Development and Content Validity of the Personal-Professional Development Tool for Occupational Therapy Students During Community-Based Service Learning

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Abstract

As community-based service-learning becomes more widely used in occupational therapy (OT) education, valid and reliable outcome measures are needed to ensure that student learning outcomes are meaningfully and consistently measured. Currently, educators may use instructor-developed questionnaires that have not been validated or employ narrowly focused or overly prescriptive surveys borrowed from other disciplines that may not fully capture the skills that are necessary for competent entry-level practice. Grounded in the Occupational Adaptation Model, the Personal-Professional Development Tool (PPDT) was developed to meet this need. The PPDT was designed as a non-normative, self-referential rating scale that OT students use to set their own learning goals and to self-rate and reflect on their relative mastery of selected skills before and after participation in service-learning. To establish content validity of the PPDT, six experts rated the relevance of each of the 29 test items for measuring the central construct of student personal-professional development. Item-level Content Validity Index (I-CVI) was calculated for each item and adjusted for chance agreements. Twenty-seven items had excellent I-CVI ($\geq$ 0.8) and were retained. Two items had fair I-CVI (0.67) and were revised. With acceptable Scale-level Content Validity Index (S-CVI = 0.91), pilot testing of the revised PPDT in the field is warranted. The PPDT may be a powerful tool to help guide OT students through a community-based service-learning experience by facilitating their setting learning goals, rating their performance, and reflecting on their personal-professional development.

Keywords

Service learning, experiential learning, instrument development, instrument validation, self-assessment

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Acknowledgements

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ABSTRACT

As community-based service-learning becomes more widely used in occupational therapy (OT) education, valid and reliable outcome measures are needed to ensure that student learning outcomes are meaningfully and consistently measured. Currently, educators may use instructor-developed questionnaires that have not been validated or employ narrowly focused or overly prescriptive surveys borrowed from other disciplines that may not fully capture the skills that are necessary for competent entry-level practice. Grounded in the Occupational Adaptation Model, the Personal-Professional Development Tool (PPDT) was developed to meet this need. The PPDT was designed as a non-normative, self-referential rating scale that OT students use to set their own learning goals and to self-rate and reflect on their relative mastery of selected skills before and after participation in service-learning. To establish content validity of the PPDT, six experts rated the relevance of each of the 29 test items for measuring the central construct of student personal-professional development. Item-level Content Validity Index (I-CVI) was calculated for each item and adjusted for chance agreements. Twenty-seven items had excellent I-CVI (≥ 0.8) and were retained. Two items had fair I-CVI (0.67) and were revised. With acceptable Scale-level Content Validity Index (S-CVI = 0.91), pilot testing of the revised PPDT in the field is warranted. The PPDT may be a powerful tool to help guide OT students through a community-based service-learning experience by facilitating their setting learning goals, rating their performance, and reflecting on their personal-professional development.

Introduction

Just as occupational therapists must demonstrate the impact of their interventions using valid and reliable assessments, occupational therapy (OT) educators strive to demonstrate the value of educational experiences through student assessments. Despite this shared value, OT educators may not consistently measure student outcomes from experiential learning with the same level of rigor as clinical measures. Entry level OT educators aim to help students transform into qualified therapists with adequate clinical skills, personal attributes, and professional reasoning abilities for practice. In the evolving landscape of higher education, community-based service-learning, a type of experiential education in which students work collaboratively with community members to meet social needs, is increasingly becoming a critical educational model in OT programs. However, in many cases, student learning outcomes from service-learning experiences are not sufficiently evaluated. Valid and reliable measurement tools are needed to evaluate whether service-learning is meeting desired learning goals by fostering student development toward entry-level practice competence.

Background and Literature Review

Community-based service-learning occurs in the context of service among community partners (Horowitz, 2012). Given that OT is a practice-based profession that emphasizes relational, affective, and highly contextualized learning (Schaber, 2014), service-learning is a natural fit to enhance the educational process (Hoppes et al., 2005). One of the overarching goals of service-learning in OT is to create rich learning experiences through which students have the opportunity to develop 'soft' transferable skills (e.g., development of cultural humility) in addition to 'hard' practice skills (e.g., ability to perform evaluations). Both skill sets are vital for students to become competent for entry level practice; however, learning to think and act like an occupational therapist (Garber, 2016) and developing personal-professional identity (Schaber et al., 2010) may be best facilitated outside traditional classroom settings.

As blended and online learning become more common in OT education (Jensen et al., 2021; Schaber et al., 2010), in-person community-based service-learning is poised to become an even more integral education model because it serves as an opportunity for face-to-face relational and affective learning with experienced mentors (Hoppes et al., 2005; Knecht-Sabres, 2013; Krishnagiri et al., 2019; Quinn & Cremin, 2021; Schaber, 2014). Virtual service-learning is an emerging new facet of education that may offer similar opportunities for relational and affective learning when conducted with appropriate oversight and support for students (Aldrich & Peters, 2019; Veyvoda & Cleave, 2020). In both in-person and virtual learning spaces, educators understand the need to create learning-centered educational experiences rather than content-driven education through which information is simply transmitted to students (Fink, 2013). As discipline-specific content proliferates at a rate that cannot be matched in the classroom, service-learning provides a rich, contextualized experience through which students can develop into a therapist with a *prepared mind*: possessing clinical reasoning skills and the ability to critically reflect on their practice in order to succeed in diverse contexts (Garber, 2016).

