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Abstract

The supporting evidence for student-centered assessment practices is well-documented in the literature for higher education, but not in the field of occupational therapy (OT) education. There is no agreed-upon best practice for student assessment in OT education from any professional OT governing body, nor is there current OT education research evaluating the relationship between types of assessment methods and their effectiveness. The purpose of the study was to determine OT educators' perceived effectiveness of student assessment methods they used to measure student competency. A correlational design determined the strength of the relationship between these variables. Differences between OT Doctorate (OTD) and Masters of OT (MOT) program educators' perceptions were also examined. The sample (*n*= 224) consisted of educators in MOT and OTD programs in the United States. All demographic data and variables were collected and measured by the created survey instrument, the Perceived Effectiveness of Student Assessment Methods survey. The results concluded a positive relationship between the type of assessment method and perceived effectiveness. Occupational therapy educators reported using a wide variety of assessment methods but most often used methods they perceived to be less effective. Participants perceived certain assessments to be more effective than others, yet the study concluded that OT educators frequently use assessments not consistent with best practice guidelines. A significant difference in assessment methods used between OTD and MOT program educators was also found. The study results suggest OT educators need more training on what best practice in student assessment is and how to design and implement those assessment methods.

Keywords

Occupational therapy education, student assessment, healthcare education, curriculum

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Perceived Effectiveness of Student Assessment Methods In Occupational Therapy Education

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ABSTRACT

The supporting evidence for student-centered assessment practices is well-documented in the literature for higher education, but not in the field of occupational therapy (OT) education. There is no agreed-upon best practice for student assessment in OT education from any professional OT governing body, nor is there current OT education research evaluating the relationship between types of assessment methods and their effectiveness. The purpose of the study was to determine OT educators' perceived effectiveness of student assessment methods they used to measure student competency. A correlational design determined the strength of the relationship between these variables. Differences between OT Doctorate (OTD) and Masters of OT (MOT) program educators' perceptions were also examined. The sample (*n*= 224) consisted of educators in MOT and OTD programs in the United States. All demographic data and variables were collected and measured by the created survey instrument, the Perceived Effectiveness of Student Assessment Methods survey. The results concluded a positive relationship between the type of assessment method and perceived effectiveness. Occupational therapy educators reported using a wide variety of assessment methods but most often used methods they perceived to be less effective. Participants perceived certain assessments to be more effective than others, yet the study concluded that OT educators frequently use assessments not consistent with best practice guidelines. A significant difference in assessment methods used between OTD and MOT program educators was also found. The study results suggest OT educators need more training on what best practice in student assessment is and how to design and implement those assessment methods.

Introduction

Assessing healthcare education students' learning by promoting evidence of student learning rather than evidence of content taught has garnered increased attention in recent decades. The purpose of modern assessment has been identified to review and assess learners' progress, identify learners' strengths and weaknesses, and provide feedback to learners. With the data gained from these methods of assessment, educators can incorporate these changes into the curricula (Al-Kadri et al., 2012; Arum et al., 2016; Bin Mubayrik, 2020; Suskie, 2018). The pedagogical shift in healthcare education from teacher-centered learning to student-centered learning has also played a vital role in the changes in assessment practices. Assessment experts argue that traditional methods such as exams and papers do not adequately measure higher-level cognitive processes, such as clinical reasoning, and therefore, they should not be the primary methods of assessment to determine competency in today's ever-changing healthcare climate (Banta & Palomba, 2014; Bin Mubayrik, 2020; Dorime-Williams et al., 2022; Koh, 2017; Saher et al., 2022; Suskie, 2018, 2020). Additionally, much of the research has focused on general higher education or medical education practices and less on allied health professions, such as occupational therapy (OT) education. Occupational therapy education has necessitated ongoing efforts to remain current with assessment best practices; however, these changes to assessment methods and what constitutes best practice are not well documented in the OT education literature.

The accrediting organization for OT education, the Accreditation Council for Occupational Therapy Education (ACOTE), revised the learning standards for OT education programs most recently in 2024. The most recent versions of ACOTE standards require educators to not just document their teaching strategies as proof of meeting standards but to document the student assessment methods used to meet the standards (ACOTE, 2024). Occupational therapy programs must show adequate proof students have achieved these standards to achieve and maintain full accreditation status. This means traditional assessment methods, such as written exams and papers, may no longer be the standard of practice for OT education assessment methods as these tools are not able to accurately assess student competency with evaluation and patient intervention techniques, for example. Furthermore, ACOTE requires OT Doctorate (OTD) programs to meet additional standards and some standards at a higher cognitive level compared to Masters of OT (MOT) programs. Despite the requirements to meet ACOTE standards, no major professional organization has identified, published, or researched the best practices of student assessment methods for OT education programs, nor has any guidance on how to adequately differentiate appropriate assessment methods for OTD and MOT programs. This study aimed to bridge the gap between research and practice.

Purpose

The purpose of the study was to determine OT educators' perceived effectiveness of the student assessment methods they utilize to measure student competency in evaluation and intervention techniques. Current research in the profession of OT has evaluated specific student assessment techniques, such as exams, clinical experiences, and experiential learning, but has not examined the perceived effectiveness of

commonly used assessment techniques in evaluating overall student competency (Benson et al., 2013; Krusen & Rollins, 2019; Murphy & Radloff, 2019; Price et al., 2021; Sakemiller & Toth-Cohen, 2020). The research questions for this study were:

1. What is the strength of the relationship between the type of student assessment method and perceived effectiveness among OT educators?
2. What is the difference in utilized assessment methods for measuring student competency between MOT and OTD programs?

