Interprofessional Reflective Journals: Content Themes and Self-Regulated Learning

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Abstract

Self-reflection has been linked with clinical reasoning, academic, and clinical outcomes. The purpose of this study was to examine self-reflective journal entries from thirty students for interprofessional core competencies and for self-regulated learning components. The text data was analyzed using an in-depth three cycle coding process, thoroughly described in the methods. The findings were structured into two themes confirming interprofessional content learning: collaboration, team, and communication; and respect and roles. One additional theme emerged, transformation and relatedness, which indicated self-regulated learning components as well as supporting transformative learning. This qualitative case-study contributed to the research of occupational therapy students' self-reflection and is a basis for further research for self-regulation and transformative learning.

Keywords

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ABSTRACT

Self-reflection has been linked with clinical reasoning, academic, and clinical outcomes. The purpose of this study was to examine self-reflective journal entries from thirty students for interprofessional core competencies and for self-regulated learning components. The text data was analyzed using an in-depth three cycle coding process, thoroughly described in the methods. The findings were structured into two themes confirming interprofessional content learning: collaboration, team, and communication; and respect and roles. One additional theme emerged, transformation and relatedness, which indicated self-regulated learning components as well as supporting transformative learning. This qualitative case-study contributed to the research of occupational therapy students' self-reflection and is a basis for further research for self-regulation and transformative learning.

Self-reflection can benefit occupational therapy (OT) students as learners and as future therapists. As future OT practitioners, reflection contributes to improved clinical reasoning. As learners, self-reflection holds importance when evaluating the effectiveness of self-regulated learning (SRL) strategies. In SRL, students select and apply metacognitive or behavioral strategies to improve outcomes on self-identified educational goals. Research indicates students with stronger SRL have greater success with online education (Artino & Stephens, 2009; Wang et al., 2013). Self-reflection, the central theme of this study, promotes students' skills as they cultivate clinical reasoning. Clinical reasoning can begin with the application of manualized protocols in a narrowly controlled client population. Clinical reasoning must grow with higher levels of critical thinking and analysis as the client's complexities increase. For chronic or highly complex clients, challenges blossom into clinical reasoning within interprofessional (IP) practice. In preparation for fieldwork and professional practice, the OT accreditation

standards (Accreditation Council for Occupational Therapy Education [ACOTE], 2018) require students to be prepared for a collaborative IP perspective of clinical reasoning. Self-reflective practices may advance students' clinical reasoning skills toward this expectation. This study sought to identify themes aligned with IP core competencies and SRL components provided in students' self-reflective journals.

<div align="center">**Literature Review**</div>

Bringing together IP education, SRL, and self-reflection followed an iterative process in this study. The literature review will sequence these facets according to the investigative process leading to this study (see Figure 1). The Midwest university site for this study had been implementing an IP student symposium with published positive outcomes (Zucchero et al., 2011). This study began by investigating modifying an IP course to an asynchronous online format to address the logistical challenges of IP education (scheduling, space to accommodate large student groups, and availability of trained faculty). Self-regulated learning as a strategy for students' success in online courses was the next direction for the literature review (Wang et al., 2013,). More specifically, the component of self-reflection for self-assessment of SRL (Schunk & Zimmerman, 2008; Zimmerman, 2008). In addition to identifying data supporting self-reflection for deeper learning, several authors also demonstrated self-reflection as a process supporting clinical reasoning (Tryssenaar, 1995; VanPuymbrouck, 2021, Yazdani et al., 2020). Interestingly, the research on IP education also reinforced the importance of reflection for collaborative clinical reasoning demonstrating IP core competencies (Richard et al., 2019). Reflective practices were evident across the literature. While the literature supporting reflective practice, online IP education, and SRL have expanded, inconsistencies in the definitions for self-reflection and self-regulation challenge the development of the body of knowledge (Henderson et al., 2017; Martini et al., 2016). The variability in these definitions limits the analysis across studies.

Figure 1

Sequence for Literature Review; Depicts the Iterative Process of this Review
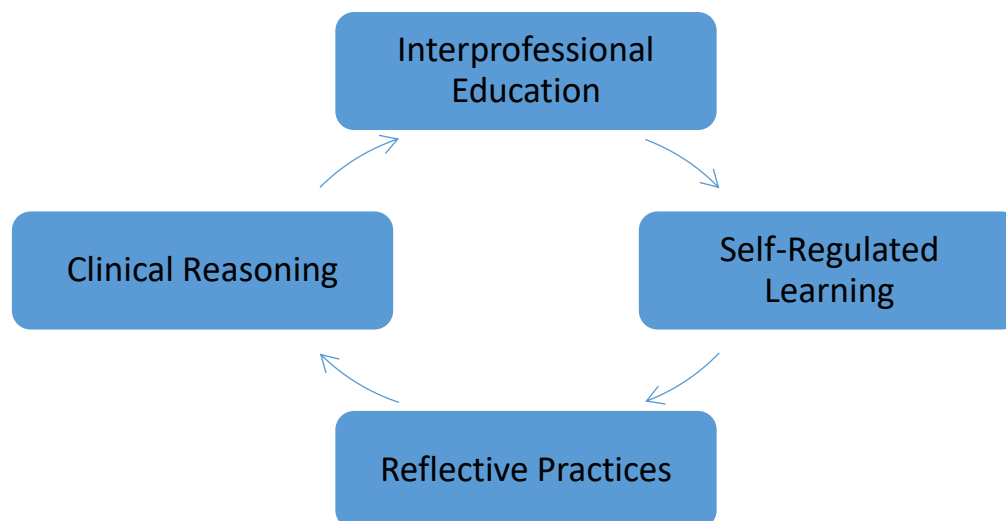
Interprofessional Education
Interprofessional education "occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p. 7). Four core competency domains for IP education have been identified: "1) Values/ethics for IP practice, 2) Roles/responsibilities, 3) IP communication, and 4) teams and teamwork" (Interprofessional Education Collaborative Expert Panel [IPEC], 2011, p. 16). The role of OT on the IP team has been supported through numerous studies across populations and settings (Halle et al., 2019; Moyers & Metzler, 2015; Richard et al., 2019). While support for IP education to improve collaboration among healthcare professionals has been documented (Björklund & Silén, 2020; Pechak et al., 2013), challenges at the educational level are similar to professional practice: scheduling, time involved with problem-solving and decision making, and space for the team to convene. Live streaming or remote video meetings have been used to overcome these logistical barriers (McKenna et al., 2014; Shoemaker et al., 2014). In education, we have numerous options for online instruction. The ideal IP education would likely include experiential IP education in small groupings of professionals in primary practice or international service learning opportunities (Halle et al., 2019; Pechak et al., 2013). Since it is not practical for all programs, simulations and Web-based learning modules were also found to effectively meet the core competencies for IP education and document student satisfaction (Björklund & Silén, 2020; McKenna et al., 2014; Shoemaker et al., 2014).