Across disciplines in higher education, educators use community-based service-learning because the learning model offers an important opportunity for student growth (Hoppes et al., 2005; Konrad & Browning, 2012; Salam et al., 2019). In OT education specifically, service-learning provides a rich environment that enhances student personal and professional development. As higher education shifts toward using value-based metrics to demonstrate the impact of an educational method, it is vital that student outcomes from community-based service-learning be consistently and meaningfully measured with valid and reliable tools. To our knowledge, there is no publicly available outcome measure for OT students to use during service-learning. Thus, OT educators are inconsistently measuring outcomes in an ad hoc manner where published results cannot be compared. Some educators may use instructor-developed questionnaires that have not been validated. Some may borrow tools from other disciplines that may not capture the diversity of skill sets targeted in OT education or are overly prescriptive. Some educators may not explicitly measure outcomes from service-learning at all or only administer a post-test. Some existing tools will be reviewed below.

Existing Service-learning Outcome Measures
A review of the literature revealed that when student outcomes from service-learning were measured, a wide variety of tools were used, each with a different emphasis. For example, the Critical Consciousness Inventory (CCI) can be useful when educators want to help students understand concepts like social dominance and stigma consciousness (Thomas et al., 2014). Educators may opt to supplement the CCI with another tool that specifically encompasses domains relevant to OT practice competence. The Relative Mastery Measurement Scale (RMMS) allows for more in-depth review of a student's perceived efficiency, effectiveness, and satisfaction of their performance of a single, self-selected occupation (George et al., 2004). The RMMS can be especially helpful to guide service-learning educators and students in developing individualized learning goals, but may be too narrow to use as an overall measure of practice competence.

Author-developed assessments, like the Knowledge, Beliefs and Actions Questionnaire (KBAQ; Grajo & Candler, 2017) and Knecht-Sabers' (2013) Clinical Reasoning Questionnaire, provide a broader platform for self-evaluation of several occupational goals. Grajo and Candler's (2017) KBAQ assessed occupational therapists' capacity to meet the needs of children with reading difficulties, but the KBAQ model can be modified to assess service-learning outcomes. Knecht-Sabers' questionnaire and the Fieldwork Performance Evaluation for the Occupational Therapy Student (FPE) (American Occupational Therapy Association [AOTA], 2002) encompass many practice competency domains and are useful for assessing clinical reasoning skills. However, these tools do not incorporate the evaluation of complex topics such as cultural humility, occupational justice, and critical self-reflection of biases that are emphasized in community-based service-learning. Furthermore, an ipsative, or self-referenced, assessment may encourage more honest self-reflection and yield self-directed learning from students as compared to the FPE, which is used for the purposes of deciding whether students meet minimum set competencies expected from the fieldwork experience.

There are several measurement tools available that were specifically developed for service-learning such as the Scale of Civic Participation, the Scale of Self-efficacy Towards Service, and the Scale of Attitudes Towards Helping Others, all from Weber et al. (2010). These scales may be useful when educators want to focus on student growth in one or more of these areas. However, these tools are intended for use across disciplines in higher education, thus OT educators may need to supplement with additional metrics that evaluate specific OT practice and professional skills. Though there are many existing tools, no single assessment that has been validated captures all the desired aspects of OT students' personal-professional development through service-learning. Some useful elements from the measures outlined above helped guide the development of a new outcome measure, the Personal-Professional Development Tool (PPDT).

Instrument

Development of the Personal-Professional Development Tool

The PPDT was developed to encourage consistent and meaningful measurement of OT student outcomes from service-learning. Following a review of the literature, the PPDT was designed as a non-normative, self-referenced, descriptive, self-rating scale for OT students for the purpose of facilitating their personal and professional development through a community-based service-learning experience. Though a detailed description of the development of the tool is beyond the scope of this article, an outline of the development process, including the theoretical base, is outlined below.

Dr. Lenin Grajo, co-author of the PPDT instrument and an expert in instrument development, guided the process of identifying the latent, sub-latent, and observable variables based on the literature review. The latent variable or central construct in the PPDT is personal-professional development of OT students during a community-based service-learning experience. There are five sub-latent variables which will be referred to as the five domains in the PPDT: 1) Clinical Competency and Professional Reasoning, 2) Interpersonal Skills, 3) Professional Behaviors, 4) Cultural Critical Consciousness, and 5) Reflective Thinking. Each of these domains has five or six observable variables, or test items, that can be evaluated in a service-learning experience as outlined in Figure 1. As this is a flexible tool, 29 observable variables are outlined, of which, students are expected to self-select and rate 8–12 that are most relevant to their personal learning goals.