The primary hypothesis was that OT educators would perceive certain assessment activities as more effective at measuring student competency in evaluating and intervening with clients but are utilizing assessment methods they perceive to be less effective. A sub-hypothesis of the study was that OT educators in OTD programs use assessment methods at higher cognitive levels than educators in MOT programs. The study contributes to OT education research and practice by identifying student assessment methods OT educators believe are the most effective at accurately evaluating student competency with clinical skills and providing a guide for educators when creating assessment activities. Understanding which student assessment processes are being used and deemed effective by OT educators in the United States can help OT education step away from traditional, maligned assessment practices and move further toward authentic assessment to better align with the higher education field.

Literature Review

The Challenge of Assessing Student Competency

The challenge of how educators effectively assess students' ability to interact with patients is not new and has confounded educators in healthcare education for decades (Goss, 2022; Krusen & Rollins, 2019; Merritt et al., 2012; Price et al., 2021). Individual student assessment methods, such as practical exams and community-based experiences, have been studied in OT education literature. However, not all assessment methods being used are appropriately targeting the different levels of cognitive processing and learning (Armstrong, 2010; Banta & Palomba, 2014; Suskie, 2018). The *Occupational Therapy Curriculum Design Framework* by the American Occupational Therapy Association (AOTA) stated that OT program curricula must include assessment measures that demonstrate students meet program-stated learning objectives, which are written and developed by faculty and based upon the ACOTE standards; however, there is no direct guidance from AOTA or ACOTE on what those assessments should be or how they should be structured (AOTA, 2021).

Occupational therapy programs are evaluated by ACOTE on coherence between the curriculum, learning activities and outcomes, and evaluation of those established outcomes to achieve and maintain accreditation status (ACOTE, 2024; AOTA, 2021; Grenier et al., 2020); yet despite the high stakes of designing appropriate learning and student assessment methods, OT program educators receive little training or feedback on development or implementation of strong assessment practices (Henderson, 2016; Krusen & Rollins, 2019; O'Brien & McNeil, 2013; Price et al., 2021; Sakemiller & Toth-Cohen, 2020). Researchers in OT education have documented their frustrations with

the lack of guidance in this area from both AOTA and ACOTE, yet the OT student assessment methods research gap persists (Henderson, 2016; Krusen & Rollins, 2019; O'Brien & McNeil, 2013; Price et al., 2021; Sakemiller & Toth-Cohen, 2020). Some studies have examined specific assessment methods' ability to measure student competency, yet many of those studies have been completed in other healthcare fields, such as medicine or physical therapy, and therefore not directly applicable to the OT education field (Krusen & Rollins, 2019; Moura et al., 2021; Price et al., 2021). Although many OT educators report using hands-on assessment methods such as the Objective Structured Clinical Examination (OSCE), case-based examinations, and simulated patient encounters, the research is still lacking to definitively determine the effectiveness of these methods for assessing student competency in OT evaluation and intervention techniques (Bonsaksen et al., 2019; Grenier et al., 2020; Henderson, 2016; Krusen & Rollins, 2019; Price et al., 2021; Sakemiller & Toth-Cohen, 2020).

As the research on student-centered assessment grows, OT and other healthcare education programs continue to debate how to best align standards, learning outcomes, and assessment methods appropriately (Bonsaksen et al., 2019; Goss, 2022; Moura et al., 2021; Zlatkin-Troitschanskaia & Pant, 2016). Many healthcare professions determine competency before clinical practice through a summative assessment such as a board examination. Summative assessments are assessments completed at the end of a course, module, or program where feedback to students about their performance is provided after the assessment has occurred (Mohamad Hanefar et al., 2022; Suskie, 2018). In contrast, formative assessments are completed throughout a course to aid student learning by providing feedback on performance. Formative assessments also allow faculty members to use information gathered to assess current student learning and make changes quickly if needed (Mohamad Hanefar et al., 2022; Suskie, 2018). The emphasis on preparing students to pass their respective board examinations can and does ultimately lead some healthcare educators to use summative assessments as their primary assessment method over formative assessments, yet summative assessments may not be adequate to prove OT students have met ACOTE standards (Zlatkin-Troitschanskaia & Pant, 2016). Designing summative assessments that accurately assess higher cognitive-level clinical reasoning skills can be difficult and/or time-consuming; thus, formative assessments are encouraged throughout healthcare education as a learning and assessment strategy and to provide students feedback on their progress (AOTA, 2021).

To align with student-centered learning practices, many higher education fields are accentuating the need for student understanding of assessment methods as students tend to see assessment as only a grade (Bonsaksen et al., 2019; Moura et al., 2021; Zlatkin-Troitschanskaia & Pant, 2016). However, many OT educators argue that OT education research should go beyond the focus on the student perspective, as this has been well-researched in other higher education fields (Bonsaksen et al., 2019; Hooper et al., 2013; O'Brien & McNeil, 2013). Research has shown students see the value in experiential learning activities and assessment methods, such as practical exams and simulations, which prompts many educators to implement these methods (Henderson,

2016; Price et al., 2021; Sakemiller & Toth-Cohen, 2020). Researchers also agree there is a need for more support and faculty development opportunities to implement these contextually rich assessment methods, as these methods can be time-consuming and resource intensive (Goss, 2022; Moura et al., 2021; Price et al., 2021). Zlatkin-Troitschanskaia and Pant (2016) posited that the little evidence and lack of guidance for developing and implementing more appropriate assessment methods in healthcare education could be attributed to the specificity required for each field, with healthcare adding another layer of complexity. Occupational therapy educators must take responsibility for completing research in student assessment to answer complex and critical research questions to support evidence-based teaching and learning practices.