Both IP and reflective practice involve information gathering, contemplation, critical thinking and a resolution to improve the client outcomes. "Critical reflection is considered to be one of the main IP learning domains" (Richard et al., 2019, p. 425). Further depth of reflection, to gain a broader view of one's own practice and the team functioning may advance collaboration among team members. A reflective practitioner discerns the complimentary nature of their professions and that of others (Clark, 2006). Health professionals must often employ reflection as they collaborate to implement integrated client-centered care. While several researchers have analyzed thematic outcomes from reflective learning activities to assess IP education, samplings of OT students have been small in most of these studies: Doherty et al. (2018) had five OT participants; Doll et al. (2013) included three OTs; Pechak et al. (2013) had two OT participants; and two studies had four OTs (Björklund & Silén, 2020; Lachmann et al., 2014). The exception is the work by Shoemaker et al. (2014) with 24 OT students. However, Shoemaker and colleagues collected reflective submissions from student groups with physical therapy and OT, and physician assistants versus individual student entries. With eight OT students, this study adds to the total participant pool for qualitative results involving self-reflective data for IP content.

Self-Regulated Learning
Self-regulated learning has been studied in many aspects of OT. Self-regulation can also refer to interventions for emotional control through the implementation of sensory-based or sensory integrative practices (Martini et al., 2016). Self-regulation can be addressed across all ages, and often impacts mental or behavioral health. Self-regulated strategies can include changes to the environment (decreasing distractions,

playing specific music, locating a study space with less interruptions), behavioral practices (such as external rewards or timed work sessions), and metacognitive strategies (such as previewing a chapter, making an outline, brainstorming). For educators of professional healthcare disciplines, helping students to realize the importance of selecting and implementing self-regulated strategies can improve the academic success of students. Confusion regarding the terminology for SRL can lead to misperceptions for IP teams (Martini et al., 2016).

This study defined SRL using a psychology basis involving metacognitive, environmental, or behavioral strategies to address changes in students' desired outcomes. According to Zimmerman (2008), SRL theorizes self-reflection provides the learner with the opportunity to assess their knowledge against the desired goal of the learning task. Self-regulated learning involves a three-part process, beginning with planning and self-identified learning goals. Step two involves selecting and implementing strategies: the learner identifies metacognitive or behavioral strategies, as noted above, to apply along with their usual learning process to increase successes. The third step in the cyclical SRL process is to self-reflect on the progress for self-assessment of the effectiveness of the selected strategies. When the student's appraisal recognized successes, they should continue to implement the learning process. If the self-assessment revealed performance short falls, the student can modify their learning strategies and implement other strategies to meet their educational goal(s) (Artino & Jones, 2013; Williams et al., 2009). This process mirrors practice when clinicians monitor intervention progress to modify treatment strategies as needed. Sandars (2009) recommended reflection in medical education, connecting reflection and self-regulation as a "metacognitive process that creates greater understanding of self and situations to inform future action" (p. 685). When learners apply reflection and self-assessment to evaluate the quality of their learning their opportunities for course success increase. Wang et al. (2013) found online students who implemented effective self-regulation and self-efficacy strategies experienced better performance and greater satisfaction.

Reflective Practice
Developing an accurate, concise definition of reflection and reflective practice has been reviewed in several studies across professions (Fragkos, 2016; Nguyen et al., 2014; Reiter et al., 2018; Ziebart & MacDermid, 2019). As reported above, IP education has a common definition from WHO (2010) which is accepted across disciplines. A universally accepted definition of reflection has not yet emerged. The colloquial use of reflection infers thoughtful contemplation of a past event or situation usually aimed at improving future responses. Within health professional education, reflection contributes to greater understanding and depth of learning, self-awareness, development of relevance and meaning (Dyment & O'Connell, 2011; Lee et al., 2016; Mann et al., 2009; Schell, 2018). In addition, self-reflection which supports engagement contributed to the development of clinical reasoning (Kinsella et al., 2012; Nguyen et al., 2014) and development of professional competence (McLeod et al., 2020; Sandars, 2009; Schön, 1983; Ziebart & MacDermid, 2019). Explicitly teaching reflection with structured, supportive feedback is critical. Experiential or case-based learning strategies demonstrated positive outcomes

for teaching the reflective process (Lee et al., 2016; VanPuymbrouck, 2021). Self-reflection as a core component of SRL supports the transition from knowledge to practice (Sandars, 2009; Yazdani et al., 2020). For this study, self-reflection was defined as a deliberate metacognitive and affective process involving appraisal of self, the context, and the situation to inform future encounters (Mann et al., 2009; McLeod et al., 2020; Sandars, 2009; Ziebart & MacDermid, 2019).

