is to examine the nature and extent of a body of research, identify gaps in the literature, or inform decisions about whether to proceed with a systematic review (Arksey & O'Malley, 2005). This scoping review included the following five steps: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies that met the inclusion criteria; (4) charting the data; and (5) collating, summarizing, and reporting the results. Within step 5 of the scoping review, the investigators of this study conducted an abstraction process of the inductive analysis. The study by Elo and Kyngas (2008) served as a guiding process for the abstraction process which consisted of formulating a general description of the research topic through generating categories.

Identifying the Research Question

According to Arksey and O'Malley (2005), the starting point of a scoping review is to identify the research question as this guides the way that search strategies are built. In this review, the research question served as a guide for the literature search to address the two objectives of this study: *what are the essential knowledge and skills that OT students need to know in order to become competent practitioners?*

Identifying the Relevant Studies

With the assistance of a reference librarian, this scoping review searched the PubMed and MEDLINE databases. The search focused on English-language peer-reviewed publications to identify current practices that measured competency among OT students and OTs and the essential knowledge and skill sets needed to become quality practitioners. The search stream was entered exactly as follows in the search field for each database:

> "Occupational Therapy"[MeSH] OR "Occupational Therapy" OR "Occupational Therapists"[MeSH] OR "Occupational Therapists"
>
> AND

"Attitude"[MeSH] OR "Attitude"[All Fields] OR "Knowledge"[MeSH] OR "Knowledge"[All Fields] OR "soft skills"[All Fields] OR "Communication"[MeSH] OR "Communication"[All Fields] OR "Educational Measurement"[MeSH] OR "Educational Measurement"[All Fields] OR skills [All Fields]

AND

 "Professionalism"[MeSH] OR "Professionalism"[All Fields] OR "Professional Practice"[MeSH] OR "Professional Practice"[All Fields] OR "practice"[All Fields] OR "malpractice"[MeSH Terms] OR "malpractice"[All Fields]

AND

"Students"[MeSH] OR "Students"[All Fields]

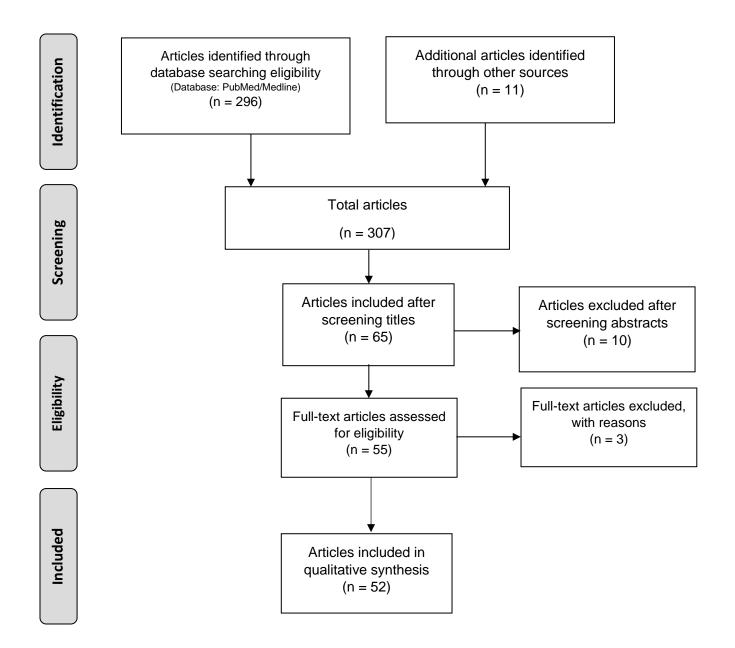**Selecting Studies that Met the Inclusion Criteria**
The initial search yielded a total of 296 articles (see Figure 1). Two independent researchers performed the initial screening of the titles and abstracts on the basis of specific inclusion criteria and also included a hand search of all reference lists. The studies included in the final review were articles published in English within the last 10 years (2009 – 2019). These studies were classified as one of the following study designs: systematic review, literature review, meta-analysis method, or quasi-experimental method. All studies addressed current practices on measuring practitioner competency. Articles with key stakeholders were included in this study, including OTs, students, academics, and employers. Because several studies examined multiple disciplinary teams including physical therapists, social workers, etc., study populations consisting of at least 51% of practitioners or students in the OT field were selected. Additionally, in select studies where researchers collected and categorized data across different areas of healthcare (i.e. physical therapy, nursing, etc.), the data specifically pertaining to OT was isolated and included in this scoping review. This review focused on students enrolled in a master's, doctorate program, or the international equivalence for the purposes of consistency in findings.

Because one of the objectives of this review included identifying the current measures used to address competency for OTs, client-centered care studies, client interventions and case specific studies, theoretical or opinion based studies, and study populations with undergraduate students without an OT concentration were excluded from this review. Additionally, certified OT assistant programs were not included in order to focus this review to a group with similar educational requirements.

The reference review process led to the inclusion of 11 additional studies for a total of 307 articles. The initial screening of article titles resulted in the exclusion of an additional 242 articles. After a review of the article abstracts, an additional 10 articles were excluded. After full text reviews of the remaining articles, 3 additional articles were excluded due to not meeting the inclusion criteria, ultimately leaving 52 articles for qualitative synthesis. When disagreements arose regarding the inclusion of certain studies, a separate discussion session between the two researchers was held until a consensus was reached.

