Evidence-Informed Teaching Practices Across Faculty Terminal Degree Categories

Steven D. Taff
Washington University School of Medicine in St. Louis

Meredith Gronski
Methodist University

Yejin Lee
Washington University School of Medicine in St. Louis

Ashley Stoffel
University of Illinois-Chicago

Theresa Carlson Carroll
Valparaiso University

See next page for additional authors

Follow this and additional works at: https://encompass.eku.edu/jote

Part of the Educational Methods Commons, Higher Education Commons, and the Occupational Therapy Commons

Evidence-Informed Teaching Practices Across Faculty Terminal Degree Categories

Abstract

Many faculty spend a considerable proportion of their time and effort in teaching, yet intentional preparation for this important responsibility is rare. Currently, there exists no standard guidance for which content areas or competencies are necessary for quality educator development as they perform the various faculty roles. In this descriptive study, we surveyed 334 occupational therapy/ occupational therapy assistant (OT/OTA) faculty from across the United States using a 53-item instrument that explored to what degree do OT/OTA faculty use and document evidence-informed teaching practices and if the use of evidence-informed teaching practices differs across faculty terminal degree category (entry-level occupational therapy doctorate [OTD], post-professional OTD, and PhD). Results did not indicate significant differences among terminal degree preparation type related to teaching competencies in OT and OTA education but indicated that faculty across all degree types reported very low implementation rates of certain surveyed teaching competencies, including formal instructional design approaches, context-appropriate teaching perspectives, and models of program evaluation to assess curricula, instruction, and outcomes. Participants also reported using instructional practices not supported by evidence, such as using course materials inherited from colleagues as the basis of course design or practices they learned by experiencing them as a student. Methods of documentation demonstrated significant degree-type differences in teaching philosophy statements, awards, book chapters, grants, and publications. The results of this study emphasize the need to more thoroughly prepare occupational therapy educators to use evidence-informed instructional practices and to assess teaching effectiveness according to a set of standard competencies rather than presumptions based upon type of terminal degree.

Keywords

Teaching, professional competence, occupational therapy education, quality improvement

Creative Commons License

Acknowledgements

Authors

Steven D. Taff, Meredith Gronski, Yejin Lee, Ashley Stoffel, Theresa Carlson Carroll, Jenica Lee, and Carolyn M. Baum

Evidence-Informed Teaching Practices Across Faculty Terminal Degree Categories

Steven D. Taff, PhD, OTR/L, FNAP, FAOTA[1];

Meredith Gronski, OTD, OTR/L, CLA, FAOTA[2];

Yejin Lee, PhD, MSOT[1]; Ashley Stoffel, OTD, OTR/L, FAOTA[3];

Theresa Carlson Carroll, OTD, OTR/L, CLA[4]; Jenica Lee, OTD, OTR/L[3];

Carolyn M. Baum, PhD, OTR/L, FAOTA[1]

Washington University[1]; Methodist University[2];

University of Illinois-Chicago[3]; Valparaiso University[4]

United States

ABSTRACT

Many faculty spend a considerable proportion of their time and effort in teaching, yet intentional preparation for this important responsibility is rare. Currently, there exists no standard guidance for which content areas or competencies are necessary for quality educator development as they perform the various faculty roles. In this descriptive study, we surveyed 334 occupational therapy/ occupational therapy assistant (OT/OTA) faculty from across the United States using a 53-item instrument that explored to what degree do OT/OTA faculty use and document evidence-informed teaching practices and if the use of evidence-informed teaching practices differs across faculty terminal degree category (entry-level occupational therapy doctorate [OTD], post-professional OTD, and PhD). Results did not indicate significant differences among terminal degree preparation type related to teaching competencies in OT and OTA education but indicated that faculty across all degree types reported very low implementation rates of certain surveyed teaching competencies, including formal instructional design approaches, context-appropriate teaching perspectives, and models of program evaluation to assess curricula, instruction, and outcomes. Participants also reported using instructional practices not supported by evidence, such as using course materials inherited from colleagues as the basis of course design or practices they learned by experiencing them as a student. Methods of documentation demonstrated significant degree-type

differences in teaching philosophy statements, awards, book chapters, grants, and publications. The results of this study emphasize the need to more thoroughly prepare occupational therapy educators to use evidence-informed instructional practices and to assess teaching effectiveness according to a set of standard competencies rather than presumptions based upon type of terminal degree.

