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Relationships Between Reasoning, Reflective Practice, and Evidence-Based Practice: Educators' Perspectives

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Abstract

Many models of professional thinking exist within occupational therapy, but the relationships among reasoning, reflective practice, and evidence-based practice as essential skills for practice are not clear. Because occupational therapy educators impart these skills to students, understanding how educators conceptualize relationships among skills is necessary. We used Delphi methodology to explore educator conceptualizations of the relationships among clinical reasoning, professional reasoning, reflective practice, and evidence-based practice. Inclusion criteria were: an educator in an occupational therapy program for at least three years at the master's level or higher, currently an occupational therapy educator based in the United States, and available across multiple survey rounds. Nine participants completed all three survey rounds. Participants agreed that the four skills are reciprocally related to one another, with some discrepancies surrounding differing conceptualizations of clinical and professional reasoning. Additionally, relationships were understood to be non-linear and complex. Continued exploration of how these essential skills are related to one another is needed to support future exploration of how they are integrated in occupational therapy education and how this influences practice.

Keywords

Professional skills, professionalism, curriculum, faculty perceptions

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ABSTRACT

Many models of professional thinking exist within occupational therapy, but the relationships among reasoning, reflective practice, and evidence-based practice as essential skills for practice are not clear. Because occupational therapy educators impart these skills to students, understanding how educators conceptualize relationships among skills is necessary. We used Delphi methodology to explore educator conceptualizations of the relationships among clinical reasoning, professional reasoning, reflective practice, and evidence-based practice. Inclusion criteria were: an educator in an occupational therapy program for at least three years at the master's level or higher, currently an occupational therapy educator based in the United States, and available across multiple survey rounds. Nine participants completed all three survey rounds. Participants agreed that the four skills are reciprocally related to one another, with some discrepancies surrounding differing conceptualizations of clinical and professional reasoning. Additionally, relationships were understood to be non-linear and complex. Continued exploration of how these essential skills are related to one another is needed to support future exploration of how they are integrated in occupational therapy education and how this influences practice.

Introduction

Reasoning, reflection, and evidence-based practice are key professional skills for occupational therapists, but their relationships to one another are muddied by lack of conceptual clarity (Burke et al., 2023). Having a clear understanding of relationships among professional skills is necessary for teaching them to occupational therapy students. Importantly, integration of professional skills in occupational therapy education has been suggested as a way to support their use in practice (Bannigan & Moores, 2009; Krueger et al., 2020). Therefore, building a model of how these skills are related is an important first step to increasing clarity about these skills in education and, potentially, for increasing skill uptake in practice (Mosey, 1996).

Clinical/Professional Reasoning

The American Occupational Therapy Association's (AOTA) *Occupational Therapy Practice Framework* (*OTPF*; 2020) once defined clinical reasoning (Amini et al., 2014) and now defines professional reasoning as the "process that practitioners use to plan, direct, perform, and reflect on client care" (Schell, 2019, p. 482). In occupational therapy literature authors commonly cite Schell and Schell (2008, 2018) when defining reasoning and identify that they use the term professional reasoning because "it is more inclusive of occupational therapy practice that is based in clinical as well as non-clinical settings such as in schools, workplaces or other community settings" (Unsworth & Baker, 2016, p. 5). Thus, the literature on clinical and professional reasoning indicates that they are the same construct with the distinction – and therefore relationship between them – being that professional reasoning is a more inclusive term. These definitions of clinical/professional reasoning include reflection as a component of the process, suggesting a relationship between reasoning and reflection. They also encompass the entire therapeutic process, suggesting relationships between reasoning and both reflective practice and evidence-based practice.

Reflective Practice

Reflection as a behavior critical to learning arose within the education literature through the work of Dewey (1933) who considered reflection to be the "active, persistent and careful consideration of any belief […] in the light of the grounds that support it and the further conclusion to which it tends" (p. 9). Schön (1983) applied initial thinking on reflection to the context of professional practice and wrote about reflective practice, which he described as a "dialogue of thinking and doing through which I become […] more skillful" (p. 31). Schön's umbrella term "reflective practice" evokes a cyclical process and includes reflection-*in*-action, which occurs during practice, and reflection-*on*-action, which occurs retrospectively. Although more recently some authors appear to consider reflective practice to be practice in which one engages in reflection (Boniface, 2002), reflective practice also is described as a much more complex process than reflection alone, comprising a larger theory of professional knowledge (Kinsella, 2009). This complex theory as applied to all of occupational therapy professional practice thus must interact with clinical/professional reasoning and evidence-based practice.

Evidence-Based Practice
Evidence-based practice is a construct that originated within medicine and has spread across human service fields as an ideal of integrating rigorous research evidence with clinical expertise (Sackett et al., 1996). Evidence-based practice is often defined as integrating the "best available evidence" into practice (AOTA, 2020). However, focus on research as a source of evidence (over clinical expertise) has dominated the literature on evidence-based practice (Thomas & Law, 2013). The AOTA (2021) suggested that evidence-based practice integrates not only critically appraised research, but also clinical expertise, *and* client preferences, beliefs, and values. A scoping review of factors that support evidence-based practice in occupational therapy further found that many therapists acknowledge and value their own experience and expertise, as well as that of their clients, alongside research evidence (Thomas & Law, 2013). However, research has also found that practitioners appear to define evidence-based practice more narrowly as only the use of research evidence in practice to the exclusion of other potential evidence sources (Garcia et al., 2021). Regardless, integration of evidence is integral to the skill of evidence-based practice, which further suggests a connection between evidence-based practice and the necessary associated skills of clinical/professional reasoning and/or reflective practice.