Various electronic recording tools and site-based lab opportunities have been reported to document student self-reflection for effective performance skills (Mącznik et al., 2015; Mu et al., 2014). Dyment and O'Connell (2011) found the connection between journaling and "deep reflection for higher education students is undeniable" (p. 82). Reflective journals are utilized as a learning strategy for developing self-reflection and as a data collection method for documenting self-reflection. As a teaching method, it is crucial for the instructor to provide scaffolded feedback for the student to improve their self-reflection (Aronson, 2011). Ziebart and MacDermid (2019) found reflective journaling to be the most common method for developing reflective practice. Reflective journals were utilized for collecting student data across the majority of the qualitative studies cited in this literature review. Perkins and Schmid (2019) investigated the use of self-reflective journals for developing emotional intelligence and self-assessment. Although their study was not directed toward IP education, they concluded that self-reflective journals increased self-awareness, which is a component of SRL. The purpose of this study was to identify depth of content learning for IP core competencies and SRL components by analyzing students' reflective journal entries. Other researchers have studied OT student self-reflections related to IP education and clinical reasoning. However, the connection with SRL was not included.

Clinical Reasoning

Occupational therapists' clinical reasoning applies self-reflection for the critical analysis of the client's occupational profile, the evidence-based practice, and the client-focused outcomes. While expert clinicians apply the process tacitly, for students it requires an explicit procedure (Wong et al., 2016). Aronson (2011) described twelve strategies for teaching self-reflection for medical students as a means of improving clinical reasoning. Applying clinical reasoning for complex clients, such as within IP practice, requires thoughtful self-reflection. Coker (2010) utilized experiential learning through a one-week intervention program to study the clinical reasoning of OT students. By comparing pre- and post-scores on the Self-Assessment of Clinical Reflection and Reasoning and California Critical Thinking Skills Test and self-reflective journaling, she found the experiential learning intervention improved clinical reasoning. Coker also found the use of reflective analysis enhanced the students' critical thinking for clinical reasoning. However, recently Henderson and colleagues (2017) surveyed OT educators regarding instructional methods utilized for developing students' clinical reasoning. In this study reflective journaling was not identified as one of the top five most or least frequently utilized instructional methods. Future research implications may have reflected biases on the part of Henderson et al. by suggesting investigation of student preparations for reflective practice to individualize reasoning for clinical practice. In another study,

occupational and physical therapy students worked together with virtual case studies utilizing collaborative clinical reasoning for intervention plans (Björklund & Silén, 2020). The qualitative analysis in their study emphasized the importance of respect and effective communication for IP practice.

Purpose and Context

The purpose of this study was to identify IP education and SRL themes from reflective journal entries from an online IP graduate course. This study specifically examined two research questions: 1) What themes emerge from reflective online journal entries which indicate enhanced IP content learning related to the IPEC competencies? and 2) What SRL phases or components (i.e. metacognitive, behavioral, or environmental strategies: examples are noted in SRL of literature review) were evident in online journal entries? This study also contributes to the collective qualitative pool of OT students' reflections regarding IP education.

For this study, the instructor/researcher implemented self-reflective journals for each module in an online IP course. As the course instructor and primary investigator, within the ethical approach approved by the Institutional Review Board, participation for this study was tracked by a faculty member at another institution. Student participation was unknown to the instructor until after final grades were reported. The study met the institutional review board requirements for expedited review at the university site and all subjects completed an informed consent.

Description of Course

An online IP course taught at one Midwestern mid-sized, private university was selected for this study. This course utilized an asynchronous online format with a collaborative learning model to engage students across disciplines in group assignments. The researcher's approach reflected a constructivist worldview with the researcher/instructor sharing her opinion of the positive impact of IP collaboration. Enrollment in this course was required for graduate students in the three disciplines (healthcare administration, nursing, and OT). To avoid coercion with the researcher as the instructor, this opportunistic sampling (Onwuegbuzie & Collins, 2007; Teddlie & Tashakkori, 2009) included students who self-selected to participate. Thirty of the 75 enrolled students (40%, total n=30) volunteered to participate in this study across the three semesters the course was offered in 2016 and 2017. The demographics were nursing (n=19), OT (n=8), and healthcare administration (n=3) with 96.7% Caucasian (n=29) and 93.3% females (n=28).

Methodology

A qualitative case study method (a single course at one university) was implemented to identify themes which emerged from the student reflective journal entries. The qualitative data presented were collected as part of a mixed methods research project for the author's dissertation. Further analysis of the themes from the perspective of reflective practice is presented here. The data source was the full text of electronic reflective journal entries submitted by each participant in response to an open-ended prompt with three questions related to IP content learning from this online course. To

enhance learning of self-reflection, instructor feedback was provided for reflective writings in six modules of the course. Since self-reflection benefits from repeated guidance and feedback (Sandars, 2009; Schön, 1987), this study collected entries only from the final module of the course. After de-identifying all content, entries were uploaded into MAXqda® version 12 (VERBI Software, 2017), a computer-assisted qualitative data program to promote organization of data, ease of coding, memoing, individual participant analysis, and cross participant analysis.

A three-cycle coding process (see Table 1) was developed combining several methodologies (Creswell, 2013; Miles et al., 2014; Maxwell, 2013; Plano Clark & Creswell, 2015). The intentionally iterative review considered alternate perspectives after each cycle and revised coding accordingly. Codes in MAXqda® were adjusted throughout this recursive process.