Introduction

The profession of occupational therapy (OT) has been in a steady growth phase for the past decade. The Bureau of Labor Statistics (2023) predicted a minimum 12% increase in available jobs from 2022-2032 due to the aging population and emergence of new or evolving practice areas such as mental health, chronic disease management, wellness, and telehealth. Reacting to these projections of increased need is a swift increase in the number of applicant and candidate OT and occupational therapy assistant (OTA) educational programs (Harvison, 2024). Clearly, the profession will continue to grow and alongside is a commensurate need for well-prepared clinicians. This steady growth of educational programs also requires additional faculty who have expertise and experience in clinical content and skills. However, clinical experience alone is not sufficient, and equally important are faculty who have the training and competency in evidence-informed teaching and efficacy in the many roles of an educator. Teaching competence and quality are directly connected to learning outcomes (Kunter et al., 2013; Kyriakides et al., 2013) and, therefore critical to the preparation of skilled practitioners, researchers, and educators and long-term viability of the profession. The need for faculty well-qualified to teach is an ongoing concern across the health professions (Gardner et al., 2017), and, indeed, throughout higher education more broadly (Stensaker et al., 2017).

Despite the clear need for well-prepared educators, the academic career path is rarely linear, and barriers are common. Faculty face numerous challenges as they attempt to navigate the unfamiliar and often changing terrain of academia. In addition to a deep dive into the teaching role, they must also assume the added responsibilities of university service, advising and mentoring, research, and scholarly writing (Eddy & Gaston-Gayles, 2008). In OT, faculty typically emerge from two major pathways, either as new graduates of doctoral programs or in transition from clinical practice with a varying amount of experience. Regardless of entry route, novice and experienced faculty alike must find their way in an intricate and demanding work environment which has no standard playbook for success (Foy, 2017; Wakely, 2021). Depending upon the institution and whether faculty are on a tenure or non-tenure track, teaching is often the primary expectation, but it is important here to note the difference between the *teacher* and *educator* roles; the educator role comprises teaching but includes much more and is the template for an academic career (Chen et al., 2017). In addition to unclear expectations and requirements for preparation as an educator in academia, *career paths* for academics are not well-developed or understood, which differs from research-focused pathways in which doctoral students follow better defined pathways with consistent mentorship in research and grant-writing (Chen et al., 2017).

Preparation to teach and assume other academic roles is minimal across disciplines, OT included (Allgood et al., 2018, Bonner et al., 2020; Marx et al., 2016). If addressed, doctoral students typically gain knowledge and skills in how to teach from modeling mentors or perhaps a teaching assistantship, if available, but this model is inconsistent and insufficient to fully prepare them for the faculty role as an educator (Schram & Wright, 2011; von Hoene & Mintz, 2002). Moreover, even the mentorship model has limitations, as many more experienced faculty mentors lack training in teaching themselves (Connolly et al., 2018). In OT, literature exists focused on preparation and knowledge for fieldwork educators (Karp et al., 2022), supporting clinicians in transition to academia (Lockhart-Keene & Potvin, 2018), niche skills for integrating cultural humility into curricula (American Occupational Therapy Association [AOTA], 2019), general instructional methods (Henderson, 2017, 2021) and broad discussions of desired attributes for educators (AOTA, 2009). Additionally, valuable faculty development opportunities such as the AOTA New Educator Mentorship Program exist, however the focus there on teaching and learning is but one area in a time-limited 6-month experience and is geared towards aligning instruction with Accreditation Council for Occupational Therapy Education (ACOTE) standards, not necessarily evidence-informed practices. Despite the existence of some useful resources, no standard guidance or exemplars exist on which content areas or more specific competencies are necessary for quality educator development as they perform the various faculty roles, teaching paramount among those. While there are not currently any existing educator competencies identified in OT, examples do exist more broadly across the health professions. Artino et al. (2018) suggested critical content areas for health professions educators' knowledge, including teaching and learning, curriculum development, evaluation and assessment, educational research methods, and leadership/management. Similarly, Chen et al. (2017) proposed pedagogy, curriculum development, learning theory, scholarship, assessment, leadership, and educational research as core competencies. In their integrative review of competency domains in health sciences education, Sidhu et al. (2023) identified six broad categories for educator competency, including teaching and facilitating learning, designing and planning learning, assessment of learning, educational research and scholarship, educational leadership and management, and educational environment, quality, and safety. So, while various competency areas have been forwarded in health professions education, thus far these appear to serve as guidance rather than mandated and tracked requirements.