Relationships Among Skills
Existing literature involving more than one of these skills describes complex relationships among them. In their model of professional thinking, for example, Bannigan and Moores (2009) considered professional thinking to be "closely aligned to clinical reasoning" (p. 343) and indicated that reasoning is made up of reflection and evidence-based practice. These authors also positioned reflective practice and evidence-based practice as complementary, supporting one another. They questioned the separation of the two practices in education as they considered their integration necessary for effective intervention. Similarly, Krueger and colleagues (2020) found that reflection promotes use of evidence-based practice. However, they also stated that engagement in evidence-based practice was still limited among practicing therapists and again encouraged integration of reflection and evidence-based practice in education.

More recently, Benfield and Johnston (2020) developed a tool to measure professional expertise, or what they referred to as "evidence-informed professional thinking." Evidence-informed professional thinking encompasses two sets of activities: critical clinical reasoning activities and evidence-informed practice activities. Interestingly, although the authors described clinical reasoning as involving the process of reflection, in their measurement tool the term reflection is only included in items related to evidence-informed practice. In contrast, critical clinical reasoning included similar items related to assessing, questioning, and appraising. Further, the authors acknowledged that Rasch analysis revealed that the two scales overlapped significantly, again pointing to the potential interdependence of reasoning and evidence-based practice.

When Cohn and colleagues (2010) discussed the significance of reflective practice to occupational therapy, they highlighted that evidence-based practice "entails integrating research evidence into the reflective reasoning process" (p. 140). In this one sentence they connected all three constructs, although, it is unclear specifically what role they considered each to play in a therapist's thinking and practice. Nonetheless, occupational therapy literature suggests that relationships among these constructs are essential to occupational therapy practice and education, and that articulating these relationships potentially advances both an integrated educational approach for these skills and application of the skills as students enter practice. The way that occupational therapy educators, who are tasked with integrating these constructs within their courses, themselves conceptualize relationships among reasoning, reflective practice, and evidence-based practice is worth considering for its impact on students and their practice. Educators must be especially clear in how they conceptualize relationships among key professional skills so that they teach the skills successfully. The aim of this study, therefore, was to understand how occupational therapy educators conceptualize relationships among clinical reasoning, professional reasoning, reflective practice, and evidence-based practice.

Method

We used Delphi methodology and followed the guidelines of Conducting and REporting DElphi Studies (CREDES; Jünger et al., 2017). Delphi methodology involves iterative survey rounds to facilitate the forming of consensus among a panel of experts (in this case, occupational therapy educators). Delphi methodology is therefore constructivist in nature, which is appropriate for our aim to capture the perspective of occupational therapy educators in an area where knowledge is lacking (Falzarano & Pinto Zipp, 2013). Data presented here comes from a larger Delphi study that also explored participant conceptualizations of definitions of these skills (Burke et al., 2024) and teaching strategies to facilitate the development of these skills in occupational therapy students. Ethical approval was obtained from Colorado State University, #3212.

Participants

Consistent with our aims, we recruited occupational therapy educators as participants. Recruitment occurred through posts on professional message boards and social media. We also used purposive sampling to send emails recruiting educators with publication histories related to reasoning, reflection, and/or evidence-based practice in occupational therapy. To ensure participants were not newly acquainted with their educator roles and perhaps less established in their understanding of the skills of interest, participants were required to have worked as an occupational therapy educator for at least three years at the master's level or higher and to be an occupational therapy educator at the time of participation. Due to potential differences in education in other countries, participants were also required to be based in the United States. Finally, to increase the likelihood of participation across multiple rounds of surveys, participants were required to express availability given the expected time requirements for participation. We screened potential participants for these four criteria using an online form. We aimed for a sample size with a minimum of ten participants due to the study purpose requiring a relatively homogeneous sample, consistent with similar studies in occupational therapy (De Villiers et al., 2005; Skulmoski et al., 2007).

Procedure/Data Collection and Analysis
Survey responses were collected over three rounds, using an online survey platform, between June and August of 2022. Participants were given two weeks to complete each survey. We sent reminders as needed and allowed participants to take additional time to complete Round 3 as needed. See Burke et al. (2024) for a visual overview of the Delphi process we used.

Round 1
During the first round, participants completed a demographic questionnaire to identify professional experience, educational background, relevant courses taught, associated institution, and philosophy of occupational therapy. The Round 1 survey itself was exploratory to collect participant perspectives on relationships between clinical reasoning, professional reasoning, reflective practice, and evidence-based practice, including the option to share a visual model of the relationship among all four. Surveys in this round consisted of open-ended questions, which had been refined through piloting by three occupational therapy educators who were not study participants. The question stem for each Round 1 question was "How would you describe the relationship between…?".