1. Exploratory coding (Plano Clark & Creswell, 2015) using a priori codes of both IPEC competency (2011) and SRL terminology (Zimmerman, 2008) and in vivo coding (Creswell, 2013; Miles et al., 2014).
2. Process coding to gain both a personal perspective via emotional and values coding (Miles et al., 2014) and a larger perspective using holistic coding (Creswell, 2013).
3. Descriptive pattern coding (Miles et al., 2014) to uncover patterns across participants.

Table 1

Coding Cycles

Coding Description	Purpose of Inclusion	Codes/Categories
Cycle 1. Exploratory: A priori and In vivo		
A priori coding: anticipated codes from the literature for the phenomena of this study (Creswell, 2013; Plano Clark & Creswell, 2015).	Provide the context to answer research questions related to IP course content, core competencies (IPEC, 2011), and phases of SRL. Creswell (2013) cautions against blanket use of this method without attention to participants' voices.	+ Ethics + Roles + Respect + Communication + Teams/groups + Teamwork + Collaboration + Patient outcomes
Creswell (2013) suggests in vivo coding for code labels. Initial means of coding "for virtually all qualitative studies" (Miles et al., 2014, p. 74).	Coding in the participants' own words honors their voice authentically without the judgement of the researcher.	+ Time management + Feel

Cycle 2. Process: Emotion/Values and Holistic		
Emotion coding for participants' personal perspective. Values coding reflects "values, attitudes, and beliefs" of the participants (Miles et al., 2014, p.75).	Reflective process involves internal review from participant's own perspective which relates to prior personal experiences or importance and can connect to prior emotional responses (Schön, 1983).	Emotion coding was not supported by entries - Ethics
Holistic coding involves large unit of data to obtain an overall feeling or understand the issue from a larger perspective (Creswell, 2013)	Identify the intent of the entry by looking at longer segments to use the context to gain the meaning. The wide holistic view was intended to balance the narrow perspective of emotion/values coding.	+ Depth + Transformation + Reflection - Time management • Revised feel to Feelings • Combined teamwork and teams/groups to Team
Cycle 3. Descriptive Patterns		
Creswell (2013) notes "Aggregating the text …into small categories" (p. 184) and "review the coded segments being pulled together" (p. 295)	To identify the patterns of the codes across participants and accurately reflect the participants' meanings in the most parsimonious coding possible. This cycle allowed for additional attention to the content and depth of the entry.	+ Reflection-Transformation + Team-Roles + Communication-Respect + Collaboration-patient outcomes

Trustworthiness for the interpretation of the data was provided through intercoder agreement check points at each cycle transition (Creswell & Plano Clark, 2011; Plano Clark & Creswell, 2015). Two research doctoral prepared, tenured or tenure-track OT faculty with qualitative research experience were recruited as review coders. The intercoder reflexive review led to increasingly specific code definitions. The process ensued at each point until an intercoder agreement was "within the 85-90% range" (Miles et al., 2014, p. 85).

The coding cycle descriptions, purpose for the inclusion of the coding methodology, and the resultant codes for each cycle are depicted in Table 1. The iterative process reviewed each entry against coding definitions and revised definitions per the intercoder reviews using constant comparison. Analysis began within individuals, then across individuals, and across codes to identify patterns. Memos were utilized for participants' overall focus, for identifying the main perspectives of multi-coded segment intersections, and to recognize patterns to develop themes.

Results

The length of the entries ranged from 126 to 569 words. Coding the data was an important initial step for analysis. The 30 journal entries contained a total of 694 coded segments. Each code was identified between 2 and 125 times as presented in a word cloud (see Figure 2; Tunningley, 2017, p.87).

Figure 2

Word Cloud of the Codes; Depicts Relative Frequency by Font Size

Cycle one codes were ethics, roles, respect, communication, teams/groups, teamwork, collaboration, patient outcomes, time management and feel. Through value coding of cycle two, ethics was removed as wording indicative of value was not present making any weighting overly subjective. During cycle two the in vivo code of *feel* (from cycle one) was revised to *feeling* due to the convoluted coding errors such as, "*I feel like I have learned so much*" which reflects a cognitive process. While another participant (female, nurse) wrote, "*I feel like we all have some compromise and have the same end goals…*" which represents a reflective component in this segment of the journals. Holistic coding in the second cycle expanded coded segments to clarify participants' perspectives, resulting in the addition of depth, transformation and reflection and removal of time management. This process also combined teamwork with teams/groups. The third cycle developed patterns. This resulted in combination of prior codes into the categories of reflection-transform, team-roles, communication-respect, and collaboration-patient outcomes. Due to low frequency, depth was not included in a category. The multi-coded segments had a strong influence on cycle three patterns, particularly for reflection and transformation. Review of the definitions for reflection and transformation (Frenk et al., 2010; Mezirow, 1996; Taylor, 1997) reduced confusion between these codes by expanding the code definition regarding the 'timing' for reflection versus 'intention for change' in transformation. Transformation seemed to indicate significant use of reflection to transform current thinking which has the potential to change their future practice (Mezirow, 1996; Yazdani et al., 2020). Dual concept discernment also occurred for "collaboration" versus "team". Differentiating the code definition of collaboration and team reduced the coding duality and coding variances between the researcher and the intercoders.