Given the lack of a set of standard educator competencies, how does OT education evaluate faculty preparation for the academic role? Currently, the only compulsory criteria are found in the ACOTE (2018) standards, including A.2.9. (mentors must demonstrate ongoing scholarly achievement and research expertise) and A.2.15. (faculty must be adequately trained and skilled to use distance education methodologies) but these are quite limited in addressing the full continuum of OT/OTA faculty needs to be effective educators. The newly approved standards (ACOTE, 2023) include a requirement (B.2.12) that all faculty demonstrate the application of principles of instructional design and teaching and learning, which is a welcome step forward, but even that one standard is not specific and framed as a program compliance statement

rather than a competency area aimed at faculty development. Our desire to explore use of evidence-informed teaching practices and documentation of competency across terminal degree level was initially prompted in part by a 2018 ACOTE standard (A.2.7 Faculty Degrees) that required more than 50% of an entry-level occupational therapy doctorate (OTD) academic program's faculty members must have a post-professional doctorate. Although that requirement has been removed for the 2023 ACOTE standards, the larger, more salient, question that remains is if OT/OTA faculty as a collective are consistently using evidence-informed teaching practices leading to quality student learning. Further, as OT education explores competency-based educational standards for students (Hamed et al., 2023), OT educators should reflect similar progressive and well-defined entrustable professional activities (Ten Cate, 2013). Entrustable professional activities are specific, real-world tasks that must be performed without supervision to demonstrate competence in any given discipline (Ten Cate, 2013). The lack of clear guidelines or competencies for OT educators appears as a stark gap across the educational enterprise and is the primary motivation for our current research. In this descriptive study, we collected data from OT/OTA faculty across the United States to explore use and documentation of evidence-informed teaching practices and if those differed according to terminal degree held. The research questions, therefore, were: 1) To what extent do OT/OTA faculty use evidence-informed teaching practices? 2) How do OT/OTA faculty document evidence-informed teaching competency? and 3) Does the use and documentation of evidence-informed teaching practices differ across earned terminal degree category?

Methods

Survey Instrument

The 53-item survey was designed based on themes derived from a basic content analysis (Hsieh & Shannon, 2005) of a combination of resources, including a literature review on best practices (and common errors, or ineffective activities unsupported by evidence) in teaching in higher education and health professions education, expected competencies for healthcare educators (Sidhu et al., 2023; Sweetman & Giles, 2023; van Dijk et al., 2020), a needs assessment and gap analysis completed by early career faculty, and promotion and tenure guidelines from co-author institutions. Resulting themes included learning theories and perspectives supporting teaching, use of learning taxonomies, curriculum and instructional design, learner assessment, educational program evaluation, evidence-based teaching strategies, inclusive and equitable teaching, and scholarship of teaching and learning. The themes were then restated in competency format and associated measurable behaviors for effective and ineffective behaviors were used to generate survey questions. Initial content validity (Almanasreh et al., 2019) for the survey was established through rigorous literature review (development stage) and input from experienced OT faculty (judgment stage). This descriptive study was institutional review board approved. The Appendix includes the survey questions and results.