Figure 1

Search Strategy Flowchart

Charting the Data

For each study fulfilling the inclusion criteria, the data were extracted and entered into a data extraction table specifically designed for this review. The data extraction table included the following information: author, article title, a brief overview of the method of measurement, and the relevant assessments and interview questions that the study utilized to measure the identified skillset. However, due to licensing issues, this scoping review did not obtain permission to reproduce questions from assessments and measures that were developed outside of the included articles and were left blank. Assessment questions that were included in this review have been appropriately cited. After reviewing the articles, the investigators performed an abstraction process where the articles were grouped and categorized into sub-categories with similar characteristics which were then grouped together as generic categories as outlined by Elo and Kyngas (2008). This process resulted in organizing the articles into four overarching themes related to practitioner competency: (1) professional attitudes, (2) professional communication, (3) ability to work in collaboration with inter- and intra-professionals, and (4) ability to deliver quality service to clients (see Table 1). The general underutilization of competency assessment methods pertaining to practitioner's ability to work in collaborative settings and demonstrate professional communication skills may explain why so few studies met the inclusion criteria and why so few of those studies were published in OT journals.

Table 1

Competency Themes with Sub-categories

Professional Attitudes	Professional Communication	Collaboration	Quality Service Delivery
Culturally competent with respect for cultural differences	Effective communication skills with the client	Ability to work in intra- and inter-professional settings	Experience in using evidence based practice in clinical practice
Establish and maintain professional boundaries and attitudes	Modifies communication with patient accordingly		
Uphold legal and ethical responsibilities			

Collating, Summarizing, and Reporting the Results

Study Characteristics
Only three articles that were selected through this review addressed all four competency themes. The majority of the articles mainly focused on only one area of competency-- 22 addressed professional attitudes and 15 addressed the delivery of quality services. Furthermore, only four articles addressed the ability for practitioners to work in collaborative settings and eight articles addressed professional communication skills.

Professional Attitudes
Among the studies included in this review, Table 2 displays the 22 studies that addressed professional attitudes in the OT field. These studies explored factors that influence one's development and perceived importance of professional attitudes in OT. It was found that emotional intelligence was positively correlated to fieldwork performances due to how those skills influence the emotional management and awareness of others—an essential skill in a therapeutic relationship of an OT practitioner and their client (Andonian, 2013; Brown et al., 2016). Furthermore, the increasing diversity of the nation brings forth both opportunities and challenges for practitioners to create and deliver culturally aware and humble services. It includes the need to understand the effects of lifestyle and cultural differences on health-related behaviors in addition to the need to adapt treatment plans to potentially different lifestyles and familial patterns. Studies addressed the need for cultural knowledge and also utilized measures such as the Cultural Competence Assessment Instrument as a scale to measure practitioner's perceived levels of cultural competency.

Table 2

22 Articles Addressing Professional Attitudes with Relevant Method of Assessment and Its Brief Description

Author	Method of Assessment	Brief Description
(Andonian, 2013)	Mayer-Salovey-Caruso Emotional Intelligence Test Student Confidence Questionnaire	This study explored the relationship of emotional intelligence level and self-efficacy to fieldwork performance for OT students.
(Ashby et al., 2016)	Survey	Likert scales and yes/no responses were included to investigate students' perceptions of their own professional identity formation, factors influencing students' decision to study OT and program factors influencing professional identity formation.

(Atler & Gavin, 2010)	Survey Reflection paper	Students indicated their understanding of signs and symptoms of neurological conditions and the impact of neurological conditions on daily life. Skill and confidence items reflected key actions used in the OT process (interview, observe, interact, plan, implement, document). Students indicated how they felt about their skills supporting them in working with adults with neurological conditions and their levels of confidence in carrying out each key action.
(Brown et al., 2011)	Survey	55 Likert-type items (multicultural knowledge, multicultural skills, frequency of multicultural training methods use, and contextual factors that influence multicultural training), and five open ended questions on educator's perspective on the three most important content areas and skills and the three most effective teaching methods.
(Brown et al., 2015)	Genos EI Ten-Item Personality Inventory SPEF	This study investigated whether OT students' emotional intelligence (EI) and personality traits are predictive of specific aspects of their fieldwork performance.
(Brown et al., 2016)	Jefferson Scale of Physician Empathy (JSPE) Medical Condition Regard Scale	The objective of this study was to determine the extent of empathy and attitudes towards clients amongst OT students.
(Castro et al., 2016)	Cultural Competence Assessment Instrument (CCAI-UIC) Cultural Awareness and Sensitivity Questionnaire (CASQ)	Developed a modified 30 item scale in Spanish was developed to assess personal, therapeutic strategies, and persons' cultures.