Themes Indicating IP Content Knowledge
The specific IP content knowledge was evident in the codes (see Table 2, participant quotes from Tunningley, 2017). Terms related to depth of learning were scarce. The primary analysis began with the IPEC core competencies. Examples of patient outcome codes within the IP content analysis included, (male, health administration) "*each member of the team is essential to deliver the best possible care*" and (female, nurse) "*remembering that the care is about the patient should always be the focus*". The frequency of multi-coded segments suggested participants' learning the connections between IP core competencies. The data from the journal entries indicated the strongest connection was between communication and team process. Team frequently overlapped with several other codes as well. Team and roles: intersected 32 times; team and reflection: 32; team and patient outcome: 23; team and collaboration: 18; and team and respect 12 occurrences. The IPEC core competencies are interconnected with mutual, integrated processes to promote successful outcomes for clients with complex conditions. The reflective segment intersections confirmed this understanding of IP content. While transformation was not an in vivo code (participant's own words), it was added during the holistic coding process (meaning extracted from longer journal entry segments). Transformation was defined as a participant's intention for professional behavior changes in response to learning, experience, or a change of perspective. Codes were combined into themes. Two themes related to depth of understanding of IP education emerged: collaboration - team - communication and respect - roles. Two themes related to both IP education and SRL were evident: transformation and relatedness; both of which strongly connected to reflection (see Table 2).

Table 2

Themes from Participant Exemplars (Reflect Research Questions 1 & 2)

Theme	Code Primary	Secondary	Participants' quotes
Team-Communication	Team	Communication	• *When everyone in the group is being heard through open communication and feels that their input is valued, the group runs more smoothly* • *Emphasized the importance of being a good listener and effective communicator when completing client care and managing conflicts among the members of the care team* • *The communication in this course has helped me be a more patient, understanding person since all schedules have to work together to find time to communicate*
	Collaboration	Communication	• *Interprofessional teamwork can be accomplished through collaboration, communication, and shared decision making* • *Collaboration in a practice setting has helped me understand how the care of the patient is affected based on the communication between the team members*
Respect	Collaboration	Respect	*Collaboration requires trust and respect.*
	Roles	Respect	*I feel as though I have gained a newfound perspective and respect for other (non-nursing) professionals*
Transformation	Transformation	Reflection	• *I have learned … that members of the IP team cannot be self-centered* • *I realize that in any aspect of my job I will have to work with others, and learning methods of improving this is always a good thing* • *It allowed me . . . to understand the importance of taking the time to listen effectively to others and incorporate and identify the strengths of others.*
Relatedness	Feel	Reflection	• *Has made me less timid of interacting with these other professionals* • *We are all very comfortable being honest with one another*

(Tunningley, 2017)

Memos were recorded in MAXqda® for individuals and across individuals to cultivate themes from the categorized codes of the third coding cycle. The individual memo labels were not further investigated in this study. Individual participant memo labels emerged in groups of four to six participants, which supported IP content for five of the six labels. Labels which supported IP content integrated with SRL were: IP and peers, IP and SRL with behavioral components (e.g., time management), IP and metacognition (e.g., organization), IP and affective or emotional impact, and IP and value. Only one memo label, 'low problem-oriented skills' was noted for participants who indicated negative emotions without working toward a collaborative IP process with peers. Self-reflection can be an opportunity to identify concerns or problems and consider how to resolve negative perceptions. The five participants in the low problem-oriented skills group were all in one semester and did not indicate any level of self-analysis or self-reflection in their entries to resolve challenges faced by their teams.

Self-regulated Learning Components (Metacognitive or Environmental Strategies)
All three phases of SRL were noted in entries. Indicative of the goal/planning phase, one female nursing participant stated, *"the goal centers around what is best for the patient/student."* An example of the metacognitive strategy for the implementation phase (male, health administration) was "*successful collaboration takes effort, effective communication, and flexibility.*" Time management, organization, and effort were mentioned in entries for example: female nursing student noted, "*forced* [indicated effort] *me to have better time management skills and organization*" which related to strategies characteristic of the implementation phase of SRL. The emotional content of the journal entries (feel code) most often provided personal evidence of the connection with the learning process from (each word taken from different female, nurse participant) "*frustrated*", "*empowered*", and "*confident*" which are also associated with the implementation phase of SRL. Evidence of the third self-reflective assessment phase of SRL included insightful statements, such as (female, OT) "*allowed me to identify my own strengths, as well as some weaknesses*", and comments related to transformation code: "*It allowed me the opportunity to critique myself*".

Discussion
The themes provided strong evidence for IP content learning. The themes related to IP education reinforced the connection between collaboration, team, and communication, and the connection between respect and roles [of professionals on the team]. These confirmed the researcher's assumption that connections across IP core competencies (IPEC, 2011) would be evident as that knowledge strengthened during the semester. This supports the findings from Richard and colleagues (2019) for a significant relationship between reflective practice and IP collaboration. The effectiveness of reflective strategies for greater depth of learning also confirmed the findings of prior researchers (Aronson, 2011; Mann et al., 2009; McLeod et al., 2015; Sandars, 2009). Although the themes were stated differently, they confirmed prior research for strengthening IP core competencies through student reflective activities (Doherty et al. 2018; Richard et al., 2019) Analyzing self-reflection themes from case-based learning activities, Doll et al. (2013) included patient care goal priorities, holistic care, teamwork, knowledge of professional practice of team members, and valuing other professionals.

Doll and colleagues (2013) concluded reflection was "a core skill needed for successful IP practices" (p. 194). Themes which emerged from Pechak and colleagues' (2013) study of IP education international service learning project pedagogy were "collaboration, satisfaction, and self-discovery" (p. e61). Themes across these studies clearly indicated IP core competencies. This study added online pedagogy to the pedagogical approaches which previously documented self-reflective strategies enhanced IP core competency learning (see Doherty et al., 2018; Doll et al., 2013; and Pechak et al., 2013 for further details). Differences in the resulting themes likely indicated differences in the reflective prompts and/or the pedagogical experience.

Meeting the purpose of this study, themes supported the connection of SRL and IP learning through reflection. Although this study did not explicitly connect with student academic successes, the students' reflections indicated successful integration of IP knowledge and skills. This indirectly supported prior work which connected students utilizing SRL strategies are more likely to be successful for online educational programs (Artino & Stephens, 2009; Wang et al., 2013).