Participants

Inclusion criterion was intentionally comprehensive and simply required serving in a faculty role that included teaching in an ACOTE-accredited educational program. A list of 5,228 OT and OTA faculty was obtained from AOTA to explore the knowledge and skills used by OT educators and career scientists in their academic teaching and mentoring roles. Of the 5,228 email addresses obtained, 862 were immediately discarded as duplicate or otherwise faulty addresses. An email describing the study, purpose, and consent information, along with a QR code linking to the survey was sent to 4,366 OT/OTA faculty, with 415 being returned as undeliverable. Of the 3,951 emails successfully sent, 334 participants responded to the survey (8.5% return rate) and answered 1 or more questions. Of these participants, we categorized the 236 respondents who completed all or the majority of the survey into three groups based on their self-reported earned terminal degree type: Entry-level OTD (n=17), Post-Professional OTD (N=91), and PhD level degrees (n=128). Demographic information from participants can be found in Tables 1 and 2.

Data Analysis

We performed descriptive statistics to obtain demographic characteristics for the three comparison groups – group with entry-level OTD, group with post-professional OTD group, and group with PhD level degrees. We then performed Chi-square tests to compare dichotomous (Yes-No Response) variables among the three groups. We applied Fisher's Exact Tests when the assumption of Chi-square tests were not satisfied. The significance threshold was set at 0.05 for Chi-square tests and Fisher's exact tests. When the result of Chi-square test and/or Fisher's exact test for the three-group comparison was significant, we carried out post-hoc analyses of Chi-square tests or Fisher's exact tests to investigate which group yielded different results. The Bonferroni-corrected p-value threshold of 0.0167(0.05/3) was used to reduce the risk of type 1 errors in the post-hoc analyses of Chi-squared tests and/or Fisher's exact tests. We performed Kruskal-Wallis tests to compare ordinal variables (5-likert scale) among the three groups. When the result of Kruskal-Wallis test was significant, we used the Dunn test with Bonferroni correction to evaluate which group showed different results. All statistical analyses were performed using R-studio 4.2.1.

Results

Participant Demographics and Employment Status

Information on participant's earned degree level, institution type, employment status, and years' experience in an academic teaching role can be found in Tables 1 and 2.

Table 1

Details on Survey Respondents' Degrees

Characteristics	Entry Level OTD (n=17)		Post Professional OTD (n=91)		PhD etc. (n=128)	
	n	%	n	%	n	%
Entry Level Clinical Degree						
OTA	0	0.0	1	1.1	3	2.3
BSOTA	0	0.0	1	1.1	0	0.0
BSOT/BOT	0	0.0	32	35.2	51	39.8
MOT/MSOT	0	0.0	48	52.7	52	40.6
OTD	17	100.0	9	9.9	17	13.3
Total No. of Responses	17	100.0	91	100.0	123	96.1
Post-Professional Degree(s)						
MS/MA	0	0.0	6	6.6	21	16.4
MOT/MSOT	0	0.0	6	6.6	15	11.7
OTD	0	0.0	91	100.0	13	10.2
PhD etc.	0	0.0	0	0.0	128	100.0
Other	0	0.0	4	4.4	12	9.4
Total No. of Responses	0	0.0	91	100.0	128	100.0
OTD: Doctor of Occupational Therapy, PhD: Doctor of Philosophy, OTA: Occupational Therapy Assistant, BSOTA: Bachelor of Science in Occupational Therapy Assistant, BSOT: Bachelor of Occupational Therapy, MS: Master of Science, MA: Master of Art, MOT: Master of Occupational Therapy, MSOT: Master of Science in Occupational Therapy Note: The group with PhD etc. includes PhD-equivalent level degrees such as EdD and DPH						