Round 2
We analyzed participant responses to the Round 1 survey to develop the Round 2 survey. The first author used content analysis to condense open-ended responses from Round 1 into discrete statements, such that, to the extent possible, each contained only one idea (Hasson et al., 2000; Stemler, 2000). As much as possible, each statement was written using participant wording. Two additional researchers (the second and fourth authors) independently checked these statements against the data. We resolved disagreements through discussion. Participant-created visual models appeared exactly as they were submitted as items in the Round 2 survey.

We asked participants to rate their agreement with each relational statement from 1 (strongly disagree) to 4 (strongly agree). They could also select "I don't know" and could share any additional comments related to each combination of skills in a free-response box. For each statement, we calculated the median response value, interquartile range (IQR), and overall percent agreement. We considered statements that achieved an IQR value £ 1 to reflect consensus among participants (Raskin, 1994; von der Gracht, 2012). Percent agreement was determined by counting the number of responses that achieved a rating of 3 (agree) or 4 (strongly agree) and dividing that by the total number of responses. We considered statements with a percent agreement of 70% or higher to reflect agreement, consistent with Delphi literature in the field that has similar stakes (De Villiers et al., 2005; Nicola-Richmond et al., 2016). We also added statements to the survey for Round 3 based on content analysis of participant comments from the Round 2 survey items.

Round 3
For Round 3, participants again rated agreement with each relational statement. As feedback to all participants, we provided the median and IQR value of each statement (along with a brief description of what these values signified). Participants were also shown their own original responses to the Round 2 items so they could compare their responses to the group median. Participants were again able to write free response comments for each relationship.

Responses in Round 3 were used to calculate median, IQR, and percent agreement for the final item set. We also calculated the difference between IQR values from Round 2 to Round 3 to investigate stability and/or convergence of responses (Landeta, 2006; von der Gracht, 2012). Differences close to zero represent stability of opinion, differences closer to three represent convergence, and negative values indicate increasing disagreement.

Results

Participants
A total of 20 potential participants were screened; 14 were eligible and invited to participate. Eleven participants completed Round 1, ten completed Round 2, and nine completed Round 3, for a completion rate across rounds of 81.8%. Across participants who completed at least one survey round, there was wide diversity of experience as an educator, with 27.3% (n = 3) reporting 3-5 years of experience, 27.3% (n = 3) reporting 6-10 years of experience, 9.1% (n = 1) reporting 11-15 years of experience, and 36.4% (n = 4) reporting more than 15 years of experience. Participants also endorsed a variety of primary focus areas within occupational therapy, with main categories of pediatrics (36.4%, n = 4), community-based (36.4%, n = 4), mental health (27.3%, n = 3), and acute care and rehabilitation (27.3%, n = 3). For more information about the participants, see Burke et al. (2024) and Table 1.

Table 1

Participant Characteristics

Participant	Years of Experience	Highest Degree	Primary Focus Area
DD02	8	OTD	Hand therapy
DD03	20	OTD	Mental health
DD04	4	OTD	Community-based, pediatrics, mental health
DD05	32	Ph.D.	Community-based, pediatrics
DD06	10	Ph.D.	Community-based, pediatrics
DD07	6	OTD	Acute care
DD08	4	OTD	Acute care/rehabilitation
DD09	4	OTD	Pediatrics
DD10	17	OTD	Mental health
DD11	11	Ph.D.	Acute care/rehabilitation, gerontology, community-based
DD12	23	Ph.D.	Mental health

Note. OTD = occupational therapy doctorate; Ph.D. = doctorate of philosophy.

Round 1
Open-ended responses describing relationships between skills led to the development of 47 discrete items (see Table 2). Additionally, four participants created and shared visual models relating all four of the constructs to one another (see Figure 1).

Table 2

Descriptive Statistics of Consensus Delphi Ratings

Round 1 Generated Item	Round 2			Round 3			Stability[a]
	Md.	IQR	A	Md.	IQR	A	
Clinical Reasoning and Professional Reasoning							
1: Clinical reasoning and professional reasoning are the same.	2	0	20%	2	0	0%	0
2: Clinical reasoning and professional reasoning inform each other.	3	1	70%	3	0	90%	1
3: Clinical reasoning is professional reasoning applied in a clinical setting.	3	0.25	60%	3	0.25	60%	0.25
4: Professional reasoning is a broader term that includes clinical reasoning.	3.5	1	80%	4	1	90%	0
5: Professional reasoning is the foundation for clinical reasoning.	3	2	50%	3	1	50%	1
6: Professional reasoning (thinking about the goals and focus of treatment) comes after clinical reasoning (thinking about the client's case).	2	0	10%	2	0	0%	0
7: Professional reasoning demands critical thinking, which clinical reasoning does not explicitly require.	1.5	1	10%	1	1	0%	0
8: Professional reasoning is used on interdisciplinary teams.	4	1	70%	4	1	90%	0.25
9: Professional reasoning must be guided by theoretical reasoning, whereas clinical reasoning is not connected to theory.	2	0.75	10%	2	1	0%	0
Clinical Reasoning and Reflective Practice							
1: Clinical reasoning and reflective practice are cyclical processes that inform each other.	4	1	100%	4	0	90%	1
2: Reflective practice is a component of clinical reasoning.	4	0.75	90%	4	0	90%	0
3: Reflective practice allows for the development of clinical reasoning skills.	4	1	90%	4	0	80%	1
4: Clinical reasoning is used for initial decision-making; reflective practice is used during the therapy process.	2	0.75	30%	2	0	20%	1
5: Clinical reasoning is less specific than reflective practice.	2	0	0%	2	0	10%	0
6: Clinical reasoning and reflective practice are used together to analyze complex situations.	4	0.75	100%	4	0	90%	0