This study confirmed Björklund and Silén's (2020) emphasis on communication between professionals for collaborative clinical reasoning. While not the specific purpose, this study supported other research noted in the literature review for using reflective practices to develop clinical reasoning. Additionally the ontological closeness of reflective practice and IP education by Richard et al. (2019) was clearly noted by the connection between transformation and reflection and the frequency with which reflection emerged in the reflective journals (as evident in the word cloud, Figure 2). Analyzing the students' journal entries supported a primary basis of student satisfaction by 29 of the 30 participants. This would support the study by McLeod and colleagues (2020). The SRL basis of this study is important for the successes of OT students, particularly as online learning expands within the OT profession (Mu et al., 2014).

Unexpectedly, the emergence of the theme for transformation and reflection was not only a strong indication for the depth of learning, but more importantly as an indication of transformative learning, would suggest an impact on future practice (Mezirow, 1996; Yazdani, 2020; Zafran, 2020). The transformation - reflection theme within this IP content aligned with the same connection found by Sweetman's (2018) qualitative study of transformative learning in an online leadership course. Zafran (2020) indicated the importance of reflective learning activities as part of the transformative pedagogy which she suggests should be explored as a signature pedagogy for OT education.

Limitations

There were several limitations of this study. The case study methodology within one university setting, along with the convenience sampling with the primary investigator as the course instructor cannot recommend generalization to another setting. The benefit of the case study design is from the detailed descriptions of these participants. The small number of participants from each discipline and the uneven distribution prevented a comparison across professions. When comparing across research studies, reflective practice has limitations due to differences in the definition of reflection, the reflective

prompts, the potential for students' reporting to be biased for the instructor's grading, and the differences in assessment and feedback for reflections (Fragkos, 2016; McLeod et al., 2020; Nguyen, 2014; Ziebart & MacDermid, 2019). The researcher as instructor raises the potential for biased interpretation of the data. The detailed, three-cycle coding analysis was designed to enhance the strength and potential transferability of this study.

Implications for Further Research

Consideration of the transformative influence through self-reflection warrants investigation (Mezirow, 1996; Zafran, 2020) within OT education. Further study to directly connect self-reflection to clinical reasoning remains an important aspect for OT education (Lee et al., 2016; Tryssenaar, 1995; VanPuymbrouck, 2021). Such research via quantitative methodologies could further the study of Coker (2010) potentially using the Self-Assessment of Clinical Reflection and Reasoning and California Critical Thinking Skills Test for quantitative research. Many of the studies in the literature review, as well as this study, were conducted at a single institution. It would be beneficial to increase the inter-institutional opportunities for larger research studies or to indicate the self-reflective strategies which possess the greatest effectiveness for enhancing the facets of this study. Further studies on self-reflection could appraise systematic approaches to reflection, feedback and debriefing. Self-reflective practices within SRL would benefit from further study, potentially recommending specific self-regulated strategies which provide the greatest contributions to academic outcomes.

Implications for Occupational Therapy Education

Explicitly defining and teaching self-reflection as an educational tool for students was incorporated into this IP course through intentionally scaffolded student feedback. Given the inclusion of IP collaboration in the 2018 accreditation standards (ACOTE, 2018), OT students benefit when educators include self-reflection for the application of collaborative practices. Self-reflection following collaborative educational activities appeared to support transformative learning which could impact professional development for students as they move from an educational setting to fieldwork. Reflective journals were beneficial to indicate content knowledge and can be implemented as formative assessment of IP education and expanded to other content. This aligns well with prior research on self-reflection (Aronson, 2011; Wong et al., 2016). Students should be encouraged to utilize self-reflection to enhance their clinical competence as they transition to novice practitioners. Additionally, OT students' development of clinical reasoning for assessments and interventions would benefit from structured educational activities requiring self-reflection. The implementation of SRL could support OT students and practitioners in learning pursuits potentially across the life span.

Conclusion

This qualitative case study of 30 graduate students in an IP course collected self-reflective journal entries to identify themes connected to the IPEC core competencies and to SRL. The themes (team-communication, respect, transformation, and relatedness) supported the value of reflective journaling for depth of learning, for IPEC course content, and for SRL strategies. This study supported online learning as an

effective pedagogy for IPEC competencies. This study identified personal labels which connected personal habits of learning and IP content. The emergence of such connections may enhance educators' understanding of learning habits for academic success (i.e.: peers, metacognition, affect). Connecting self-reflective journaling and SRL contributed to an unanticipated theme of transformation. If transformative learning emerges as a signature pedagogy for our profession, as suggested by Zafran (2020), the approaches utilized in this study could be applied across other educational topics.

References

Accreditation Council for Occupational Therapy Education. (2018). *2018 Accreditation Council for Occupational Therapy Education (ACOTE®) standards and interpretive guide*. https://acoteonline.org/accreditation-explained/standards/

Aronson, L. (2011). Twelve tips for teaching reflection at all levels of medical education. *Medical Teacher, 33*(3), 200-205. https://doi.org/10.3109/0142159X.2010.507714

Artino, A. R., & Jones, K. D. (2013). AM last page: Self-regulated learning---A dynamic, cyclical perspective. *Academic Medicine, 88*(7), 1048. https://doi.org/10.1097/ACM.0b013e3182953763

Artino, A. R., & Stephens, J. M. (2009). Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online. *Internet and Higher Education, 12*, 146-151. https://doi.org/10.1016/j.iheduc.2009.02.001

Björklund, K., & Silén, S. (2020): OT and physiotherapy students' communicative and collaborative learning in an interprofessional virtual setting. *Scandinavian Journal of Occupational Therapy*, *28*(4), 264-273. https://doi.org/10.1080/11038128.2020.1761448

Clark, P. G. (2006). What would a theory of interprofessional education look like? Some suggestions for developing a theoretical framework for teamwork training. *Journal of Interprofessional Care, 20*(6), 577-589. https://doi.org/10.1080/13561820600916717

Coker, P. (2010). Effects of an experiential learning program on the clinical reasoning and critical thinking skills of OT students. *Journal of Allied Health, 39*(4), 280-287. PMID: 21184024.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches,* (3rd ed.). Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Sage.