(Chipchase et al., 2012)	Questionnaire	Educators are asked to describe what they believed were the key characteristics that indicate that a student is prepared for a clinical placement and ready to learn under six themes: knowledge, willingness, professionalism, communication and interaction, personal attributes, and skills
(Govender et al., 2017)	Interview	OT students' perceptions of cultural competence in relation to language and culture and the influence on their practice.
(Haro et al., 2014)	Interview	Practicing OTs were asked to reflect on international fieldwork placements (IFP) in general, relevance of IFPs to OT roles, most important impacts of IFPs on clinical practice.
(Holland et al., 2013)	Interview	The interview aimed to explore how novice OTs conceptualized professional confidence.
(Hussain et al., 2018)	Norwegian Self-efficacy for Therapeutic Mode Use (N-SETMU) Norwegian Self-Efficacy for Recognizing Interpersonal Characteristics (N-SERIC) Norwegian Self-efficacy for Managing Interpersonal Events (N-SEMIE)	This study examined short-term changes in OT students' self-efficacy for using therapeutic modes, for recognizing clients' interpersonal characteristics, and for managing interpersonal events. Factors associated with such changes were also examined. Existing measures were adapted into Norwegian.
(Knecht-Sabres, 2010)	Survey Journaling Interview	Multi-methods approached was used to examine the effectiveness of the integration of experiential learning opportunities near the end of the OT students' didactic education.

(Lee et al., 2016)	Learning activities with a Kolb's reflecting learning cycle followed by a post-test	The learning activities, incorporating Kolb's reflective learning cycle, was used to support students' capacity for clinical reasoning and better prepare them for clinical placement. The approach and findings of this study are relevant to a range of allied health professions through providing a process to support the development of higher order critical thinking, reflection, and reasoning skills.
(Opseth et al., 2017)	N-SETMU and sociodemographic/ education-related factors	To explore sociodemographic and education-related factors associated with self-efficacy for therapeutic mode use.
(Perkinson, 2019)	Fieldwork Experience Assessment Tool	The instrument focuses on attitudes (e.g., the extent to which the student is an active learner, shows initiative, is non-judgmental, is flexible/tries alternate approaches) and on behaviors.
(Reyes & Brown, 2016)	Self-report survey City of Boston's Rehab Professionals' Knowledge and Attitude Survey (COBS) measuring rehab professionals knowledge and attitudes regarding pain	The COBS is a measure of rehabilitation therapists' pain knowledge and pain attitudes.
(Robinson et al., 2012)	Discussion	Questions were asked to explore OT faculty and students' perspectives of the meaning of professionalism.
(Seah et al., 2011)	Interview	Questions were asked to explore the lived experience of recent graduates on their transition from student to practitioner within the first six months of practice.
(Sim & Mackenzie, 2016)	Interview	Questioned were asked to explore the perceptions of study participants about their fieldwork experiences in developing countries and to understand the contribution that these placements made to their practice.

(Suarez-Balcazar et al., 2009)	Cultural competence assessment instrument (CCAI)	The CCAI includes 49 items that measured four components: awareness, knowledge, skills, and practice and application of cultural competence.
(Veras et al., 2013)	Survey	(1) Resident physicians' knowledge of underserved patients to measure actual and perceived resident physician's knowledge of underserved patient populations in the United States (2) a global health competency skills survey for medical students (3) the Canadian Medical Education Directives for Specialists (CanMEDS) competencies.

The qualitative nature of professional attitudes resulted in the utilization of surveys and interviews for qualitative analysis (see Table 3). Additionally, professional attitudes was comprised of multiple components such as cultural competency and personality attributes. This was also reflected in the multitude of assessments that measured cultural knowledge and personality assessments that measured traits such as emotional intelligence and self-efficacy. Furthermore, practitioners are bound to a shared set of behaviors and attitudes that are conducive to a professional environment. This set of attitudes includes treating clients with respect and dignity, and establishing and maintaining professional boundaries all while upholding legal and ethical responsibilities. In healthcare, the discrepancy in power between a client and healthcare provider during a clinical encounter creates an imbalance in the practitioner-client relationship. For example, a practitioner's professional position allows access to their client's sensitive personal information, placing the client in a vulnerable position. Therefore, practitioners should continuously make the effort to respect this power differential and ensure professional boundaries (Henderson, 2003). In OT, clients include those with chronic medical conditions and those who may have experienced a traumatic health event, thus making them more vulnerable and in need of more intensive health services. As a result, OT clients typically will experience an increased number of interactions with providers due to continual follow up visits in order to achieve functional goals that were determined at initial evaluation. Therefore, a therapeutic relationship in the context of OT is one where practitioners maintain a professional attitude in order to apply their professional knowledge, skills and abilities towards meeting the health needs and goals of clients.

Table 3

Assessment Measures and Select Interview Questions that Addressed Professional Attitudes

Author	Method of Assessment	Select Interview/Discussion Questions
(Andonian, 2013)	Mayer-Salovey-Caruso Emotional Intelligence Test Student Confidence Questionnaire	*
(Ashby et al., 2016)	Surveys	"In this study we define professional identity as 'the recognition of beliefs, attitudes, values, knowledge, skills and understanding of one's role, within the context of the professional group to which you belong' (Adams et al., 2006). Do you agree with this definition?"
(Atler & Gavin, 2010)	Survey Reflection paper	*"Write a personal essay on your service-learning experience this semester. Address what you have learned and where you are in your current knowledge, skills, and confidence in working with adults with neurological conditions."*
(Brown et al., 2011)	Survey	*"Data collection consisted of 8 demographic items, 55 Likert-type items (multicultural knowledge, multicultural skills, frequency of multicultural training methods use, and contextual factors that influence multicultural training), and five open ended questions which "directed educators to expand on their responses by giving their opinion on the three most important content areas and skills and the three most effective teaching methods. They also were asked to identify the three most significant challenges to multicultural training."*