Round 1 Generated Item	Round 2			Round 3			Stability[a]
	Md.	IQR	A	Md.	IQR	A	
7: If I am doing theory-based therapeutic reasoning, I am necessarily a reflective practitioner.	2	0.25	10%	2	1	0%	-0.5
Clinical Reasoning and Evidence-Based Practice							
1: Clinical reasoning and evidence-based practice inform each other.	4	1	100%	4	0	90%	1
2: Evidence-based practice is a component of clinical reasoning.	3	1	90%	3	1	90%	0
3: Evidence-based practice allows one to engage in clinical reasoning.	3	0.75	70%	3	1	90%	-1
4: Evidence-based practice informs clinical reasoning.	3.5	1	100%	4	1	90%	0
5: Clinical reasoning informs evidence-based practice.	3	1	80%	3	0	90%	1
6: Clinical reasoning is required for evidence-based practice.	3	1	90%	3	1	90%	0
Professional Reasoning and Reflective Practice							
1: Professional reasoning and reflective practice inform each other.	4	1	90%	4	0	90%	1
2: Reflective practice is a component of professional reasoning.	4	1	100%	4	0	90%	1
3: Reflective practice allows for professional reasoning.	3	1	90%	3	1	90%	0
4: Reflective practice is a higher level skill than professional reasoning.	2	1	30%	2	0	0%	1.25
5: Reflective practice develops/improves professional reasoning.	3.5	1	90%	4	1	90%	0
6: Both professional reasoning and reflective practice are required to analyze complex situations.	4	1	100%	4	1	90%	0
7: Both professional reasoning and reflective practice improve the quality of professional service delivery.	4	1	100%	4	1	90%	0
8: Professional reasoning provides the professional practice foundation; reflective practice provides the framework for determining strengths and gaps in knowledge and performance.	3	1	70%	3	1	90%	0
Professional Reasoning and Evidence-Based Practice							
1: Professional reasoning and evidence-based practice inform each other.	3	0	90%	3	0	80%	0
2: Professional reasoning guides evidence-based practice.	3	0	90%	3	0	70%	0
3: Professional reasoning is developed through evidence-based	3	0.75	90%	3	0	80%	0

| Round 1 Generated Item	Round 2			Round 3			Stability[a]
	Md.	IQR	A	Md.	IQR	A	
practice.							
4: Evidence-based practice is a component of professional reasoning.	3	1	100%	3	0	90%	1
5: Evidence-based practice supports/guides professional reasoning.	3.5	1	90%	4	1	80%	0
6: Evidence-based practice is used for the aspect of professional reasoning that includes decision-making with clients.	3	1	90%	3	0	90%	1
7: Evidence exists within a profession and guides that profession's reasoning.	3.5	1	90%	3	1	80%	0
8: Professional reasoning is guided by evidence across professions. [b]	NA	NA	NA	3	1	90%	NA
Reflective Practice and Evidence Based Practice							
1: Reflective practice and evidence-based practice inform each other.	3	1	100%	3	0	90%	1
2: Reflective practice encourages one to seek evidence.	3	1	90%	3	1	90%	0
3: Reflective practice includes consideration of evidence.	3.5	1	100%	4	1	90%	0
4: Reflective practice guides evidence-based practice.	3	0.75	100%	3	0	90%	0
5: Reflective practice is required for evidence-based practice (i.e., one must reflect in order to apply evidence to practice).	3.5	1	90%	4	1	80%	0
6: Evidence encourages reflection.	3	1	90%	3	1	90%	0
7: Evidence-based practice is an outcome of reflective practice.	2.5	2	50%	2	1	40%	1
8: Evidence-based practice informs reflective practice.	3.5	1	100%	3	0	70%	1
9: Evidence-based practice is a part of reflective practice.	3.5	1	80%	3	0.25	70%	0.75
Visuals							
Visual 1	3.5	1.75	70%	3	1	60%	1
Visual 2	2	0.75	30%	2	0	10%	1
Visual 3	2	0	20%	2	0	10%	0
Visual 4	3	0	70%	3	1	50%	-0.75
Visual 5 [b]	NA	NA	NA	3	0	80%	NA

Note. Md. = median; IQR = interquartile range; A = agreement.

[a] Agreement stability is calculated by subtracting the Round 3 IQR from the Round 2 IQR. For this calculation, only agreement ratings from participants who completed both Round 2 and Round 3 were used in the Round 2 IQR calculation.

[b] Item was added for Round 3 and does not have Round 2 data.