The Clinical Competency and Professional Reasoning domain encompasses the 'hard clinical' skills of OT clinical practice that therapists-in-training are looking to cultivate. Occupational therapy students and new therapists are likely to emphasize the desire to master 'hard clinical' skills and potentially undervalue other domains. This tool requires students to select at least one item in each of the five domains to avoid an exclusive emphasis on clinical skills and encourages students to also attend to other domains that are just as critical for their development towards practice competence.

Interpersonal Skills involve the affective learning that occurs during highly contextualized learning experiences. The Interpersonal Skills domain is used to measure a student's ability to meaningfully and appropriately interact with clients and their families to foster a positive therapeutic relationship. The domain of Professional Behaviors involves the relational learning that occurs in clinical and experiential learning environments with guidance from experienced mentors. This domain focuses on a student's development of professionalism that is required in today's dynamic workplaces.

Figure 1

Variables of the Personal-Professional Development Tool

The domain of Cultural Critical Consciousness is an area of significant learning (Aldrich & Grajo, 2017) that is particularly well suited to be developed in the highly contextualized environments of service-learning experiences. Because service-learning occurs within collaborative community partnerships and often involves working alongside shareholders from groups less traditionally served by OT, students will have the opportunity to develop their cultural humility and critical reasoning. As with Cultural Critical Consciousness, skills in the domain of Reflective Thinking are particularly well suited to be developed in the context of service-learning. Thoughtfully executed service-learning involves structured group and individual reflective components that help guide students through introspection. Developing the ability to critically self-appraise is essential to becoming an effective therapist (Parham, 1987).

Theoretical Base

The Occupational Adaptation (OA) model is a unique, process-oriented OT model that emphasizes the importance of clients as active agents of change (Grajo, 2019). In the case of service-learning, OT students are agentic and are active co-creators of their learning goals and learning processes. In order to best facilitate their development of increased relative mastery (Schultz & Schkade, 1992) in professional roles, students need to be empowered to evaluate their performance at baseline, set goals for themselves, and reevaluate themselves after completing service-learning. This active reflective process provides valuable feedback that will help students become facilitative problem setters who know how to frame problems for clients in order to empower clients to solve their own problems (Grajo, 2019). Service-learning that is guided by OA principles will help instill the value of self-directed, life-long learning that is vital for the maintenance of a well-prepared OT workforce.

The OA model asserts that as occupational beings, all people have a desire to be successful in meaningful occupations and life roles (Schkade & Schultz, 1992). Occupational therapy students aim to master a variety of professional occupations to become competent for practice in their new role as entry-level therapists. Service-learning can facilitate this personal-professional development in a variety of ways. Specifically, OT students will have the opportunity to increase their performance skills as clinicians during service-learning. These performance skills include *motor skills* (e.g., performing transfers techniques), *process skills* (e.g., utilizing appropriate assessment tools), and *social interaction skills* (e.g., developing trusting rapport with clients and caregivers; AOTA, 2020).

The OA approach supports process-oriented interventions that are based on fulfillment of roles, not skills training alone (Grajo, 2019). Service-learning must also facilitate students' development of professional performance patterns, including the roles, habits, and routines of occupational therapists (AOTA, 2020). Altogether, meaningful service-learning will spark an internal, transformative, self-reflective process that empowers OT students toward cultivating a professional identity and satisfactorily participating in professional roles.

Instrument Administration

The PPDT was designed as a non-normative, ipsative (i.e., self-referenced), self-rating scale that is descriptive in nature and rated on an ordinal scale. The PPDT is intended to help individual OT students identify their personal-professional development goals, rate their performance before and after a service-learning experience, and reflect on the experience and their growth. Students can use the PPDT as a pre-posttest to gain insights into their areas of strength and areas for growth (Knecht-Sabres, 2013) because it is anchored by their baseline rather than a relative standard (e.g., performance of other students) or an absolute standard (e.g., benchmark score).

Additionally, because service-learning can occur in such diverse settings and with varied applications, a highly regimented tool would not be compatible with the wide variety of contexts. The PPDT may have additional value as on outcome measure that can illuminate the relative impact and value of a service-learning experience for an OT education program (e.g., its effectiveness at meeting the program's pedagogical goals).

Occupational therapy students who are going to be participating in a service-learning experience can complete this self-assessment regardless of the stage of their education. The first administration (pre-test or baseline) of this tool will occur just before the experience begins but after preparatory activities such as cultural and contextual priming in which an educator works with students to help them appropriately prepare for the service-learning project. This sequence will ensure that students have been introduced to the plan for the forthcoming experience and will be focused on their learning goals. The second administration (i.e., post-test) should occur shortly after the conclusion of the service-learning experience.