Doherty, R. F., Knab, M., & Cahn, P. S. (2018). Getting on the same page: An interprofessional common reading program as foundation for patient-centered care. *Journal of Interprofessional Care, 32*(4), 444-451. https://doi.org/10.1080/13561820.2018.1433135

Doll, J., Packard, K., Furze, J., Huggett, K., Jensen, G., Jorgensen, D., Wilken, M., Chelal, H. & Maio, A. (2013). Reflections from an interprofessional education experience: Evidence for the core competencies for interprofessional collaborative practice. *Journal of Interprofessional Care, 27*(2), 194-196. https://doi.org/10.3109/13561820.2012.729106

Dyment, J., & O'Connell, T. (2011). Assessing the quality of reflection in student journals: A review of the research. *Teaching in Higher Education, 16*(1), 81-97. https://doi.org/10.1080/13562517.2010.507308

Fragkos, K. C. (2016). Reflective practice in healthcare education: An umbrella review. *Education Sciences, 6*(3), 27. https://doi.org/10.3390/educsci6030027

Frenk, J., Chen, L., Bhutta, Z.A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Ke, Y., Kelly, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., & Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *Lancet, 376*(9756), 1923-1958. https://doi.org/10.1016/S0140-6736(10)61854-5

Halle, A. D., Kaloostian, C., & Stevens, G. D. (2019). Brief Report—Occupational therapy student learning on interprofessional teams in geriatric primary care. *American Journal of Occupational Therapy, 73,* 7305185050. https://doi.org/10.5014/ajot.2019.037143

Henderson, W., Coppard, B., & Qi, Y. (2017). Identifying instructional methods for development of clinical reasoning in entry-level occupational therapy education: A mixed methods design. *Journal of Occupational Therapy Education, 1* (2). https://doi.org/10.26681/jote.2017.010201

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel.* Interprofessional Education Collaborative. https://www.aacom.org/docs/default-source/insideome/ccrpt05-10-11.pdf?sfvrsn=77937f97_2

Kinsella, E. A., Caty, È., Ng, S., & Jenkins, K. (2012). Reflective practice for allied health: Theory and applications. In L. M. English (Ed.), *Adult education and health* (pp. 297-321). University of Toronto Press. https://doi.org/10.3138/9781442685208-015

Lachmann, H., Fossum, B., Johansson, U-B., Karlgren, K., & Ponzer, S. (2014). Promoting reflection by using contextual activity sampling: A study on students' interprofessional learning. *Journal of Interprofessional Care, 28*(5), 400-406. https://doi.org/10.3109/13561820.2014.907777

Lee, H. C-y., Flavell, H., Parsons, D., Parsons, R.,& Falkmer, T. (2016). Developing agentic learners for the 21st century practice: A pedagogic approach in Occupational Therapy. *Journal of Allied Health, 45*(1), 8-13a. PMID: 26937876

Mącznik, A. K., Ribeiro, D. C., & Baxter, G. D. (2015). Online technology use in physiotherapy teaching and learning: A systematic review of effectiveness and users' perceptions. *BMC Medical Education, 15*(160), 1-12. https://doi.org/10.1186/s12909-015-0429-8

Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Science Education, 14*, 595-621. https://doi.org/10.1007/s10459-007-9090-2

Martini, R., Cramm, H., Egan, M., & Sikora, L. (2016). Scoping review of self-regulation: What are occupational therapists talking about? *American Journal of Occupational Therapy, 70*, 7006290010. https://doi.org/10.5014/ajot.2016.020362

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Sage.

McKenna, L., Boyle, M., Palermo, C., Molloy, E., Williams, B., & Brown, T. (2014). Promoting interprofessional understandings through online learning: A qualitative examination. *Nursing and Health Sciences, 16*(3), 321-326. https://doi.org/10.1111/nhs.12105

McLeod, G. A., Barr, J., & Welch, A. (2015). Best practice for teaching and learning strategies to facilitate student reflection in pre-registration health professional education: An integrative review. *Creative Education, 6*, 440-454. https://doi.org/10.4236/ce.2015.64044

McLeod, G. A., Vaughan, B., Carey, I., Shannon, T., & Winn, E. (2020). Pre-professional reflective practice: Strategies, perspectives and experiences. *International Journal of Osteopathic Medicine, 35*, 50-56. https://doi.org/10.1016/j.ijosm.2019.11.005

Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly, 46*(3), 158-173. https://doi.org/10.1177/074171369604600303

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage.

Moyers, P. A., & Metzler, C. A. (2014). Health Policy Perspectives—Interprofessional collaborative practice in care coordination. *American Journal of Occupational Therapy, 68*, 500–505. https://doi.org/10.5014/ajot.2014.685002

Mu, K., Coppard, B. M., Bracciano, A. G., & Bradberry, J. C. (2014). Conference Proceedings—Comparison of on-campus and hybrid student outcomes in Occupational Therapy doctoral education. *American Journal of Occupational Therapy, 68*, S51–S56. https://doi.org/10.5014/ajot.2014.685S02

Nguyen, Q. D., Fernandez, N., Karsenti, T., & Charlin, B. (2014). What is reflection? A conceptual analysis of major definitions and a proposal of a five-component model. *Medical Education, 48*(12), 1176–1189. https://doi.org/10.1111/medu.12583

Onwuegbuzie, A. J., & Collins, K. M. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative Report, 12*(2), 281-316.