Figure 1

Participant Developed Visual Models of Construct Relationships

Visual 1

Visual 2

Visual 3

Visual 4

Visual 5
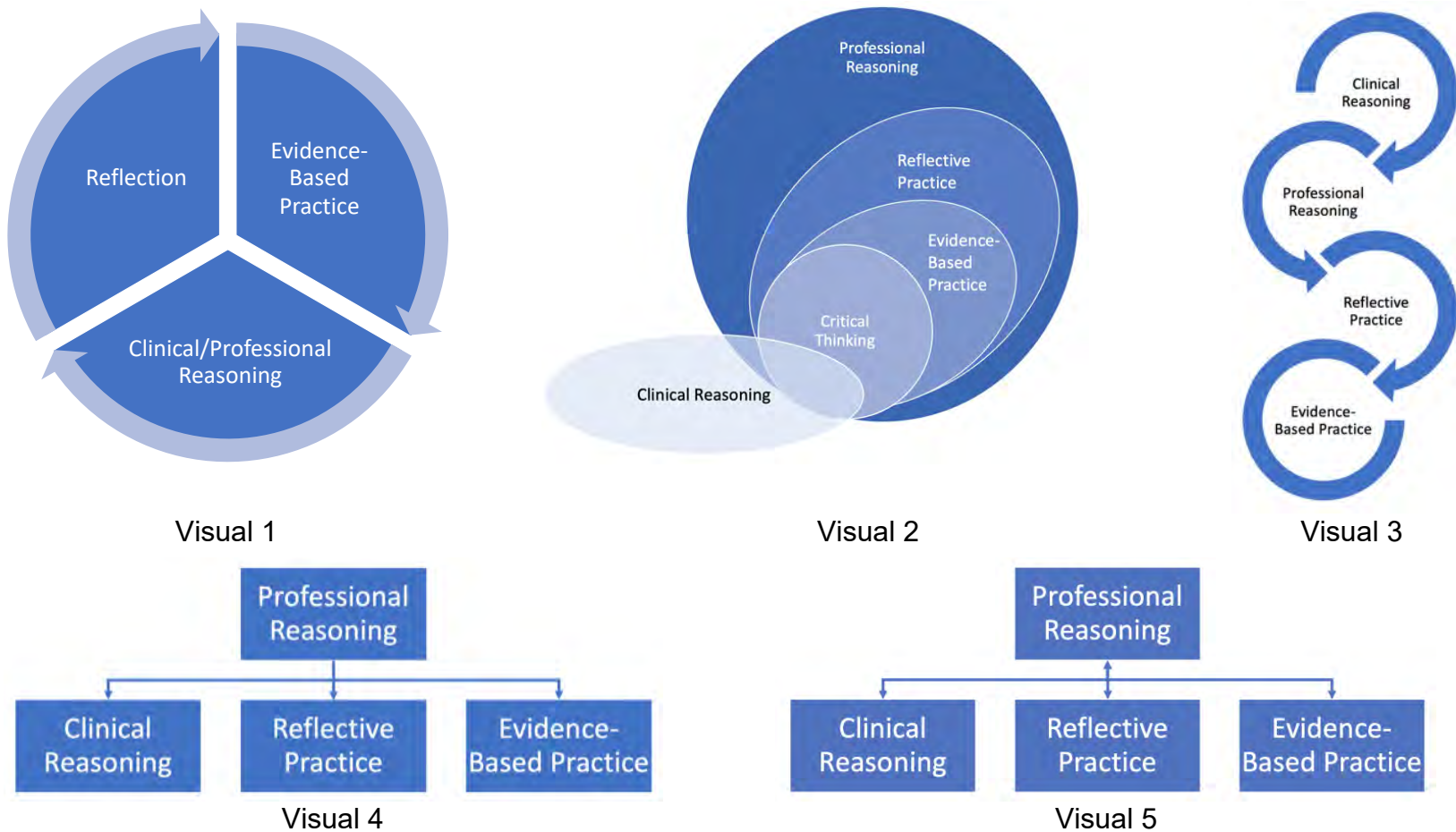
Round 2

Three of the nine items describing the relationship between clinical and professional reasoning reached the ≥ 70% agreement threshold in Round 2. Two participants (DD05 and DD09) noted that Item 6 was confusing because it also gave definitions of clinical and professional reasoning.

Four of the seven items describing the relationship between clinical reasoning and reflective practice reached the agreement threshold in Round 2. One participant (DD05) noted that Item 7 introduced a different type of reasoning that they were not sure how to incorporate into the relationship. Another participant (DD06) clarified that it is the combination of reflective practice and insight that supports the development of clinical reasoning.

All six of the items describing the relationship between clinical reasoning and evidence-based practice reached the agreement threshold in Round 2. One participant (DD06) did note that insight and critical thinking are "not officially part of clinical reasoning," to them, but that they are necessary to link reasoning to evidence-based practice.

Seven of the eight items describing the relationship between professional reasoning and reflective practice reached the agreement threshold in Round 2. There were no additional comments made about these items.

All seven of the items describing the relationship between professional reasoning and evidence-based practice reached the agreement threshold in Round 2. One participant (DD05) commented that professional reasoning can also be informed by evidence outside of occupational therapy, especially when used in interdisciplinary contexts, which led to the addition of Item 8 ("Professional reasoning is guided by evidence across professions") in this section for Round 3.