To begin the self-administration, students select 8–12 test items across the five domains to set as their own development goals. Allowing students to select which items they self-evaluate ensures they assess professional occupations that are relevant and meaningful to them as individuals and that are appropriate for the specific service-learning context. Students are instructed they must select at least one item from each domain to ensure each sub-latent variable is included in the assessment and to help guide students away from an overemphasis on one or two domains. Students then rate their performance of each selected item on three dimensions to assess their relative mastery: effectiveness, efficiency, and satisfaction. Students rate each selected item on a Likert-type scale from 1–10 for each dimension of relative mastery, with 1 indicating poorest evaluation and 10 indicating most optimal evaluation. The PPDT generates both an item-level and domain-level score of relative mastery. Changes in these scores are tracked from pre-posttest.

The critical final step in administering the PPDT requires that the students reflect on the service-learning experience and record their interpretation of their scores. This self-reflection and interpretation is vitally important because the PPDT is a self-referential tool, so the numeric scores alone may not provide a complete picture of the learning process. For example, a student may report a sense of *not knowing what they didn't know* (Knecht-Sabres, 2013) at the outset and, therefore, may perceive they have grown and developed in a particular area even though a score may remain unchanged. Additionally, the post-service-learning reflection serves as a critical opportunity for students to dig deeper into their results on the PPDT, acknowledge growth, identify opportunities for additional development, and offer feedback.

Methodology

Study Aims

This study was conducted to evaluate the content validity of the PPDT by assessing whether the pool of test items on the instrument is sufficient to accurately measure the central construct of personal-professional development of OT students. An expert panel of qualified OT educators rated each test item on its relevance and provided feedback for improvement. Establishing the content validity of the PPDT is an important first step in developing the tool for students to use during community-based service-learning.

Research Design

This study was guided by classical test theory (CTT) in order to validate that performance on test items represents a person's true score and that the test is reliable by minimizing error in measurement (Allen & Yen, 2002). According to CTT, if psychometric testing establishes validity and reliability, it can be reasonably assumed that a person's performance represents the sum of their true score and measurement error.

The aim of this preliminary study was to test the content validity of the PPDT at both the item and scale levels, then review and revise the tool accordingly in response to expert feedback. Content validity is a psychometric property that evaluates the extent to which a test instrument measures all dimensions of a theoretical construct. The central construct measured in the PPDT is the personal-professional development of OT students during a community-based service-learning experience. Expert review was used to evaluate content validity such that experienced OT educators rated the relevance of each test item for measuring the central construct.

Participant Recruitment

Experts were targeted for recruitment via person-to-person email selection and postings on OT professional social media platforms. To meet inclusion criteria to be considered a content area expert, OT educators must have at least two years of experience in service-learning or other similar community-based experiential learning approaches. Participants completed an online survey via Qualtrics where they rated each item on the PPDT for relevance and provided recommendations for improvement. This study was approved and deemed minimal risk and exempt by the Columbia University Irving Medical Center Institutional Review Board as the identities of the participants could not be readily ascertained because no personal health information or other sensitive information was collected.

Procedures and Data Collection

All study procedures were conducted anonymously online via a survey on Qualtrics. Participants were introduced to the study purpose and provided detailed instructions. Participants were instructed to review the PPDT instrument and manual in its entirety before beginning the survey. After reviewing the instrument, participants completed the survey by rating the relevance of each test item on a 4-point Likert scale: 1) not relevant, 2) somewhat relevant, 3) quite relevant, and 4) highly relevant. Participants

were also able to provide recommendations for improvement on each item and the scale overall through open-ended text boxes. As no personally identifying information was collected, the research team could not identify participants or link them with their responses.

Data Analysis

This was designed as a content validity study to evaluate this preliminary psychometric property for the PPDT through classical test theory. Following data collection, the Item-level Content Validity Index (I-CVI) was calculated to assess inter-rater agreement on the relevance of each test item for measuring the central construct. The experts' ratings were dichotomized where scores of 3 and 4 were combined to identify relevant items and scores of 1 and 2 were combined to indicate not relevant items (Polit et al., 2007). The score range for I-CVI is 0–1 and the following formula was used to calculate I-CVI:

$$I - CVI = \frac{N_r}{n}$$

where N_r is the number of experts who identified item r as highly relevant (4) or quite relevant (3) and *n* is the total number of experts (Polit et al., 2007). Test items were rated as excellent if I-CVI ≥ 0.8. Items were rated fair to good if I-CVI ≥ 0.5 and < 0.8 and poor if I-CVI < 0.5 (Polit et al., 2007).

The modified kappa designated agreement on relevance (*k*) was also calculated for each item to adjust for chance agreements that may occur as a result of using multiple raters (Wynd et al., 2003). It is necessary to first calculate the probability of chance occurrence (P_c) to calculate *k* (Polit et al., 2007). P_c was calculated using the following formula:

$$P_c = \left[\frac{N!}{A! \, (N - A)!} \right] 0.5^N$$

where P_c is the probability of chance agreement of A experts out of N total experts (Polit et al., 2007).