Pechak, C., Gonzalez, E., Summers, C., & Capshaw, S. (2013). Interprofessional education: A pilot study of rehabilitation science students participating in interdisciplinary international service learning. *Journal of Allied Health, 42*(3), e61-e66. PMID: 24013252.

Perkins, N. A., & Schmid, A. A. (2019). Increasing emotional intelligence through self-reflection journals: Implications for occupational therapy students as emerging clinicians. *Journal of Occupational Therapy Education, 3* (3). https://doi.org/10.26681/jote.2019.030305

Plano Clark, V. L., & Creswell, J. W. (2015). *Understanding research: A consumer's guide* (2nd ed.). Pearson.

Reiter, K., Helgeson, L., & Lee, S. C. (2018). Enhancing professionalism among Occupational Therapy students: The culture of professionalism. *Journal of Occupational Therapy Education, 2* (3). https://doi.org/10.26681/jote.2018.020308

Richard, A., Gagnon, M., & Careau, E. (2019). Using reflective practice in interprofessional education and practice: A realist review of its characteristics and effectiveness. *Journal of Interprofessional Care, 33*(5), 4240436. https://doi.org/10.1080/13561080.2018.1551876

Sandars, J. (2009). The use of reflection in medical education: AMEE Guide No. 44. *Medical Teacher, 31*(8), 685-695. https://doi.org/10.1080/01421590903050374

Schell, J. W. (2018). Epistemology: Knowing how you know. In B. A. Boyt Schell & J. W. Schell (Eds.), *Clinical and professional reasoning in Occupational Therapy* (2nd ed., pp. 385-415). Wolters Kluwer.

Shoemaker, M. J., Platko, C. M., Cleghorn, S. M., & Booth, A. (2014). Virtual patient care: An interprofessional education approach for physician assistant, physical therapy and occupational therapy students. *Journal of Interprofessional Care, 28*(4), 365-367. https://doi.org/10.3109/13561820.2014.891978

Schön, D. A. (1983). *The reflective practitioner.* Jossey-Bass.

Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. Jossey-Bass.

Schunk, D. H., & Zimmerman, B. J. (2008). *Motivation and self-regulated learning: Theory, research and application.* Taylor & Francis Group LLC.

Sweetman, M. M. (2018). A qualitative exploration of transformative learning within an online leadership course. *Journal of Occupational Therapy Education, 2* (2). https://doi.org/10.26681/jote.2018.020206

Taylor, E. W. (1997). Building upon the theoretical debate: A critical review of the empirical studies of Mezirow's transformative learning theory. *Adult Education Quarterly, 48*(1), 34-59. ERIC number: EJ555009. https://doi.org/10.1177/074171369704800104

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences.* Sage.

Tunningley, J. M. (2017). *Self-regulated learning and reflective journaling in an online interprofessional course: A mixed methods study*. (Doctoral dissertation). http://rave.ohiolink.edu/etdc/view?acc_num=ucin1511799445626182

Tryssenaar, J. (1995). Interactive journals: An educational strategy to promote reflection. *American Journal of Occupational Therapy, 49*(7), 695-702. https://doi.org/10.5014/ajot.49.7.695

VanPuymbrouck, L. (2021). Clinical reasoning and the art of practice. In D. P. Dirette and S. A. Gutman (Eds.), *Occupational Therapy for physical dysfunction* (8th ed., pp. 58-71). Wolters Kluwer.

VERBI Software – Consult – Sozialforschung GmbH. (2017). *MAXQDA, software for qualitative data analysis: Windows® version 12*. VERBI GmbH: Berlin, Germany.

Wang, C. H., Shannon, D. M., & Ross, M. E. (2013). Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. *Distance Education, 34*(3), 302-323. https://doi.org/10.1080/01587919.2013.835779

Williams, G. B., Gerardi, M. B., Gill, S. L., Soucy, M. D., & Taliaferro, D. H. (2009). Reflective journaling: Innovative strategy for self-awareness for graduate nursing students. *International Journal for Human Caring, 13*(3), 36-43. https://doi.org/10.20467/1091-5710.13.3.36

Wong, K. Y., Whitcombe, S. W., & Boniface, B. (2016). Teaching and learning the esoteric: An insight into how reflection may be internalised with reference to the Occupational Therapy profession. *Reflective Practice, 17*:4, 472-482. https://doi.org/10.1080/14623943.2016.1175341

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice.* World Health Organization. https://www.who.int/hrh/resources/framework_action/en/

Yazdani, F., Stringer, A., Nobakht, L., Bonsaksen, T., & Tune, K. (2020). Qualitative analysis of occupational therapists' reflective notes on practicing their skills in building and maintaining therapeutic relationships. *Journal of Occupational Therapy Education, 4* (4). https://doi.org/10.26681/jote.2020.040414

Zafran, H. (2020). The Issue Is—A narrative phenomenological approach to transformative learning: Lessons from Occupational Therapy reasoning in educational practice. *American Journal of Occupational Therapy, 74,* 7401347010. https://doi.org/10.5014/ajot.2020.033100

Ziebart, C., & MacDermid, J. C. (2019). Reflective practice in physical therapy: A scoping review. *Physical Therapy, 99,* 1056-1068. https://doi.org/10.1093/ptj/pzz049

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal Manth, 45*(1), 166-183. https://doi.org/10.3102/0002831207312909

Zucchero, R. A., Hooker, E. A., Harland, B., Larkin, S., & Tunningley, J. (2011). Maximizing the impact of a symposium to facilitate change in student attitudes about interdisciplinary teamwork. *Clinical Gerontologist, 34*(5), 399-412. https://doi.org/10.1080/07317115.2011.588543