(Brown et al., 2015)	Genos EI	*
	Ten-Item Personality Inventory	
	SPEF	
(Brown et al., 2016)	Jefferson Scale of Physician Empathy (JSPE)	*
	Medical Condition Regard Scale	
(Castro et al., 2016)	Cultural Competence Assessment Instrument (CCAI-UIC)	*
	Cultural Awareness and Sensitivity Questionnaire (CASQ)	
(Chipchase et al., 2012)	Questionnaire	7-Point Likert Scale: Knowledge and Understanding: "*The student demonstrates sound theoretical knowledge in basic sciences...*" Willingness: "*The student is willing to work as a team with peers, colleagues and other health professionals...*" Professionalism: "*The student has a thorough understanding of the code of conduct and ethics for their profession...*" Communication and interaction: "*The student has a thorough understanding of the code of conduct and ethics for their profession...*" Personal attributes: "*The student demonstrates enthusiasm and interest in the placement...*" Skills: "*The student demonstrates time management skills...*"
(Govender et al., 2017)	Interview	"The student's opinions on the influence they believed language and culture have on occupational therapy practice/intervention... Student's learnings of language and cultural influences in their practice and how they have negotiated this in OT practice."

(Haro et al., 2014)	Interview	Reflections on IFP experiences in general *"Can you tell me about how you think these experiences may have influenced your occupational therapy career? Can you provide an example from your IFP that illustrates this?"*
		IFPs on clinical practice *"Reflecting on all your experiences, what was one or two things that spoke to the overall impact of this placement on your OT career today?..."*
(Holland et al., 2013)	Interview	"What does professional confidence mean to you as a community service occupational therapist?..."
(Hussain et al., 2018)	Norwegian self-efficacy for therapeutic mode use (N-SETMU) Norwegian Self-Efficacy for Recognizing Interpersonal Characteristics (N-SERIC) Norwegian self-efficacy for managing interpersonal events (N-SEMIE) Translated into Norwegian Taylor RR (2008) The Intentional Relationship. Occupational Therapy and the Use of Self. Philadelphia: FA Davis.	*
(Knecht-Sabres, 2010)	Survey Journaling Interview	Likert Scale: 1-7 *1. Level of comfort interacting with patients/clients* *2. Ability to explain the role of OT to patients/clients and others (family, professionals, etc.)* *3. Ability to perform an OT evaluation* Interviews addressed their perceptions of their experiential learning opportunities and interpretation of the changes in individual pre- and post- test scores

(Lee et al., 2016)	Learning activities with a Kolb's reflecting learning cycle followed by a post-test	Each student was allocated 20 minutes to evaluate the three orthoses by a peer. To test students' ability to accurately assess orthoses, the peer assessor score was compared with the expert assessor's score; this allowed students to measure their progress and acquisition of the desired clinical reasoning competencies.
(Opseth et al., 2017)	N-SETMU and sociodemographic/education related factors	*
(Perkinson, 2019)	Fieldwork Experience Assessment Tool	*
(Reyes & Brown, 2016)	Self-report survey City of Boston's Rehab Professionals' Knowledge and Attitude Survey (COBS) measuring rehab professionals knowledge and attitudes regarding pain	*
(Robinson et al., 2012)	Discussion	*"What is professionalism?* *...* *How is professionalism different in other health professions, for example, medicine?"*
(Seah et al., 2011)	Interview	*"Can you tell me about your experience of being a new occupational therapist?* *…* *How would you describe your experience at work?* *...* *What would you say influenced your experience of transition to practice? "*
(Sim & Mackenzie, 2016)	Interview	*"First, can you tell me about your international placement experience?* *...* *Expectations of self before the placement* *....* *Finally, what advice would you give to future students considering international placements?"*

(Suarez-Balcazar et al., 2009)	Cultural competence assessment instrument (CCAI)	*
(Veras et al., 2013)	Survey	Scaled items on confidence, perceived skills, and learning needs: *"Language barrier and adverse impact on health and healthcare* … *Communication skills* ... *Health risks associated with travel and migration, with emphasis on possible risks and appropriate management, including referrals"*

* Due to licensing issues, this scoping review did not obtain permission to reproduce questions from assessments and measures that were developed outside of the included articles and were left blank.

Professional Communication

Lack of communication creates situations where errors can potentially occur and therapeutic rapport is difficult to establish. Contrastingly, effective communication between practitioners and clients is essential for the successful outcome of individualized care for each client. Not only do proficient communication skills enhance client satisfaction, but they also establish a mutual understanding thus maximizing therapeutic success for the client. Occupational therapists must communicate with a variety of people, including clients, clients' families, colleagues, and support staff. Table 4 displays the studies that have explored the notion that developing effective and empathic communication skills is necessary for productive and respectful client interactions.