Eight of the nine items describing the relationship between reflective practice and evidence-based practice reached the agreement threshold in Round 2. There were no additional comments made about these items.

Two of the four visuals reached the agreement threshold in Round 2. In commenting on the visuals, one participant (DD10) identified that the model combining clinical and professional reasoning (Visual 1) best signified the concepts because they are conceptualized that way in the AOTA's most recent *OTPF* (2020). However, another participant (DD05) disliked combining clinical and professional reasoning because they had spent "too much time differentiating [them] to lump them together." Another participant (DD07) noted they liked Visual #4 but that it needed bidirectional arrows, which led to the addition of Visual #5 for Round 3. One participant (DD06) also noted overall that they thought the given relationship statements were too limiting, saying they were "more thinking of a Bayesian network vs. linear" relationships, although they did not share a visual exploring this way of thinking.

Round 3
Across all relationships, only items that had already met the agreement threshold in Round 2 met the agreement threshold in Round 3. Two items (Visuals 1 and 4) that had met the agreement threshold in Round 2 no longer met the agreement threshold in Round 3. Both of the new items that were added in Round 3 (Item 8 describing the relationship between professional reasoning and evidence-based practice, and Visual 5), met the agreement threshold. Items that met the agreement threshold are summarized in Table 3. There was moderate stability of opinion between Rounds 2 and 3; 57.4% ($n = 27$) of items had a change in IQR equal to 0.

Table 3

Summary of Consensus Relationships Among Professional Skills

Professional Skills	Relationship
Clinical Reasoning and Professional Reasoning	Clinical reasoning and professional reasoning inform each other. Professional reasoning is a broader term that includes clinical reasoning, and professional reasoning is used on interdisciplinary teams.
Clinical Reasoning and Reflective Practice	Reflective practice is a component of clinical reasoning which allows for the development of clinical reasoning skills. Clinical reasoning and reflective practice are cyclical processes that inform each other, and they are used together to analyze complex situations.
Clinical Reasoning and Evidence-Based Practice	Clinical reasoning and evidence-based practice inform each other. Clinical reasoning is required for evidence-based practice and evidence-based practice allows for engagement in clinical reasoning. Evidence-based practice is also a component of clinical reasoning.
Professional Reasoning and Reflective Practice	Professional reasoning and reflective practice inform each other. Both are required to analyze complex situations, and both improve the quality of professional service delivery. Reflective practice is a component of professional reasoning that allows for and develops/improves professional reasoning. Professional reasoning provides the professional practice foundation; reflective practice provides the framework for determining strengths and gaps in knowledge and performance.
Professional Reasoning and Evidence-Based Practice	Professional reasoning and evidence-based practice inform each other. Professional reasoning both guides and is developed through evidence-based practice. Evidence-based practice is both a component of and supports/guides professional reasoning, as professional reasoning is guided by evidence both within and across professions. Evidence-based practice is used for the aspect of professional reasoning that includes decision-making with clients.

Reflective Practice and Evidence-Based Practice	Reflective practice and evidence-based practice inform each other. Reflective practice guides evidence-based practice, encouraging one to seek out evidence and including the consideration of evidence. Reflective practice guides and is required for evidence-based practice. Evidence encourages reflection, and evidence-based practice is a part of reflective practice.

Participants did make some additional comments about the relational statements. Regarding the relationship between clinical and professional reasoning, one participant (DD06) commented that clinical reasoning does not require you to consider outcomes whereas professional reasoning does. Another participant (DD05) commented that they still do not think the statements capture the relationship between clinical and professional reasoning. Regarding the relationship between professional reasoning and evidence-based practice, one participant (DD09) noted that they do not "think of professional reasoning as having to do with clinical decision making" in terms of direct intervention. Finally, regarding the visual models, two participants (DD07 and DD05) commented that they appreciated the newly added visual (Visual 5), although DD05 noted that more arrows between terms should be added to represent the fluidity of the relationships among the elements. Of note, two other participants (DD10 and DD06) did not see the distinction between Visual 4 and Visual 5.

Discussion

The aim of this study was to identify agreed upon educator conceptualizations of the relationships among key professional skills in occupational therapy: clinical reasoning, professional reasoning, reflective practice, and evidence-based practice. Participants in this study did indicate they saw clinical reasoning, professional reasoning, reflective practice, and evidence-based practice as related to one another. However, they disagreed about details of the relationships, which may in turn suggest disagreement about their overall conceptualizations of the skills themselves.

Reciprocal Relationships

Within each potential relationship participants agreed that the skills informed each other reciprocally. After Round 3, the only visual model that reached consensus among participants was Visual 5, which depicts clinical reasoning, reflective practice, and evidence-based practice under the umbrella construct of professional reasoning and has these three sub-constructs in bidirectional (i.e., reciprocal) relationships with professional reasoning. Still, although participants did agree on these reciprocal relationships, their comments broadly suggested that relationships among these skills are too complex to describe with linear statements. This is unsurprising given the complexity of defining these constructs individually (Burke et al., 2023; Kinsella, 2001). However, finding ways to be explicit about relationships among these skills is important for building a larger model or theory of professional skills in occupational therapy (Mosey, 1996).