Next, the modified kappa, which adjusts each I-CVI for chance agreement of relevance on the item, is calculated according to the following formula:

$$k = \frac{P_0 - P_c}{1 - P_c}$$

where P_0 represents the I-CVI of the item and P_c indicates the chance of agreement. The modified kappa statistic has a score range of 0–1 where *k* > 0.74 is excellent, *k* ≥ 0.60 and ≤ 0.74 is rated good, and *k* ≥ 0.40 and < 0.60 is rated as fair (Polit et al., 2007).

After calculating I-CVI and adjusting for chance agreements, test items were either retained, revised, or discarded from the PPDT. Items that most participants rated as relevant were calculated to have excellent content validity and were retained. Items that had less consensus among the experts (i.e., some rated as relevant and others as not relevant) or items that were consistently rated as not relevant were reviewed. Items with fair to good content validity were reviewed for possible revision, and items with poor content validity were reviewed for possible deletion. This process helped to strengthen the PPDT for future use in OT education programs.

The overall Scale-level Content Validity Index (S-CVI) or the average of the I-CVI scores across all test items was also calculated for the PPDT. The score range for S-CVI is 0–1 with 0.90 set as a benchmark (Polit et al., 2007). Using the averaging method, the following formula was used to calculate S-CVI:

$$S - CVI = \frac{Sum\ of\ all\ I - CVI\ scores}{t}$$

where t was the total number of test items.

Results

A cover letter inviting individuals to participate was posted on two relevant professional social medial websites and emailed to 31 individuals with relevant expertise. Ten individuals who received email invitations to participate accessed the survey and consented to participate. However, four of the 10 respondents did not complete the content validation rating process. Three rated none of the items on the PPDT and one only rated the first 12 items, therefore their data was not included in the analysis. Six participants met inclusion criteria as they all had at least two years of experience in community-based service-learning or other experiential learning approaches in OT education and they rated all 29 items on the PPDT. The following results are based on the responses from these six participants. Practice experience was diverse among the participants with an average of 19 years of practice in OT education (range 7–40 years) and an average of 11 years (range 5–20 years) of using community-based service-learning. All participants were registered occupational therapists with a variety of academic degrees (PhD n = 1; EdD n = 2; OTD n = 1; MS n = 1; Not reported n = 1). The participants' service-learning experiences spanned many practice areas (e.g., pediatrics, physical disabilities, mental health, and a variety of emerging practice areas) and occurred both locally and internationally.

The content validity index for each item of the PPDT is presented in Table 1 along with the modified kappa statistic, which similarly reflects the results of I-CVI analysis corrected for chance agreements. The content experts rated 27 of 29 items as having excellent I-CVI (0.80 or higher). This includes all items in the following domains: Interpersonal Skills, Cultural Critical Consciousness, and Reflective Thinking.

Table 1

Content Validity Indices (I-CVI) and Modified Kappa (k) Statistic of the Personal-Professional Development Tool

PPDT Domain	PPDT Test Item	Highly Relevant	Quite Relevant	Somewhat Relevant	Not Relevant	I-CVI	Modified k
Clinical Competency and Professional Reasoning	Using assessments	4	0	2	0	0.67	0.57
	Obtain occupational profile	5	0	1	0	0.83	0.81
	Setting goals	3	2	1	0	0.83	0.81
	Creating treatment plans	4	1	0	1	0.83	0.81
	Modifying treatment	5	0	0	1	0.83	0.81
	Effective documentation	2	3	0	1	0.83	0.81
Interpersonal Skills	Use lay language	4	1	1	0	0.83	0.81
	Provide psychosocial support	6	0	0	0	1.0	1.0
	Facilitate adaptation	4	2	0	0	1.0	1.0
	Built rapport	5	1	0	0	1.0	1.0
	Effective use of self	4	1	1	0	0.83	0.81
	Boundary setting	3	2	0	1	0.83	0.81
Professional Behavioral	Integrate feedback	5	1	0	0	1.0	1.0
	Self advocacy	3	1	2	0	0.67	0.57
	Collaborate/ask for help	5	1	0	0	1.0	1.0
	Identify resources	2	3	1	0	0.83	0.81
	Time management	4	2	0	0	1.0	1.0
	Needs assessment	3	2	1	0	0.83	0.81
Cultural Critical Consciousness	Support diverse clients	6	0	0	0	1.0	1.0
	Identify personal biases	6	0	0	0	1.0	1.0
	Practice cultural humility	6	0	0	0	1.0	1.0
	Understand community needs	3	3	0	0	1.0	1.0
	Understand occupational justice	3	2	1	0	0.83	0.81
Reflective Thinking	Theory-guided thinking	3	3	0	0	1.0	1.0
	Critical self reflection	4	2	0	0	1.0	1.0
	Ethical decision making	5	1	0	0	1.0	1.0
	Emotional regulation	6	0	0	0	1.0	1.0
	Identify strengths/ weaknesses	4	2	0	0	1.0	1.0
	Learn from errors	5	1	0	0	1.0	1.0

S-CVI = 0.91

Note: S-CVI = Scale-level Content Validity Index, *n* = 6

Since these 27 test items were deemed essential for measuring OT student personal-professional development, these items were retained as written. Content validity at the scale-level (S-CVI = 0.91) was acceptable and indicated that all test items are relevant for the tool.