Assessing Student Competency in OT Education

Occupational therapy students must demonstrate competency in evaluation and client-intervention techniques across the lifespan under the OT scope of practice (AOTA, 2021). Student assessment methods in OT education must align with the skills students are expected to demonstrate upon graduation. Traditionally, OT educators use the required fieldwork experiences as the primary means for measuring competency; however, the latest revision of ACOTE standards dictates that assessment activities must assess student competency throughout the program (ACOTE, 2024). Neither ACOTE nor AOTA has provided a direct definition for what delineates student competency; however much of the literature suggests students who receive a passing score on the AOTA Fieldwork Performance Evaluation (FWPE) following the second 12-week fieldwork experience are deemed competent, entry-level practitioners (ACOTE, 2024; AOTA, 2020; MacNeil & Hand, 2014; Sakemiller & Toth-Cohen, 2020). The contradiction between the revised ACOTE standard requirements and persistent practice of fieldwork experiences being the primary determination of student competency has only further supported the need for review and emphasis on designing effective student assessment methods in OT education.

Current Climate in Student Assessment Research

Higher education assessment scholars and AOTA agree that student assessment should be used as a tool *for* learning in addition to the assessment *of* learning (AOTA, 2021; Braskamp & Engberg, 2014; Dorime-Williams et al., 2022; Suskie, 2018). Higher education literature also supports the increased use of formative assessment methods to balance summative methods, a concept that scholars have agreed aligns with adult-learning education practices, or andragogy, and adult-learning theories such as constructivism theory (Al-Kadri, 2014; Henderson, 2021; Suskie, 2018, 2020). According to constructivism, learners create new knowledge based on the interactions one has with the environment, social interactions, participation in learning activities, and previously learned knowledge and skills experiences (Mukhalalati & Taylor, 2019; Thomas et al., 2014). Constructivism is one of the supported educational theories by AOTA and can be used by educators to create effective assessment practices that are consistent with constructivist pedagogy. Many OT programs choose to use constructivism to guide their instructional strategies and assessment methods design

(ACOTE, 2024; Henderson, 2021) as constructivism emphasizes learning through doing, student motivation for learning, and transfer of knowledge to real-world situations- skills that are required for students to be deemed competent OT practitioners (AOTA, 2021).

The literature review findings support the hypothesis that there has been little research done to evaluate assessment practices, explore the effectiveness of assessment practices, or survey the perception of assessment practices in the field of OT education. Occupational therapy educators currently use guidance from research in related fields such as nursing and medicine to develop student assessment methods, indicating a lack of support for improving teaching and learning practices at the program and university levels as well as organizational level. This study aimed to fill the gap in the literature addressing what student assessment methods are being used in OT education, what the OT educators' perceived effectiveness is of those methods, and what constitutes best practice for assessment of evaluation and intervention techniques in the field of OT education.

Methodology

Research Design

A correlational quantitative study design was used to determine the strength of the relationship between the types of assessment methods occupational therapy educators use and the perceived effectiveness of those assessment methods. The first research question was a relationship-based question aiming to identify the strength and direction of the relationship between the type of student assessment method and perceived effectiveness among OT educators when measuring student competency. The second research question was a comparative group question examining the difference in assessment methods used for measuring student competency between OTD and MOT programs. This question was answered through the data on assessment methods used by participants and then the comparison of the groups of OTD program educators and MOT program educators. The Institutional Review Board reviewed and approved the study.

Participants

The researcher obtained perceptions from 224 occupational therapy educators in MOT and OTD programs who identified as adjunct, part-time, or full-time faculty members in the United States. The sampling unit of OT educators in MOT and OTD programs in the United States also consisted of two sample subgroups: MOT program educators and OTD program educators (Gall et al., 2015). Descriptive and frequency statistics were calculated for participant demographic data including program type, age, years of experience, faculty rank, identified gender, race/ethnicity, geographical location, and levels of education.

Instrumentation

The researcher developed the survey of Perceived Effectiveness of Student Assessment Methods in OT Education (PESAM) to gather information on the participants' perception of student assessment and to answer the research questions appropriately (see Appendix). All demographic data and variables in the study were collected and measured by the PESAM. The assessment methods used by OT educators, a nominal variable, was measured using fixed-response questions such as multiple choice and rank-ordering type questions. Assessment methods included on the PESAM were compiled and generated from AOTA's *Occupational Therapy Curriculum Design Framework* (2021), Henderson's (2021) *Effective Teaching: Instructional Methods and Strategies for Occupational Therapy Education* text, and Suskie's (2018) *Assessing Student Learning: A Common Sense Guide* text. Required fieldwork (FW) experiences were not included as an option for participants to select; clinical experiences other than required FW experiences were an included option.

Eleven-point (0-10) Likert scales were used to measure the perceived effectiveness of assessment methods commonly used in OT education, an interval variable. The PESAM first asked participants to indicate which assessment methods they use currently, and which are used most often (up to three methods). Participants then rated assessment methods on the 0-10 scale, 0 being *not effective at all,* and 10 being *extremely effective.*

The face, content, and construct validity of the PESAM were assessed before data collection by a panel of context experts and research methodologists using an established rubric. A pilot survey was sent to approximately 70 potential participants in the targeted sample to aid in establishing the reliability, validity, and usability of the instrument. Twenty-two responses were collected following the distribution of the pilot survey. A Cronbach's alpha coefficient of >.60 was established from the pilot data, demonstrating a high level of internal consistency. Cronbach's alpha coefficients were determined to measure the internal consistency of all variables following the distribution of the final survey. The variables and scale had a high level of internal consistency as determined by a Cronbach's alpha of .860.

Data Collection

Participants were provided an equal opportunity to participate in the study, as all OT educators with publicly available email addresses on their programs' websites were sent an email containing the link to the PESAM. Informed consent information was provided at the beginning of the survey, again describing the purpose, risks, and benefits of participation in the survey; then participants provided informed consent by choosing whether to participate in the study or not. All results were anonymous and stored in a secure format in the password protected Qualtrics platform to ensure that the data remained confidential and could not be connected to the participants.