Disagreement About Clinical and Professional Reasoning

The relationship between clinical and professional reasoning was the most difficult for participants to agree on in this study. Participants agreed that professional reasoning is a broader term than clinical reasoning and that it includes clinical reasoning. This perspective is consistent with literature descriptions of professional reasoning as a similar but more inclusive term than clinical reasoning (Schell & Schell, 2018; Unsworth & Baker, 2016). However, we found only 60% agreement with the reverse of that statement, that "clinical reasoning is professional reasoning applied in a clinical setting," which indicates participants may view this relationship with more nuance than is commonly described in the literature. Further, participants agreed that clinical reasoning and professional reasoning inform each other, suggesting one practitioner could engage in both skills within the same professional context. Occupational therapy educators appear to view these skills as more significantly different from each other than does the literature.

Potentially because of conceptual confusion about the individual skills, participants here largely described the relationship between clinical reasoning and professional reasoning in terms of their similarities and differences. Participants described professional reasoning as being unique from clinical reasoning because it is used on interdisciplinary teams, suggesting they view the skill as more closely connected to occupational therapy's distinct professional identity and scope of practice. This is in line with comments from Parkinson et al. (2011), who noted that "practitioners should become as proficient as possible in their professional language" and "thereby, develop their professional reasoning skills, as opposed to the more general skills of clinical reasoning" (p. 149). Moreover, one participant did comment that professional reasoning does not involve clinical decision-making at all, further differentiating professional and clinical reasoning in a way that is not consistent with the literature.

Ultimately, after the final survey round there was still a fair amount of disagreement about the given statements relating clinical and professional reasoning, suggesting there is more complexity in how these constructs are related than was identified here. As noted, in literature the difference between these two terms is largely semantic, suggesting they are more or less the same skill. However, from these data we cannot draw firm conclusions about educator conceptualizations of the overlap between these two terms. In general, both clinical and professional reasoning are understood as being essential for occupational therapy practice. Further, participant views on clinical and professional reasoning by themselves were consistent with how they viewed each of their relationships to reflective practice and evidence-based practice; for that reason, we will use the term clinical/professional reasoning going forward when both skills were conceptualized the same way by participants.

Reasoning and Reflective Practice

Participants agreed that clinical/professional reasoning and reflective practice are cyclical processes that can be used together to analyze complex situations. This is consistent with how clinical/professional reasoning and reflective practice are described in occupational therapy professional documents and literature. For example,

professional reasoning must be iterative, since it facilitates the occupational therapy process, which is an "ongoing interaction among evaluation, intervention, and outcomes" (AOTA, 2020, p. 16). In the broader literature, reflective practice also is commonly described as an iterative process or cycle (Boniface, 2002; Duffy, 2007; Schön, 1983).

Participants also agreed that reflective practice is a component of clinical/professional reasoning and that it allows for the development of reasoning skills. Reflection itself is commonly included in the definition of reasoning, as in the *OTPF* definition (AOTA, 2020). Although there are a variety of models of clinical/professional reasoning, across models, reflection (on practice, knowledge, beliefs, and values) as well as activities related to lifelong learning are both considered essential (Benfield & Johnston, 2020). Other researchers have specified the term reflective practice when identifying its significance to reasoning. For example, in their model of professional thinking, Bannigan and Moores (2009) described reflective practice (along with evidence-based practice) as contributing to clinical reasoning. Vachon et al. (2010) described becoming a reflective practitioner as supporting "clinicians in describing their clinical reasoning processes" (p. 120). Gomes and colleagues (2022) also identified that reflective practice activities support development of professional reasoning. In this conceptualization, reflective practice is not part of reasoning, but does support reasoning to guide practice. Further delineation of how reflection and reflective practice are themselves related may clarify their distinct connections to reasoning.

A way that our participants differentiated professional reasoning from clinical reasoning in relation to reflective practice was in describing professional reasoning as providing a foundation while reflective practice provides a framework for determining strengths and gaps in professional performance. These elements of the relationship further distinguish professional reasoning from clinical reasoning, suggesting again that professional reasoning is more related to scope of practice and perhaps overall professionalism for these participants. This view was not found within the occupational therapy literature and may warrant further consideration.

Reasoning and Evidence-Based Practice
Participants agreed that the relationship between clinical/professional reasoning and evidence-based practice was relatively straightforward. They reached a consensus for all items in Round 2 and maintained consensus through Round 3. Participants agreed that evidence-based practice is a component of clinical/professional reasoning. This is consistent with models of professional thinking, such as that of Bannigan and Moores (2009), which described evidence-based practice as integrated into professional thinking/reasoning. Literature also presents the opposite idea that evidence-based practice is dependent on reasoning (Unsworth & Baker, 2016), and that reasoning provides the means for integrating evidence as part of evidence-based practice (Gustafsson et al., 2014). Alternatively, researchers have suggested that reasoning and evidence-based practice may be connected by the fact that both involve outcome measurement (Benfield & Johnston, 2020). This may be further indication of the complexities and non-linear nature of these relationships.