Two of 29 test items were rated as having fair I-CVI. Both items rated as fair were carefully reviewed alongside expert feedback to consider possible revisions and/or deletion. One item in the Clinical Competency and Professional Reasoning domain about a student's ability to select, administer, and interpret scores of relevant assessments was rated with an I-CVI of 0.67. Two reviewers rated the items as somewhat relevant with comments indicating that standardized assessments may not be warranted and/or appropriate in certain community-based service-learning contexts. Given that the PPDT is designed as a flexible tool, if administering assessments were completely inappropriate for a given service-learning context, then a student would not elect to use this test item as one of their self-selected goals. However, it is clear that using assessments is an essential component of OT service-learning in some contexts because four of the participants rated this item as highly relevant, Therefore, this test item will be retained with minor revisions to make the wording more inclusive for a variety of contexts (e.g., "scores" replaced with "results").

One item in the Professional Behaviors domain about a student's ability to self-advocate for their own learning needs was rated with an I-CVI of 0.67. One of the two reviewers who rated the item as somewhat relevant did not provide feedback. The other reviewer indicated that while self-advocacy is a skill that is highly relevant for many OT students to target, in some high-needs/under-served community-based settings, addressing the specific learning needs of OT students may not be a priority for the community agency. The reviewer's comment is well taken. Given that service-learning can sometimes occur in very high-stakes or life-saving contexts, it may not always be appropriate for a student to address their learning needs with a supervisor from the community agency. However, given that self-advocacy is an important target skill for many students, this item will be retained on the PPDT. Revisions were made to the wording of this item to clarify that students working on this goal are to communicate with the OT educator involved in the service-learning program.

Discussion

Occupational therapy student outcomes from service-learning are inconsistently measured because there is a dearth of widely available and validated tools specifically for service-learning in OT education. Thus, it is difficult to demonstrate the distinct value of community-based service-learning in fostering personal-professional development. With acceptable item-level and overall scale-level content validity, the PPDT shows promise as a new tool to fill this gap.

The review and revision process based on expert feedback resulted in a stronger and more streamlined tool that may become useful for OT educators who use or want to begin using community-based service-learning. Further testing to evaluate other psychometric properties and testing in the field with OT students is warranted to continue developing the PPDT for use in OT education.

Limitations
Polit et al. (2007) recommended 8–12 experts review an instrument during the first round of content validation to identify which items may need to be revised or discarded and to identify gaps in the item pool where additional items may need to be added to effectively measure the central construct. Due to poor recruitment and retention, only six participants reviewed the PPDT in its entirety. Therefore, a second round of content validation on the revised PPDT may be prudent. However, Polit et al. (2007) also noted that a second round of content validation may not be necessary if only minor item revisions are indicated after the first round. In this case, the impact of the small sample size may be minimized because the S-CVI was 0.91 and because 27 test items had excellent I-CVI, while only two items had fair I-CVI values requiring minimal revisions for clarity. Furthermore, Polit et al. (2007) also provided guidance for evaluating I-CVI with fewer than eight experts. In the case of six experts, when there is agreement about relevance of a test item among six or five experts, the I-CVI for that item is 1.00 or 0.83, respectively. When adjusted for chance agreement, both of these I-CVI values are evaluated as excellent because they are above the pre-established cutoff of ≥ 0.8. Whereas, if four or fewer experts agree, the I-CVI would be ≤ 0.67, which is below the pre-established cut off, and would be evaluated as fair or below. The authors intended to pilot test the PPDT with masters-level OT students as an accompaniment to the content validation study; however, due to the COVID-19 pandemic, service-learning projects were halted. Pilot testing was rescheduled and is ongoing. A second round of content validity testing may be initiated pending the results of pilot testing and feedback from student users.

Expert reviewers were given access to the full PPDT instrument and manual. Study instructions on Qualtrics indicated that reviewers should read through the full instrument and manual before evaluating each test item and reference the materials as needed throughout their rating process. However, it appears that some of the expert reviewers did not appreciate some of the intricacies of the PPDT, which may have influenced their ratings of certain test items. Most notably, the PPDT was designed as a flexible tool so that it can be adaptable to a wide variety of service-learning contexts and be relevant to OT students with diverse needs and at different points in their education. Students only select the 8–12 of the 29 test items that are most meaningful to them (i.e., areas they want to target for growth). Students do not complete all 29 items on the PPDT, and it is assumed that some test items will be irrelevant or inappropriate for certain service-learning settings. For example, heavily clinical items (e.g., administering assessments) may not be useful in non-clinical settings, such as a refugee camp, whereas performing

a needs assessment may be highly useful in a refugee camp, but not necessary in a clinic-based service-learning project. With this understanding, the PPDT was designed so that students only rate items that are relevant to them and appropriate for their current setting, perhaps with some guidance from the OT educator.