Data Analysis

All data analysis was conducted through the SPSS software. Frequency and maximum descriptive statistics were calculated for the types of assessment methods to determine how often OT educators used each type of assessment method and which was used most often. Mean and standard deviations (SD) were calculated for the perceived effectiveness of each type and classification of the assessment method. Assumption testing to ensure homogeneity of variance and normal distribution of data was completed through Levene's test of equality of variances and the Shapiro-Wilk test for normality, respectively. Eta coefficient analyses, Pearson correlations, and chi-square tests for homogeneity were conducted to determine the strength and direction of the variable relationships. All data analysis was conducted using SPSS software.

Results

Sample Description

The total number of participants was 224, with most participants being full-time educators (*n*=179, 91.8%), with an even distribution of program types among the participants. Participants overwhelmingly taught in traditional format programs (*n*=150, 76.9%), aligning with the *2020-2021 Academic Report* from AOTA reporting 74% (*n*=175) of OTD and MOT programs in the United States are traditional format while the remaining 23.1% (*n*=60) are hybrid or online formats (AOTA, 2022). Most participants had between 5-10 years of experience and were at the assistant professor or associate professor level. The majority of participants identified as White/Caucasian and female, slightly higher than the AOTA reported averages for OT faculty of 76% (n=4,153) White and 84% (*n*=4,593) female nationally (Note: AOTA data includes OTD, MOT, and OT Assistant programs). Thirty-nine out of 50 states in the United States were represented in the sample, providing participant representation from all regions of the country. Table 1 displays the participant demographics.

Table 1

Participant Demographics

Demographic Category	N	%
Gender		
Female	174	89.7
Male	17	8.8
Non-Binary/Gender Variant	1	0.5
I prefer not to answer	2	1.0
Race/Ethnicity		
American Indian or Native American	1	0.5
Asian or Asian American	9	4.7
Black or African American	8	4.1
Hispanic/Latinx	5	2.6
White/Caucasian	164	85.0
I prefer not to answer	6	3.1
Age		
25-34 years	12	6.2
35-44 years	51	26.3
45-54 years	58	29.9
55-64 years	53	27.3
65+ years	16	8.2
I prefer not to answer	4	2.1
Employment Status		
Full-time	179	91.8
Part-time	5	2.6
Adjunct	11	5.6
Program Type		
OTD	74	37.6
MOT	74	37.6
Both OTD/MOT	49	24.9
Program Format		
Traditional on-campus	150	76.9
Blended or online only	45	23.1
Faculty Rank		
Adjunct Instructor	8	4.1
Instructor	15	7.7
Assistant Professor	77	39.3
Associate Professor	66	33.7
Professor	30	15.3

Experience in Years		
Fewer than 2 years	11	5.6
2-4 years	38	19.4
5-10 years	80	40.8
11-15 years	22	11.2
16-20 years	13	6.6
20+ years	32	16.3
Education Level		
Master's degree	17	8.8
Clinical Doctorate*	93	47.9
Terminal Doctorate**	84	43.3

*Clinical Doctorate degrees include OTD, DPT, and PsyD. **Terminal Doctorate degrees include Ph.D., EdD., and ScD.

Relationship Between Assessment Method and Perceived Effectiveness

On average, participants reported using a wide variety of assessment methods in their courses, with 12 out of the 17 currently used by at least 50% of participants. Participants reported group projects (*n*=168, 85.3%) and presentations (*n*=168, 85.3%) to be the most used assessment methods to assess student competency. Participants perceived these two assessment methods as effective ways to measure student competency as evidenced by mean perceived effectiveness scores of over 6.00. The highest rated assessment method was clinical experiences with a mean perceived effectiveness score of 8.74/10. The least used assessment methods were interviews, journals and journaling, and portfolios; however, each of these methods had mean perceived effectiveness scores of over 5.00/10. None of the assessment methods received a mean perceived effectiveness score below 5.00/10 (neither effective nor ineffective), indicating participants perceived all 17 assessment methods to be at least somewhat effective at measuring student competency. Table 2 displays data related to the variables of types of student assessment methods and the perceived effectiveness of those methods.

Table 2

Frequency of Assessment Methods Used and Mean Perceived Effectiveness Scores

Assessment Method	Currently using		Not currently using		Used most often [a]		*M*[b]	*SD*
	n	%	*n*	%	*n*	%		
Case Studies	167	84.8	30	15.2	81	36.2	7.9	1.47
Clinical Experiences	141	71.6	55	27.9	39	17.4	8.7	1.91
Comm Experiences	119	60.4	78	39.6	11	4.9	8.0	1.38
Class Discussions	167	84.8	30	15.2	24	10.7	6.4	1.66
Group Projects	168	85.3	29	14.7	41	18.3	6.1	1.58
Interviews	66	33.5	131	66.5	0	0.0	6.2	1.55
Journals	47	12.7	172	87.3	2	0.9	5.7	1.73
Oral Exams	25	12.7	172	87.3	5	2.2	6.3	2.26
Peer Reviews	72	36.5	125	63.5	0	0.0	5.4	1.83
Portfolios	39	19.8	158	80.2	5	2.2	6.2	1.96
Practical Exams	136	69.0	61	31.0	67	29.9	8.6	1.26
Presentations	168	85.3	29	14.7	46	20.5	7.0	1.45
Quizzes	157	79.7	40	20.3	37	16.5	7.2	1.36
Self-Reflections	140	71.1	57	28.9	13	5.8	6.8	1.77
Worksheets	124	62.9	73	37.1	17	7.6	6.4	1.61
Writ. Assign.	145	73.6	52	26.4	88	39.3	7.6	1.49
Written Exams	166	84.3	31	15.7	82	36.6	7.6	1.41

Note. N=224. This table demonstrates the percentage of educators who currently use each assessment method in their coursework and mean effectiveness scores. Comm. Experiences=Community-Based Experiences. Writ. Assign.=Written Assignments. [a] Reflects participants who selected this assessment method in response to their three most often used assessment methods. [b] Indicates mean perceived effectiveness score from 0-10 rating scale. Participants also had the option to select “I’m not sure” for this question.