Table 4

8 Articles Addressing Professional Communication with Relevant Method of Assessment and Its Brief Description

Author	Method of Assessment	Brief Description
(Adam et al., 2011)	Interview	Questioned were asked to explore the perceptions of study participants about their fieldwork experiences in developing countries and to understand the contribution that these placements made to their practice.
(Carstensen & Bonsaksen, 2017)	Self-Assessment of Modes questionnaire (19 short clinical vignettes)	Questionnaire designed to help therapists identify the mode or modes of relating to clients that are comfortable for them, and to identify the types of modes that are not
(Evenson, 2013)	Surveys	Pre- and post- confidence surveys were administered to students after preparatory EBP course to reflect on the students' perceptions of their own ability to critically use EBP. 18 items were included that assessed descriptive, assessment, and intervention EBP.
(Ghysels et al., 2017)	Hasselt Occupational Performance Profile (H-OPP)	The H-OPP is a digital coach that guides and facilitates professional reasoning in (novice) OTs. It augments involvement of the client system. Furthermore, it enhances interdisciplinary communication and evidence-based care.
(Schwank et al., 2018)	Self-Efficacy for Therapeutic Use of Self: Self Efficacy for Recognizing Interpersonal Characteristics Self Efficacy for Therapeutic Mode Use Self Efficacy for Managing Interpersonal Events Scale	Questionnaire asks respondents to rate their level of confidence that they have the required skills to use each of the therapeutic modes rate their level of confidence that they have the required skills to recognize client's interpersonal characteristics in therapeutic encounters, rate their level of confidence that they have the required skills to manage the interpersonal challenges that may occur in therapeutic encounters
(Wener et al., 2015)	Analysis of client completed Session Rating Scale (SRS)	SRS can be used by clinicians to ensure that counselling sessions meet the client's needs as perceived by the client, thus incorporating a key aspect of a client-centered approach.

(Yu, Brown, & Thyer, 2018)	Active-Empathetic Listening Scale (AELS) Listening Styles Profile-Revised (LSP-R) Interpersonal Communication Competence Scale (ICCS) Student Practice Evaluation Form–Revised (SPEF-R)	The AELS is a validated measure of active and empathetic involvement of a speaker in various interpersonal relationships. The LSP-R is a widely utilized communication tool to assess a person's preferred listening style approach. The ICCS is a global measure of a person's ability to perform specific skills required to manage interpersonal relationships. The SPEF-R is nationally recognized measure of OT student practice educational performance within Australia.
(Yu, Brown, White, et al., 2018)	Active-Empathetic Listening Scale (AELS) Listening Styles Profile-Revised (LSP-R) Interpersonal Communication Competence Scale (ICCS)	The AELS is a validated measure of active and empathetic involvement of a speaker in various interpersonal relationships. The LSP-R is a widely utilized communication tool to assess a person's preferred listening style approach. The ICCS is a global measure of interpersonal communication.

Table 5 outlines the assessment measures and interview questions that addressed professional communication. Competent practitioners should be confident in their communication skills as errors due to poor communication have the potential to cause further harm to the client. However, communication is not limited to verbal communication but also consists of body language, attitude, active listening skills, and tone (Yu, Brown, & Thyer, 2018; Yu, Brown, White, et al., 2018). Higher scores on the Interpersonal Communication Competence Scale: Interaction Management subscale scores were associated with better Student Practice Evaluation Form-Revised communication skills, suggesting that strong interprofessional communication skills allow for more confident and competent practice and that communication is a multifaceted concept (Yu, Brown, & Thyer, 2018). For instance, an effective communicator would be able to listen and understand the nuances of the conversation between two individuals as this skill is crucial in enhancing interpersonal relationships towards greater understanding and mutuality. Martin (2011) claimed that therapeutic responses are considered only effective in the instances where the client feels understood and is viewed on equal terms with the therapist as both leader and follower in therapy (as cited in Wener et al., 2015, pp 309). Therefore mutuality, in the context of a therapeutic relationship, is the notion that the practitioner and client are equal partners in the treatment process which allows for collaborative, goal-focused therapy plans for clients. For these reasons, OTs should be proficient in communication to ensure that they are being understood, as well as understand their client's needs, in order to improve client outcome through the fostering of mutuality and collaboration.

Table 5

Assessment Measures and Select Interview Questions that Addressed Professional Communication

Author	Method of Assessment	Select Interview/Discussion Questions
(Adam et al., 2011)	Interview Survey	Participants completed a 1-hour semi-structured interview on the skills and stakeholder perceptions of OT and physiotherapy. Survey was on a 5-point Likert scale. *"Occupational therapists and physiotherapists need very good communication skills to work effectively In OHS/work related practice.* *...* *Occupational therapists and physiotherapists require a good understanding of the roles and functions of colleagues and others in OHS/work related practice."*
(Carstensen & Bonsaksen, 2017)	Self-Assessment of Modes questionnaire (19 short clinical vignettes)	*
(Evenson, 2013)	Surveys	5-point Likert scale regarding confidence: *"... searching the literature* *...critiquing and evaluating the evidence* *...communicating the EBP findings via a written summary"*
(Ghysels et al., 2017)	Hasselt Occupational Performance Profile	*

(Schwank et al., 2018)	Self-Efficacy for Therapeutic Use of Self:	*
	Self Efficacy for Recognizing Interpersonal Characteristics	
	Self-Efficacy for Therapeutic Mode Use	
	Self-Efficacy for Managing Interpersonal Events Scale	
(Wener et al., 2015)	Analysis of client completed Session Rating Scale (SRS)	*
(Yu, Brown, & Thyer, 2018; Yu, Brown, White, et al., 2018)	Active-Empathetic Listening Scale (AELS) Listening Styles Profile-Revised (LSP-R) Interpersonal Communication Competence Scale (ICCS) Student Practice Evaluation Form–Revised (SPEF-R)	*

* Due to licensing issues, this scoping review did not obtain permission to reproduce questions from assessments and measures that were developed outside of the included articles and were left blank

Collaboration
Effective communication is not limited to the communication between practitioner and client as current OT practices require interprofessional collaboration. Practitioners should be familiar with core principles of interprofessional practice and be able to articulate their distinct value within the team. The current review reflects the lack of emphasis in fostering collaboration between OTs and other healthcare professionals. Table 6 shows the four studies that accounted for the concept of interprofessional collaboration for entry-level OTs.