Understandably, if an expert reviewer did not flag the unique methodology of the PPDT, this misunderstanding might impact their rating for certain test items. Some written comments from the reviewers indicate this may have occurred as they deemed some items "somewhat relevant" or "not relevant" for the specific service-learning programs they facilitated, even though these items may be relevant in other service-learning contexts. Given that the survey was conducted anonymously, it was not possible to contact participants to clarify this point and allow the opportunity to re-evaluate the impacted items on the PPDT.

This study focused solely on student outcomes. However, given that service-learning is a type of experiential education where students work collaboratively with community members to meet social needs, it is equally essential to consistently and meaningfully measure community outcomes to support mutually beneficial, sustainable partnerships. A review of the literature revealed that community outcomes are scarcely evaluated, thus there is also a great need for valid and reliable outcome measures for community partners in service-learning. The authors intend to develop a parallel proxy-measure for OT educators/service-learning instructors in the future to provide a more robust understanding about the learning process and to overcome some of the limitations of self-reports, such as social desirability bias.

Implications for Occupational Therapy Education

Community-based service-learning is increasingly becoming a critical educational method in entry-level OT education. Therefore, targeted outcome measures that have been validated are needed to consistently and meaningfully measure OT student outcomes. With the OA Model as its theoretical foundation, the PPDT was developed to meet this need. The unique design of the PPDT fosters student self-reflection, a vital skill for occupational therapists in daily practice. This approach empowers students to be active co-creators of their educational experience by setting and evaluating their own learning goals as they seek to increase their relative mastery of professional roles. This process sets the foundation for self-initiated, life-long learning and continued professional development, which, ultimately, strengthens the professionalism of our workforce. Altogether, student outcomes measured by the PPDT are anticipated to demonstrate the distinct value of community-based service-learning as an educational model that facilitates OT student development towards entry-level practice competence. Additionally, results from the PPDT may reveal information that is vital for improving a service-learning program (e.g., enhancing preparatory components, increasing opportunities for mentorship and modelling, or facilitating debriefing discussions to enhance self-reflection, etc.).

After pandemic-related delays, the authors were able to initiate two pilot studies during the 2021-2022 academic year. For the first small pilot study, four OT students partnered with a community agency to provide an innovative, virtual service-learning program in which they delivered a six-week wellness group series to adults with physical disabilities. The student participants completed the PPDT and an anonymous satisfaction survey about their experience using the tool. Preliminary results suggest significant growth across all five domains of the PPDT and highlight areas for continued development such as further exploration about how implicit and explicit biases can impact therapeutic interactions. Results from the satisfaction survey were favorable, suggesting that the PPDT is useful for OT students during service-learning by helping them set their own learning goals and reflect on their developmental process. Students also provided feedback to enhance the tool such as digitizing the PPDT on an online platform to streamline administration and scoring. The second, larger pilot study that involves both OT and nursing students is ongoing. Additional results will be forthcoming. A second round of content validity testing may be initiated if warranted pending the results. Future research will also involve testing the PPDT in a variety of service-learning contexts, evaluating the tool for additional psychometric properties, and developing and testing the digital version of the tool.

Conclusion

The PPDT has now been tested for content validity, reviewed, and revised based on expert feedback. Establishing content validity was an important preliminary step in the development of the PPDT to ensure that all test items measure the central construct of OT student personal-professional development and are therefore useful in OT education. With acceptable scale-level content validity overall, pilot testing of the PPDT with OT students during community-based service-learning has been initiated with encouraging preliminary results regarding usefulness of the tool. The PPDT is a promising new outcome measure that may become useful for educators to help guide OT students through a community-based service-learning experience by facilitating their setting learning goals, rating their performance, and reflecting on their personal-professional development. Further testing of the PPDT is warranted.

References

Aldrich, R. M., & Grajo, L. C. (2017). International educational interactions and students' critical consciousness: A pilot study. *American Journal of Occupational Therapy, 71*(5), 1-10. https://doi.org/10.5014/ajot.2017.026724

Aldrich, R. M., & Peters, L. (2019). Using occupational justice as a linchpin of international educational collaborations. *American Journal of Occupational Therapy, 73*(3), 1-10. https://doi.org/10.5014/ajot.2019.029744

Allen, M. & Yen, W. (2002). *Introduction to measurement theory.* Waveland Press.

American Occupational Therapy Association. (2002*). Fieldwork performance evaluation for the occupational therapy student*. American Occupational Therapy Association Press.

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy, 74*(Supplement_2), 1-87. https://doi.org/10.5014/ajot.2020.74S2001

Fink, L. D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. Jossey-Bass.