Written exams (*n*=88, 36.6%), written assignments/papers (*n*=82, 39.3%), and case studies (*n*=81, 36.2%) were the most used assessment methods when participants were asked to indicate the top three assessment methods they used in their courses. Although these assessment types had an average perceived effectiveness score of over 7.0/10, three assessment types had higher perceived effectiveness scores: clinical experiences (8.74/10), practical exams (8.57/10), and community-based experiences (7.99/10). However, these assessment types were chosen as the top three assessment methods by only 17.4% (*n*=39), 4.9% (*n*=11), and 29.9% (*n*=67) of participants

respectively. This finding supports the main hypothesis that OT educators are more commonly using assessment methods they rate as less effective than other assessment methods with high perceived effectiveness scores.

Eta correlations were conducted to measure the strength of the relationships between the assessment methods used by participants and the perceived effectiveness scores of those assessment methods. Nineteen significant correlation values were found between the assessment methods and mean perceived effectiveness. The highest correlations were found between the variables written assignments (eta=.359, eta^2=.130, medium effect size), written exams (eta=.294, eta^2=.09, between small and medium effect size), and class/group discussions (eta=.291, eta^2=.08, between small and medium effect size) indicating a possible relationship between the use of those three assessment methods and their mean perceived effectiveness scores.

Most of the significant correlations were between the usage of an assessment method and the method's corresponding mean perceived effectiveness score, indicating OT educators were more likely to use an assessment method if they perceived it to be effective at measuring student competency. However, positive correlations were found between some assessment methods and the mean rating of a different assessment method. For example, a small, positive correlation was found between the usage of quizzes and the mean score of oral exams (eta=.185, eta^2=.03). Significant correlations were also found between the usage of written assignments and the mean score of group projects (eta=.185, eta^2=.03, small effect size) and the usage of written exams and the mean score of presentations (eta=.204, eta^2=.04, small effect size). These four assessment methods were used by between 74%-85% (*n*=166-190) of participants and are also well researched, commonly used assessments in higher education (AOTA, 2021; Bonsaksen et al., 2019; MacNeil & Hand, 2014; Sakemiller & Toth-Cohen, 2020; Suskie, 2018). The familiarity of these historically common types of assessment methods may have influenced the usage and perceived effectiveness of these four assessment methods.

Differences in Utilized Assessment Methods by Program Type

A Chi-Square test of homogeneity determined if there was an association between the assessment methods used in MOT programs and OTD programs. Assumptions of appropriate variable types, independence of observations, study design, and sufficiently large sample size were met before analyses. Statistically significant differences were found in proportions with the use of practical exams ($p<.01$), class discussions ($p<.05$), self-reflections ($p<.05$), written exams ($p<.05$), and written assignments ($p<.05$) between MOT educators and OTD educators.

A post-hoc analysis was completed for each assessment method with a Bonferroni correction, with statistical significance at $p<.05$. The proportion of MOT educators currently using practical exams (*n*=33, 44.6%), written exams (*n*=39, 52.7%), and written assignments (*n*=60, 81.1%) was statistically significantly higher than OTD educators, *p*<.05. The proportion of OTD educators often using self-reflections (*n*=8, 10.8%) and class discussions (*n*=68, 91.9%) as an assessment method was statistically

significantly higher than MOT educators who most often use those methods, $p<.05$. Table 3 displays the frequencies of assessment methods used by the different programs, both currently and used most often, while Figure 1 depicts a comparison of assessment methods between OTD and MOT educators.

Table 3

Comparison of Frequencies of Assessment Methods Used by OTD and MOT Educators

Assessment Method	OTD Educator Usage (%)		MOT Educator Usage (%)	
	Using currently[a]	Used most often[b]	Using currently[a]	Used most often[b]
Case Studies/Analyses	86.5	41.9	83.8	31.1
Clinical Experiences	70.3	24.3	71.6	17.6
Community-Based Exp.	66.2	9.5	56.8	2.7
Class Discussions	91.9	10.8	78.4	10.8
Group Projects	83.8	21.6	83.8	24.3
Interviews	31.1	0.0	37.8	0.0
Journals/Journaling	24.3	1.4	18.9	0.0
Oral Exams	10.8	0.0	16.2	4.1
Peer Reviews	43.2	0.0	32.4	0.0
Portfolios	18.9	2.7	21.6	2.7
Practical Exams	59.5	23	74.3	44.6
Presentations	87.8	28.4	86.5	25.7
Quizzes	79.7	23.0	78.4	17.6
Self-Reflections	78.4	10.8	66.2	1.4
Worksheets	64.9	10.8	60.8	5.4
Written Assignments	66.2	36.5	81.1	52.7
Written Exams	81.1	33.8	87.8	43.2