Table 6

4 Articles Addressing Collaboration with Relevant Method of Assessment and Its Brief Description

Author	Method of Assessment	Brief Description
(Aguila et al., 2012)	Interview	Questions investigated interprofessional core values
(Arenson et al., 2015)	Attitudes Toward Healthcare Teams Interdisciplinary Education Perception Scale	Assessed team work attitudes and students' perception of IPE
(Dancza et al., 2013)	Semi structured interviews and self-reflection	Students were asked to reflect on emerging role placement (prior to, during, and within two weeks of the end of the placement). Topics included "the enablers and challenges to student learning, the level of support required, and their use of occupation and OT theory
(Thomas et al., 2017)	Survey	Examined the impact of an interprofessional, ICU based laboratory simulation on physical and OT students' feelings of confidence and preparedness to practice in acute care; the students' perceptions of whether specific laboratory experiences were beneficial to their learning in acute care and instructors' perceptions of whether students were prepared and confident in their skills for their acute care internship after the experiential laboratory.

In the literature, it was apparent that measuring one's ability to work in a collaborative setting is not easily quantifiable. This was demonstrated through the utilization of guided discussions and interviews to understand the viewpoints and attitudes of students and practitioners regarding IPE and collaboration (see Table 7). According to the preamble of the Accreditation Council for Occupational Therapy Education (ACOTE) Standards and Interpretive Guide, practitioners should "be prepared to effectively communicate and work interprofessionally with those who provide care for individuals and/or populations in order to clarify each member's responsibility in executing components of an intervention plan" (ACOTE, 2018). Additionally, in order to achieve improved health

outcomes, client satisfaction, and reduced healthcare costs, OT practitioners must not only practice interprofessionally with other allied health and medical professionals, they must also be prepared to effectively collaborate intraprofessionally in the delivery of OT services (AOTA, 2018). Therefore, due to the holistic nature of OT practice, the integration of varying perspectives through intra and interprofessional collaboration of healthcare professionals is fundamental for OT. The distribution of responsibility for problem solving and decision making contributes to the formulation and execution of the most optimal treatment plan for the client.

Table 7

Assessment Measures and Select Interview Questions That Addressed the Ability to Work in Collaboration with Other Healthcare Sectors

Author	Method of Assessment	Select Interview/Discussion Questions
(Aguilar et al., 2012)	Interview	*"What do you believe are the values of [the other profession]?" ...*
(Arenson et al., 2015)	Attitudes Toward Healthcare Teams Interdisciplinary Education Perception Scale Assessed upon the completion of health mentors program	*
(Dancza et al., 2013)	Semi-structured interviews and self-reflection	*"What have been the highlights/challenges for you during this placement?* *...* *What have been the key things you have learnt from this experience?"*
(Thomas et al., 2017)	Survey	Participants were asked how prepared they felt to practice in an ICU setting using a 5-point Likert scale.

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Delivery of Quality Service

In recent years, client care has transitioned to value-based care (Ray & Kusumoto, 2016). As a result, quality in the context of healthcare is a client-centered approach where care focuses on the engagement and involvement of the client so that the client has autonomy in their course of care. In order to do so, practitioners should be equipped with the necessary knowledge supported by external scientific evidence and expertise to provide the most effective treatment options for their clients in order for them to make informed decisions for their health outcomes. Table 8 depicts the 15 studies that investigated clinical reasoning skills and its application to fieldwork experiences.

Table 8

15 Articles Addressing the Delivery of Quality Service with Relevant Method of Assessment and Its Brief Description

Author	Method of Assessment	Brief Description
(Avi-Itzhak, 2015)	Pre/post practice NBCOT (2013) test after a two-year seminar	Assesses four domains: Gather information regarding factors that influence occupational performance, Formulate conclusions regarding the client's needs and priorities to develop a client-centered intervention plan, Select and implement evidence-based interventions to support participation in areas of occupation throughout the continuum of care, Uphold professional standards and responsibilities to promote quality in practice.
(Avi-Itzhak & Krauss, 2010)	Pre/post practice NBCOT (2013) test after seminar Weekly practice sessions: refine their skills in analyzing vignettes addressing evaluation and intervention across the lifespan	Assesses four domains: Gather information regarding factors that influence occupational performance, Formulate conclusions regarding the client's needs and priorities to develop a client-centered intervention plan, Select and implement evidence-based interventions to support participation in areas of occupation throughout the continuum of care, Uphold professional standards and responsibilities to promote quality in practice.
(Avi-Itzhak & Krauss, 2014)	Pre/post NBCOT (2013) test	Assesses four domains: Gather information regarding factors that influence occupational performance, Formulate conclusions regarding the client's needs and priorities to develop a client-centered intervention plan, Select and implement