Garber, S. L. (2016). The prepared mind. *American Journal of Occupational Therapy, 70*(6), 1-17. https://doi.org/10.5014/ajot.2016.706001

George, L. A., Schkade, J. K., & Ishee, J. H. (2004). Content validity of the Relative Mastery Measurement Scale: A measure of occupational adaptation. *Occupational Therapy Journal of Research: Occupation, Participation and Health, 24*(3), 92-102. https://doi.org/10.1177/153944920402400303

Grajo, L. C. (2019). Occupational adaptation as a normative and intervention process: New perspectives on Schkade and Schultz's professional legacy. In L. C. Grajo & A. K. Boisselle (Eds.), *Adaptation through occupation: Multidimensional perspectives* (pp. 83-104). Slack Incorporated.

Grajo, L. C., & Candler, C. (2017). The Occupation and Participation Approach to Reading Intervention (OPARI): A community of practice study. *Journal of Occupational Therapy, Schools, & Early Intervention, 10*(1), 90-99. https://doi.org/10.1080/19411243.2016.1257967

Hoppes, S., Bender, D., & DeGrace, B. W. (2005). Service-learning is a perfect fit for occupational and physical therapy education. *Journal of Allied Health, 34*(1), 47-50.

Horowitz, B. (2012). Service-learning and occupational therapy education: Preparing students for community practice. *Education Special Interest Section Quarterly, 22*(2), 1-4.

Jensen, L., Banning, A., Dickerson, M., & Roebuck, A. (2021). Outcomes and perceptions of graduates of a hybrid OT program. *American Journal of Occupational Therapy, 75*(Supplement_2), 1. https://doi.org/10.5014/ajot.2021.75S2-RP174

Knecht-Sabres, L. J. (2013). Experiential learning in occupational therapy: Can it enhance readiness for clinical practice? *Journal of Experiential Education, 36*(1), 22-36. https://doi.org/10.1177/1053825913481584

Konrad, S. C., & Browning, D. M. (2012). Relational learning and interprofessional practice: Transforming health education for the 21st century. *Work, 41*(3), 247-251. https://doi.org/10.3233/WOR-2012-1295

Krishnagiri, S., Hooper, B., Price, P., Taff, S. D., & Bilics, A. (2019). A national survey of instructional strategies used to teach occupation: Implications for signature pedagogies. *American Journal of Occupational Therapy, 73*(5), 1-11. https://doi.org/10.5014/ajot.2019.032789

Quinn, S., & Cremin, K. (2021). Occupation-focused learning and personal development through service-learning. *Journal of Occupational Therapy Education, 5*(3), 1-21. https://doi.org/10.26681/jote.2021.050304

Parham, D. (1987). Toward professionalism: The reflective therapist. *American Journal of Occupational Therapy, 41*(9), 555-561. https://doi.org/10.5014/ajot.41.9.555

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459-467. https://doi.org/10.1002/nur.20199

Salam, M., Iskandar, D. N. A., Ibrahim, D. H. A., & Farooq, M. S. (2019). Service-learning in higher education: A systematic literature review. *Asia Pacific Education Review, 20*(4), 573-593. https://doi.org/10.1007/s12564-019-09580-6

Schaber, P. (2014). Keynote address: Searching for and identifying signature pedagogies in occupational therapy education. *American Journal of Occupational Therapy, 68*(Supplement_2), S40–S44. https://doi.org/10.5014/ajot.2014.685S08

Schaber, P., Wilcox, K., Whiteside, A., Marsh, L., & Brooks, D. (2010). Designing learning environments to foster affective learning: Comparison of classroom to blended learning. *Interactional Journal for the Scholarship of Teaching and Learning, 4*(2). https://doi.org/10.20429/ijsotl.2010.040212

Schkade, J. K., & Schultz, S. (1992). Occupational adaptation: Toward a holistic approach for contemporary practice, part 1. *American Journal of Occupational Therapy, 46*(9), 829-837. https://doi.org/10.5014/ajot.46.9.829

Schultz, S., & Schkade, J. K. (1992). Occupational adaptation: Toward a holistic approach for contemporary practice, part 2. *American Journal of Occupational Therapy, 46*(10), 917-925. https://doi.org/10.5014/ajot.46.10.917

Thomas, A. J., Barrie, R., Brunner, J., Clawson, A., Hewitt, A., Jeremie-Brink, G., & Rowe-Johnson, M. (2014). Assessing critical consciousness in youth and young adults. *Journal of Research on Adolescence (Wiley-Blackwell), 24*(3), 485-496. https://doi.org/10.1111/jora.12132

Veyvoda, M. A., & Cleave, T. J. V. (2020). Re-imagining community-engaged learning: Service-learning in communication sciences and disorders courses during and after COVID-19. *Perspectives of the American Speech-Language-Hearing Association Special Interest Groups, 5*(6), 1542-1551. https://doi.org/10.1044/2020_PERSP-20-00146

Weber, J. E., Weber, P. S., & Young, M. A. (2010). Measuring service-learning outcomes: Test-retest reliability of four scales. *Psychological Reports, 107*(2), 611-616. https://doi.org/10.2466/01.11.17.PR0.107.5.611-616

Wynd, C. A., Schmidt, B., & Schaefer, M. A. (2003). Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research, 25*(5), 508-518. . https://doi.org/10.1177/0193945903252998