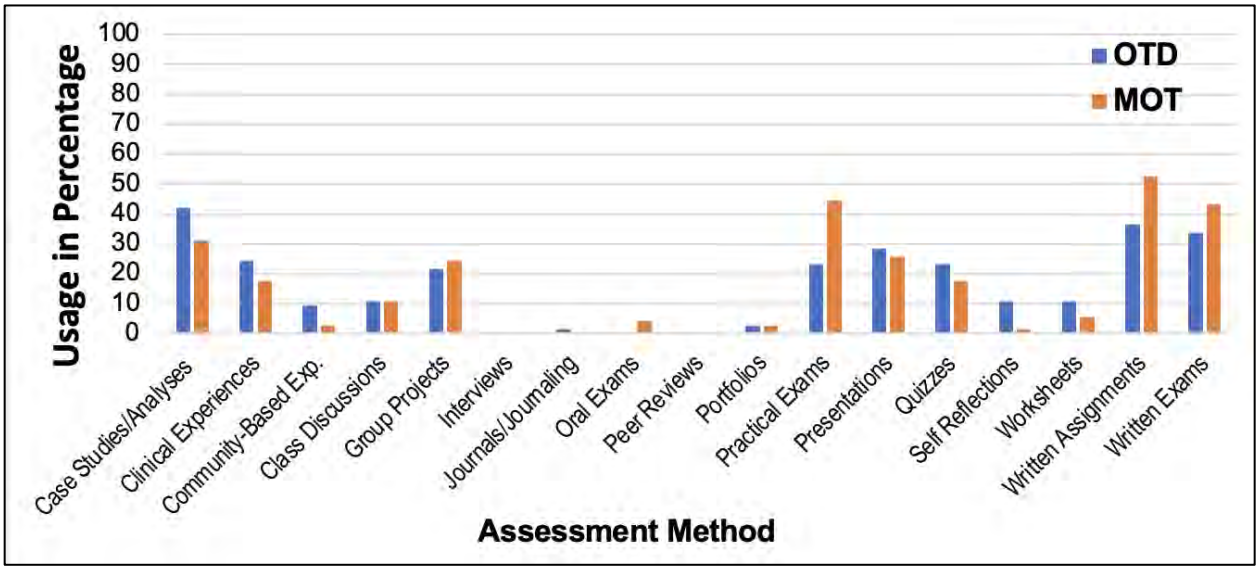
Note. N=34 per group. Data from educators who identified as primarily teaching in Both MOT and OTD programs was not used for this table.

[a] Refers to participants' selection of all the assessment methods they currently use

[b] Reflects participants who selected this assessment method in response to their three most often used assessment methods

Figure 1

Frequency Comparison of Assessment Methods Used Most Often by MOT and OTD Educators



Note. This chart depicts comparisons of assessment methods used by MOT educators and OTD educators in percentages of usage.

The comparison results support the sub-hypothesis that educators in OTD programs reported currently using and more often use higher cognitive-level assessment methods more than MOT educators. MOT educators used the summative assessment methods of written exams, written assignments, and practical exams more often than OTD educators, while OTD educators used the formative assessment methods of self-reflections and class discussions more often to determine student competency. Self-reflections and class discussions are typically at the analysis and evaluation level of learning and require students to think critically and accurately reflect on their knowledge and learning (Armstrong, 2010). Written exams and written assignments are generally a lower level of cognitive learning such as remembering, understanding, and applying. These two assessment methods have less research to support their efficacy with adult learners and have been shown to not align well with adult learning and constructivist pedagogy in which many OT programs are designed (Bin Mubayrik, 2020; Mohamad Hanefar et al., 2022; Zlatkin-Troitschanskaia et al., 2023). Practical exams, however, can fall under multiple levels of learning, such as apply, evaluate, and/or create, depending on the requirements of the exam (Armstrong, 2010; Krusen & Rollins, 2019; O'Brien & McNeil, 2013).

Discussion

The results of the study showed OT educators in both MOT and OTD programs used a variety of student assessment methods to measure student competency in evaluation and intervention techniques, as each participant reported currently using at least four different assessment methods. Two-thirds of the assessment methods included in the survey were used by over 50% of the participants, indicating educators in OT programs are using multiple assessment methods in their courses. Educators are also using assessments to target all levels of learning, as the assessment methods included in the survey were aligned with all six levels of Bloom's Taxonomy (AOTA, 2021; Armstrong, 2010). Health education research has shown a variety of instructional strategies and assessment methods better prepare students for clinical practice. Therefore, it appears educators in OT programs in the United States, on average, are aligned with this current practice guideline (AOTA, 2021; Bonsaksen et al., 2019; Braskamp, & Engberg, 2014; O'Brien & McNeil, 2013). Using a variety of student assessment methods is also aligned with learner-centered educational theory and assessment practices, which is supported by AOTA (AOTA, 2021b; Henderson, 2021).

An interesting finding was participants rated all student assessment methods on average as being somewhat effective, with no assessment method averaging less than 6.0 on a scale of 0-10. To answer the first research question, relationships of varying strengths were found between the usage of student assessment methods and their perceived effectiveness score among OT educators, which supported the sub-hypothesis that educators will use assessment methods they deem to be effective at measuring student competency. This was not necessarily surprising as it is unlikely a participant would report using an assessment method they perceived as ineffective at assessing competency, although this finding is statistically significant. It should be noted, however, that the literature is not clear if some OT education departments require faculty to use certain assessment methods, which then would refute this. A more interesting finding was the relationship between the usage of one assessment method and the perceived effectiveness of another. There were multiple positive relationships noted between the usage of one type of exam and the perceived effectiveness of another type of exam, such as written exams and oral exams for example. This suggests that participants who perceive one type of exam to be effective are likely to perceive other types of exams as effective.

There were other positive relationships between the usage and perceived effectiveness of four common assessment methods: group projects, written assignments, presentations, and written exams. These four assessment methods were some of the most used assessments but were not in the top four most effective assessment methods. The research is divided on whether these types of assessment methods can accurately measure student competency at the level expected for a graduate student such as an OTD or MOT student (Bahous & Nabhani, 2015; Bonsaksen et al., 2019; Braskamp, & Engberg, 2014; Suskie, 2018). As stated above, OT educators may benefit from additional education and training on assessment methods to adequately measure student competency in evaluation and intervention techniques at higher levels of learning.