		evidence-based interventions to support participation in areas of occupation throughout the continuum of care, Uphold professional standards and responsibilities to promote quality in practice.
(Bennett et al., 2016)	Semi structured interview experience and views with EBP	Interview aimed to explore the perceptions of OT staff regarding the influence of these EBP organizational initiatives on workplace culture and clinical practice.
(Coker, 2010)	Self-Assessment of Clinical Reflection and Reasoning (SACRR)	The SACRR can be used to evaluate the effects of different educational methods on clinical reasoning.
	California Critical Thinking Skills Test (CCTST)	The CCTST is designed for use with college students and adults to gather data on individual and group critical thinking skills.
(Crabtree et al., 2012)	Adapted Fresno Test of EBP for OT (AFT)	AFT used to assess OTs' EBP knowledge and skill.
(Haynes, 2011)	Survey	Examine responses between fieldwork educators and how they perceive and report active participation in a variety of skills in comparison to with the Level I OT students they supervise.
(Hills et al., 2016)	Survey	The survey asked about their comfort and confidence levels with technology as well as participants' skills with information communication technologies.
(Nash & Mitchell, 2017)	Interview	Examine the overall thoughts and impressions regarding Frames of Reference and their value in OT.
(Nicola-Richmond et al., 2016)	Survey	This mixed methods study sought to identify the threshold concepts of OT.
(Rochman, Sheehan, & Kulich, 2013)	City of Boston's Rehabilitation Professionals' Knowledge and Attitude Survey Regarding Pain (COBS)	The COBS is a measure of rehabilitation therapists' pain knowledge and pain attitudes.
(Stronge & Cahill, 2012)	KAB Questionnaire	The Knowledge, Attitudes, Behavior (KAB) Questionnaire was adapted to explore the

		knowledge, attitude, and behavior of OTs towards EBP.
(Thomas et al., 2017)	Questionnaire Interview	Questionnaire explored attitudes towards EBP, perceptions of the teaching and assessment of EBP, and EBP self-efficacy for four cohorts of students enrolled in the program and new graduates. Then conducted focus group of senior students to further explore the quantitative findings.
(Thomas et al., 2012)	Posted vignette and related tasks	Participants read the posted vignette and instructions for the study. A total of two hours was allotted to complete five tasks that reflected the EBP steps using specific instructions.
(Vogel, 2012)	Discussion	Students participated in three new sequential, graded learning experiences during a 3-week period in this semester and was given a questionnaire to gather perspectives about educational activities

Quality Service

Studies regarding the ability to deliver quality service focused primarily on clinical knowledge and attitudes with emphasis in familiarity in EBP shown in Table 9. According to the AOTA website, EBP is the integration of appraised research results with the practitioner's clinical expertise, and the client's preferences, beliefs, and values (AOTA, 2019). EBP ensures that treatment techniques are most current and effective and allow clients to make informed choices for their treatment plan. Clients who have information regarding their health circumstances will be more compliant with treatment plans that have evidence proving that those plans lead to results. Therefore, practitioners should be competent in gathering data from multiple sources, interpreting and reasoning through gathered information, and formulating a course of action.

Table 9

Assessment Measures and Select Interview Questions that Addressed the Ability to Deliver Quality Service

Author	Method of Assessment	Select Interview/Discussion Questions
(Avi-Itzhak, 2015; Avi-Itzhak & Krauss, 2010, 2014)	Pre/post practice NBCOT (2013) test after a 2 year seminar	*
(Bennett et al., 2016)	Semi structured interview experience and views with EBP	*"...Your use of research evidence in practice (with examples) Cues:* *Describe 1–2 common treatments/interventions you use (e.g., yesterday, last week)* *What research, if any, exists to support the use of these treatments?* *How easy or difficult have you found it to apply known research in practice?* *How do you go about integrating this research evidence with other sources of information (e.g., client's wishes, context, practical aspects and your own clinical experience)?* *How do you go about making treatment decisions when little or no research is available?"*
(Coker, 2010)	Self-Assessment of Clinical Reflection and Reasoning (SACRR) California Critical Thinking Skills Test (CCTST)	*
(Crabtree et al., 2012)	Adapted Fresno Test of EBP for OT (AFT)	"Write a focused clinical question for ONE scenario to help you organize a search of the literature. ... When you find a report of original research, what characteristics of the study will you consider to determine magnitude and significance (clinical and statistical)?"
(Haynes, 2011)	Survey	52 clinical skills were listed with a checklist to rate each activity in an item scale:

		The student should perform with appropriate patients/clients The student should perform on the fieldwork educator, staff, or other students. The student should only observe and not perform on patients/clients. Skill is not applicable to the setting.
(Hills et al., 2016)	Survey	Five-point Likert scale on perceived confidence on usability: Specialized software programs, such as those used in cognitive rehabilitation Assistive technology…
(Nash & Mitchell, 2017)	Interview	"Describe your overall thoughts and impressions regarding Frames of Reference and their value in occupational therapy. There are no right or wrong answers. All substantive, professionally stated, and honest answers are welcome, regardless of whether the views are positive or negative."
(Nicola-Richmond et al., 2016)	Survey	"Reflecting on the experiences of yourself and your students, what concepts and capabilities of occupational therapy do you think are most troublesome? (please list all of the responses you can think of)…"
(Rochman et al., 2013)	City of Boston's Rehabilitation Professionals' Knowledge and Attitude Survey Regarding Pain (COBS)	*
(Stronge & Cahill, 2012)	Knowledge, Attitudes, Behavior Questionnaire	*
(Thomas et al., 2017)	Questionnaire Interview	"1. Focus Group Questions In what ways has the program helped you become an evidence-based practitioner? ... 2. Final Questionnaire- Section 1: 13-item questionnaire 7-point Likert Scale Using EBP improves the quality of care delivered to clients. ... 3. Final Questionnaire- Section 2: 29-item questionnaire on a 7-point Likert scale...