There were some differences in how participants considered clinical and professional reasoning in relation to evidence-based practice. They agreed that clinical reasoning is *required for* evidence-based practice, but that only professional reasoning is *developed through* evidence-based practice. This distinction may or may not be significant. Participants also identified that evidence-based practice is used for the parts of professional reasoning that include decision-making with clients, based on evidence within and outside occupational therapy. These statements suggest participants viewed evidence-based practice as related to the part of professional reasoning that most closely aligns with their conceptualization of clinical reasoning.

Reflective Practice and Evidence-Based Practice
Participants considered reflective practice to be required for, and to guide, evidence-based practice by encouraging one to seek out evidence. Evidence was also considered to encourage reflection, with evidence-based practice existing as a part of reflective practice. This is also consistent with the model of professional thinking from Bannigan and Moores (2009), who positioned reflective practice and evidence-based practice as complementary behaviors that support one another. Krueger and colleagues (2020) upheld the relationship between reflective practice and evidence-based practice and found that reflection promotes the use of evidence-based practice for practicing therapists. Habits of reflection, or critical examination of practice, have also been found to be significantly related to engagement in evidence-based practice (Benfield & Jeffery, 2022). Taken together, there appears to be agreement on the reciprocal nature of the relationship between these two practices in occupational therapy.

Other Significant Skills
Within their descriptions of relationships among these four professional skills, participants also identified other potentially relevant skills. For example, they suggested critical thinking as a component of reasoning, which is consistent with occupational therapy literature about critical thinking in the context of education (Allen & Toth-Cohen, 2019). Additionally, theory-based therapeutic reasoning was described as being used by reflective practitioners. Therapeutic reasoning is a term used in occupational therapy literature (Kielhofner & Forsyth, 2002), as is the term theoretical reasoning (Ikiugu & Smallfield, 2011). Both terms may help clarify the reasoning occupational therapists engage in as part of practice. Finally, one participant highlighted the significance of insight to the application of reflective practice to all the other skills. Insight is often considered alongside reflection as necessary for producing change or improving performance (Grant et al., 2002). Although none of these terms was explicitly explored through this research, they may be worth investigating in future research on professional skills in occupational therapy education.

Limitations
Although a small sample size was appropriate for this study's aims and methodology, the relatively small number of participants on the panel can have an influence on IQR values (Birko et al., 2015). Delphi methodology also is inherently linear, and the organization of the surveys instructed participants to first describe each relationship in

isolation, which limited development of participant ideas about more complex relationships among the skills. Researchers exploring these relationships in the future should consider using less linear processes.

Implications for Occupational Therapy Education

Occupational therapy educators should use the results presented here to consider how they conceptualize relationships among professional skills. Participants in this study agreed about overlapping reciprocal skills among clinical reasoning, professional reasoning, reflective practice, and evidence-based practice, suggesting that the most accurate visual model to describe participant perspectives may depict each of the skills as reciprocally connected to one another (see Figure 2). This visual may be a useful starting place for educators in considering their own understanding of how the skills are related and to potentially make their own visual model. Educators can ask themselves how this proposed model matches their own views, along with how it fits into their courses. Explicating relationships among professional skills at the level of the occupational therapy educator will support the development of clarity across educational programs to support student uptake of these skills. Educators should be aware of their own potential biases and share that there are differing perspectives on these constructs, asking themselves if they have allowed students to construct their own models of professional thinking skills. Relational models should be shared explicitly and used consistently throughout a given course, including when designing learning activities, assessing learning outcomes, and presenting content. Introducing definitions of these professional skills, and potential relationships among them, early in the learning process will lay a foundation for deeper exploration and understanding of both as students progress through the program. Such definitions are a first step towards future research on how teaching these skills translates to engagement with them in practice.

Figure 2

Proposed Relational Model for Professional Skills in Occupational Therapy Education
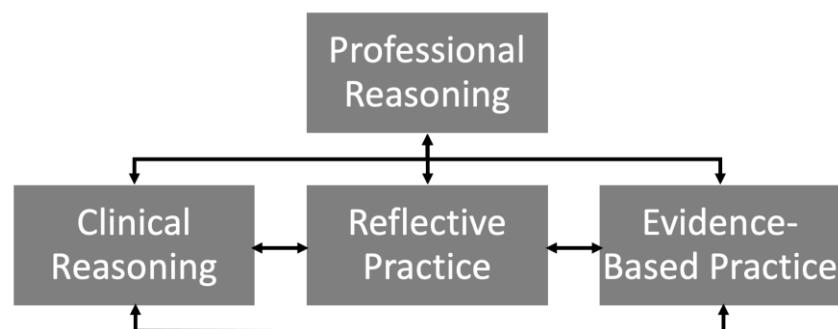
Conclusion

Clinical reasoning, professional reasoning, reflective practice, and evidence-based practice are essential skills for occupational therapy students to learn and apply in their practice. Occupational therapy educators are tasked with integrating these skills in their courses. Educators appear to agree that all these skills are reciprocally related, but they disagree about the details of relationships among these key skills, which they understand as complex and non-linear. Future research on the nuances in relationships among these skills is needed to support clarity of communication about them in occupational therapy education, with the expectation that this clarity will positively impact student engagement in these skills when they enter practice and ultimately positively impact outcomes for clients.

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