The final result of the study answered the second research question and supported the hypothesis that there are significant differences in student assessment methods used between MOT and OTD programs. Educators in MOT programs were more likely to use commonly known methods such as written exams, written assignments, and practical exams, and preferred summative methods over formative methods. Although these three methods are well-researched and known in the higher education field, of the three, only practical exams have been shown to be effective assessment methods to measure student competency skills in healthcare education programs (Henderson, 2016, 2021; Krusen & Rollins, 2019; O'Brien & McNeil, 2013). In contrast, OTD educators used more self-learning assessment methods such as self-reflection and class discussions to measure student competency. Although there is not much evidence to support their use in OT education, research does support the use of these learner-centered assessment methods within adult learning and constructivist curricula, in which many OT programs are designed (AOTA, 2021; MacNeil & Hand, 2014; Mohamad Hanefar et al., 2022).

The OTD programs' ACOTE standards require students to demonstrate certain standards at a higher cognitive level of learning than the MOT program standards. Therefore, it is expected that OTD programs use more higher-level assessment methods than MOT programs. Despite the significant differences in the usage of student assessment methods between program types, both MOT and OTD educators reported written exams and written assignments as their top three most used assessment methods. This indicates that although OTD educators may use a wider variety of assessment methods at potentially higher cognitive levels, both levels of educators report using those commonly used, yet less supported by current research, assessment methods often.

Limitations

The study had two main limitations: sample size and inability to reach participants directly. The sample size equaled roughly 10% of total educators per AOTA's latest academic report at the time of this study, which limited the external validity of the study, but did result in participants from each region of the country. Participant recruitment required the researcher to manually gather email addresses from program websites, and many programs do not publicly post their faculty's email addresses. The inability to directly access OT educators limited the overall sample size of the study. Finally, it is unclear what the total population is of OT educators who teach in both OTD and MOT programs. A quarter of the participants in the study reported teaching in both OTD and MOT programs, but the latest academic report from AOTA at the time this study was conducted did not report faculty who overlap in both program types. It is possible faculty who teach in both programs are being counted twice for the total number of educators in each program type, making the total population number of OT educators unclear. The lack of a concrete number makes measuring external validity difficult and potentially inaccurate. Potential researcher bias was a third limitation.

Implications for Occupational Therapy Education

The research on student assessment methods in OT education is significantly lacking, providing minimal support for educators to improve their assessment practices. Much of the research evaluates student learning and instructional strategies, yet measuring the result of learning and the effectiveness of instructional strategies through assessment is being mostly ignored (Grenier et al., 2020; Hooper et al., 2013; Price et al., 2021). Other adjacent fields such as nursing, physical and speech therapies, and medical education do have research to support more effective student assessment methods which aids in guiding educators in those fields (Banta & Palomba, 2014; O'Brien & McNeil, 2013; Zlatkin-Troitschanskaia et al., 2023). This study is the first to evaluate the perceptions of OT educators regarding student assessment methods on a larger scale, as previous studies in OT education research have only examined individual student assessment methods or examined the students' perceptions versus the educators' perceptions. Pursuing additional research opportunities in search of further knowledge and understanding of OT student assessment practices is important for improving evidenced-based education and furthering the field of OT education research. Occupational therapy educators should advocate for further research to be funded and completed on student assessment methods and learning practices to ensure the continuation of quality education targeted to producing the highest caliber of healthcare practitioners. Additionally, OT educators should analyze the student assessment methods currently being implemented in their courses and curricula to evaluate alignment between ACOTE standards, levels of learning, and best practices in student assessment.

Future Research

It is recommended to develop a larger sample size for future research into student assessment methods used in OT education. Collaborating with national organizations and governing bodies would potentially allow for a more direct pathway to recruit participants and, therefore, increase sample sizes of future projects. The lack of delineation between educators who only teach in either MOT or OTD programs and educators who teach in both types of programs is a noted weakness and limitation of the reported annual data and, consequently, of the external validity of this study. Approximately one-third of the institutions that have entry-level OTD or MOT programs have both types of programs at one institution, yet the number of educators who teach at both is not reported (ACOTE, 2024). Therefore, it is likely these educators are being counted for the total OTD faculty numbers and for the total MOT faculty numbers, making establishing a statistically accurate, representative sample size difficult. Future researchers should aim to collaborate with ACOTE and AOTA to establish more accurate numbers of faculty per program type (OTD, MOT, or both) to better understand the differences in student assessment methods used throughout entry-level OT programs.

Future research should also analyze the differences in used assessment methods based on demographic factors, which was not a focus of this study. This may shed light on the trends of needs and practices based on factors such as program type, geographical location, institution size, and personal factors such as gender, age, and experience.

Finally, qualitatively analyzing why educators choose to employ certain assessment methods over others could highlight the strengths and weaknesses in OT education and provide a further understanding of what assessment and learning practices are being used in the field. An ethnographic qualitative study, for example, could analyze OT educators' perceptions and knowledge of the purpose and effectiveness of student assessment methods within the institutional and professional cultures. Qualitative analysis of educators' perceptions of the effectiveness of student assessment methods in OT education could fill in gaps not otherwise explored by this quantitative study.

Conclusion

The purpose of the study was to determine OT educators' perceptions of the effectiveness of methods used in OT education to assess evaluation and intervention techniques. Educators reported using a wide variety of assessment methods on average and felt many assessments are effective at measuring student competency, but agreed with current higher education guidelines that certain assessments are more effective than others. However, the study concluded that OT educators are still most frequently using assessment methods that are not consistent with those best practice guidelines. Lastly, there was a significant difference in the types of assessment methods used between OTD and MOT educators. OTD educators used assessment methods more consistent with adult learning theories such as self reflections, class discussions, and journaling to measure student competency. Whereas MOT educators reported using more traditional assessment methods such as written exams, written assignments, and practical exams to measure student competency.