		I have received adequate training to help me understand different kinds of scientific research designs(randomized control trail, cohort study, cross-sectional) in order to implement EBP..."
(Thomas et al., 2012)	Posted vignette and related tasks	"...List the key words and sources you would use when searching for literature to answer your clinical question…"
(Vogel, 2012)	Discussion	Some questions were qualitative in nature, asking students about the most valuable aspect from the learning activity and how EBP skill development in the clinical observation situation was different from the two classroom learning activities, and what changes or recommendations they would make to improve student learning of EBP.

* Due to licensing issues, this scoping review did not obtain permission to reproduce questions from assessments and measures that were developed outside of the included articles and were left blank

Finally, it should be noted that some assessments could account for more than one theme. For instance, the investigators determined that the Student Practice Evaluation Form – Revised Edition (SPEF-R), which is widely used to evaluate OT students undertaking professional practice placements across Australia, falls under the all-encompassing theme, as shown in Table 10, with a focus on professional attitudes and communication. Table 10 also provides a brief overview of the studies. This will be important for subsequent studies that will contribute to the ongoing research for the development of competency measures that capture the many aspects of OT.

Table 10

Method of Assessment and a Brief Description that Addressed all Four Themes

Author	Method of Assessment	Brief Description
(Aguilar et al., 2014)	Interview	Open-ended questions about the values they admired in other therapists, the values they considered important for their profession and what made them proud of their profession. They were also asked to provide clinical examples of where values were and were not being upheld.
(Tanner, 2011)	Interview	Questions asking instructor perspective on students' mastery on concepts and skills
(Turpin et al., 2011)	The Student Practice Evaluation Form - Revised (SPEF-R)	Measured students' performance at the completion of a placement.

Discussion

The main objective of this scoping review was to identify the essential knowledge and skills that OTs must obtain prior to entering the workforce. The goal of OT education is to equip graduates with the necessary professional competencies for practice. However, it has been noted in the current literature that entry-level OTs may feel inadequately prepared to succeed in the clinical setting (Hodgetts et al., 2007; Seah et al., 2011; Toal-Sullivan, 2006). To identify the core competency areas of OT, a scoping review was used. The findings from this study suggest that current education practices may not fully equip recent graduate OT students with the necessary skillsets in order to confidently transition into the workplace as there are skills that are required in the workplace other than clinical knowledge. As the initial step for measuring competency, individual skillsets were organized into four core competency themes of OT: 1. Ability to work in collaboration with other healthcare sectors, 2. Uphold professional attitudes, 3. Utilize professional communication skills, and 4. Ability to deliver quality service.

The second part of this review explored the existing assessment measures that are currently being used to assess clinicians in the aforementioned skillsets. Additionally, several of the studies that were included in this review utilized focus group discussions and interviews to provide insight on the perception and attitudes of OT students and practitioners which allows for a deeper understanding of the current status of education practices that are not easily quantifiable through assessment tools. Through the compilation of both assessments and guided interview questions (Tables 6-10), this review lays the basis for further studies that aim to support students' and entry-level practitioners' transition from the education environment to the workplace.

This review presents certain limitations and must be acknowledged. For instance, many of the studies that were included in this utilized a convenience sampling as the subject pool which consisted of OT students enrolled at one institution. Additionally, this review focused on students enrolled in a master's, doctorate program, or the international equivalence for the purposes of consistency in findings. Therefore, the generalizability of the results is limited to groups of participants with similar characteristics.

Conclusion

This review adds to the growing body of evidence regarding clinical competence in OT. The current review supports the need for a comprehensive competency measure that assesses OTs with a more holistic approach ultimately designed for preparing autonomous clinical practitioners. Key findings demonstrated that measures of competency should address all four competency areas: (1) professional attitudes, (2) professional communication, (3) ability to work in a collaboration with other healthcare sectors and (4) ability to deliver quality service to clients. This review serves as a first step to capture the diversity and multidimensional aspects of OT practice that defines competent OT practitioners. Understanding the various factors that contribute to practitioner competency may help facilitate students' and entry-level OT practitioners' transition from education and fieldwork to skilled and confident practitioners in the workforce. The results of this study also have relevant application to the ongoing development and refinement of OT curricula to ensure those are current to best support contemporary professional practices. Additionally, while many of the studies found in the current review utilized various measures to assess practitioner's knowledge and attitudes, the scope of the measures was limited in the aspect of comprehensively measuring the competency of a practitioner. Therefore, future directions should include developing measures and methods to further support OTs transitional development towards professional competence and confidence.

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