This study has begun to fill the OT education research literature gap on what student assessment methods are used in OT education and in determining more specific best practices for assessing OT student learning. To continue to compete with other healthcare education programs, OT must continue to evolve student assessment and learning strategies along with the ever-changing environment of higher education and the modern student. Investing in further research into and adhering to current research recommendations on student assessment and learning can ensure OT maintains a position as a comprehensive, evidence-based leader of the healthcare team.

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Appendix

Perceived Effectiveness of Student Assessment Methods in Occupational Therapy Education Survey

1. I am a full-time, part-time, or adjunct faculty member in an OTD and/or MOT program in the United States.
    a. Yes
    b. No

2. Please indicate if your primary position is full-time, part-time, or adjunct faculty.
   NOTE: Part-time faculty for this survey is defined as faculty who are employed as core faculty but have FTEs of .75 or less, or work less than 30 hours per week. Adjunct faculty are defined as faculty who are NOT employed as core faculty and are hired on a contractual basis.
    a. Full-time
    b. Part-time
    c. Adjunct

3. What type of Occupational Therapy program is associated with your primary position?
    a. OTD- Occupational Therapy Doctorate
    b. MOT- Occupational Therapy Master
    c. Both- OTD and MOT
    d. Neither OTD nor MOT

4. What is your primary program format?
    a. Traditional full-time format
    b. Blended (some in-person, some online) or solely online format

5. Please indicate your current faculty rank.
    a. Adjunct Instructor
    b. Instructor
    c. Assistant Professor
    d. Associate Professor
    e. Professor

6. How long have you been employed as a faculty member in an MOT and/or OTD program?
    a. Less than 5 years
    b. 5-10 years
    c. 11-15 years

d. 16-20 years
e. 21+ years

Demographics

1. Please indicate your preferred gender. Select one.
    a. Man
    b. Woman
    c. Non-binary
    d. Another option not listed here
    e. I prefer not to answer this question

2. Please indicate your race/ethnicity. Select one.
    a. American Indian or Native American
    b. Asian or Asian American
    c. Black or African American
    d. Hispanic, Latino, Latina, or Latinx
    e. Middle Eastern or Northern African
    f. Native Hawaiian or Other Pacific Islander
    g. Mixed Race
    h. White/Caucasian
    i. Other
    j. I prefer not to answer this question

3. Please indicate your age.
    a. Under 25
    b. 25-34 years
    c. 35-44 years
    d. 45-54 years
    e. 55-64 years
    f. 65+ years
    g. I prefer not to answer this question

4. Where is your primary place of employment located?
    a. (Select state from drop-down field)

5. What is the highest level of education you have completed?
    a. Bachelor's degree
    b. Master's degree
    c. Clinical Doctorate (OTD, DPT, PsyD)
    d. Terminal Doctorate (Ph.D., EdD, ScD, etc.)
    e. Other

Student Assessment
A student assessment method is a tool used to measure student learning. Assessment methods are often called “assignments” and can be graded or ungraded.

Please select the types of student assessment methods that **you are currently using** in your courses to measure student competency (select all that apply):

- Case Studies
- Class Discussions
- Clinical Experiences (simulated and/or non-simulated) (other than required FW experiences)
- Community-Based Experiences
- Group/Classroom Discussion
- Group Projects
- Interviews
- Journals
- Oral Exams
- Peer-reviews
- Portfolios
- Practical Exams
- Presentations
- Quizzes
- Self-reflection
- Worksheets
- Written Exams
- Written Papers

Please select the types of student assessment methods that **you use most often** in your courses to measure student competency (**select up to three**):

- Case Studies
- Class Discussions
- Clinical Experiences (simulated and/or non-simulated) (other than required FW experiences)
- Community-Based Experiences
- Group/Classroom Discussion
- Group Projects
- Interviews
- Journals
- Oral Exams
- Peer-reviews
- Portfolios
- Practical Exams
- Presentations

- Quizzes
- Self-reflection
- Worksheets
- Written Exams
- Written Papers/Written Assignments

Summative and Formative Assessments

Summative assessment methods are used at the middle or end of a course and typically contribute to a high percentage of the overall course grade.

How effective do you feel summative assessment methods are at measuring student competency?

0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective

- I do not have experience with summative assessment methods

Formative assessment methods are low-stakes, graded or ungraded assignments that provide feedback and check student understanding.

How effective do you feel formative assessment methods are at measuring student competency?

0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective

- I do not have experience with formative assessment methods

For each of the following types of student assessment methods, please indicate how effective you feel the assessment method is at measuring student competency on a scale from 0-10.

Case Studies/Case Analyses
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Class/Group Discussions
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Clinical Experiences-Simulated or Non-simulated - (other than required FW experiences)
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Community-Based Experiences
0- not effective at all
1-

2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Group Projects
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Oral Exams
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Practical Exams
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective

6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Projects such as Presentations and Portfolios
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Self-Reflection Writings/Journals
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Written Exams/Quizzes (multiple choice, short answer, true/false, etc.)
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-

9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Written Papers/Written Assignments
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Worksheets
0- not effective at all
1-
2-
3-
4-
5-Neither effective nor ineffective
6-
7-
8-
9-
10- Extremely effective
- I do not have experience with this assessment method/ I am not sure

Please rank the following types of assessment methods in order from least effective (1) at measuring student competency to most effective (5) at measuring student competency.

- Case Studies/Analyses
- In-Class Learning Activities/Discussions
- Practical Exams
- Written Exams/Quizzes
- Written Papers