Table 2

Details on Survey Respondents' Employment Status

Characteristics	Entry Level OTD (n=17)		Post Professional OTD (n=91)		PhD etc. (n=128)	
	n	%	n	%	n	%
Employing Institution						
Doctoral/ Research Universities	12	70.6	52	57.1	93	72.7
Master's Colleges and Universities	3	17.6	26	28.6	27	21.1
Baccalaureate	0	0.0	0	0.0	2	1.6
Associate's Colleges	0	0.0	8	8.8	0	0.0
Specialized Institutions	0	0.0	5	5.5	6	4.7
Tribal	0	0.0	0	0.0	0	0.0
Total No. of Responses	15	88.2	91	100.0	128	100.0
Employment Status						
Full Time	17	100	85	93.4	122	95.3
Part Time	0	0.0	2	2.2	4	3.1
Adjunct	0	0.0	3	3.3	2	1.6
Total No. of Responses	17	100.0	90	98.9	128	100.0
Time Employed in Primary Academic Teaching Role						
< 3 years	8	47.1	15	16.5	12	9.4
4-5 years	3	17.6	21	23.1	10	7.8
5-10 years	4	23.5	34	37.4	26	20.3
11-15 years	1	5.9	11	12.1	21	16.4
15-20 years	0	0.0	4	4.4	13	10.2
> 20 years	1	5.9	6	6.6	46	35.9
Total No. of Responses	17	100.0	91	100.0	128	100.0
OTD: Doctor of Occupational Therapy, PhD: Doctor of Philosophy Note: The group with PhD etc. includes PhD-equivalent level degrees such as EdD and DPH						

Teaching Competency Practices (Q12-Q53)
The survey included seven categories of teaching competency: Curriculum Design (Q12-Q18), Instructional Delivery (Q19-Q26), Assessment (Q27-Q33), Use of Learning Theories (Q34-Q36), Mentoring (Q37-Q41), and Inclusive Learning Environments (Q42-Q53; see Appendix). Among these survey questions rated on a 5-Likert scale, the results of Kruskal-Wallis tests found significant differences on Use of Assessment Rubrics (Q30), Development of Personal Philosophy (Q34), and Inclusive Learning Environment (Q45) among the three comparison groups ($p<0.05$). The Dunn tests, which is the post-hoc analysis of Kruskal-Wallis tests, showed that the group with entry-level OTD have a significantly higher rate of use of assessment rubrics than either the group with post-professional OTD or the group with PhD level degrees ($p<0.05$). The group with post-professional OTD has a significantly higher rate of development of personal philosophy statements than the group with PhD level degrees ($p<0.05$). The group with PhD level degrees has a significantly higher rate of inclusive learning environment than the group with post-professional OTD ($p<0.05$). No significant results were found on other survey questions except the three questions (Q30, Q34, and Q45; see Table 3).

Respondents across all degree levels reported they "usually" or "always" practice many of the evidence-informed teaching competencies presented in the survey. However, they also reported use of strategies not supported by evidence, including "sometimes" using lectures as their primary instructional strategy, using models of instruction based on experiences from when they were a student, and use course materials created by colleagues as the primary basis of course design. Additionally, across degree levels, respondents reported a very low frequency (rarely or never) of using instructional design models (Gagne, 5E, ADDIE, Hunter, other) to develop a roadmap for class sessions, using Pratt's five perspectives of teaching to frame instruction, and using models of educational program evaluation (Kirkpatrick, logic models, CIPP) to assess instructional units, faculty development workshops, or curricula. The Appendix provides detailed data on how survey respondents reported teaching competencies by degree type.

Documentation of Teaching Competency Outcomes
The survey included 16 ways of documenting teaching competencies for promotion or evaluation (i.e., teaching portfolio, certifications, syllabi review, teaching philosophy, teaching/research awards, student assessment, peer teaching evaluations, letters of support, book chapters, book editorial roles, grants, contracts, peer-reviewed publications, peer-reviewed editorial roles, university service, and community service). Among the 16 ways, the Chi-square tests and/or Fisher's exact tests showed significant differences on teaching philosophy, teaching and research awards, book chapters, grants, and peer-reviewed publications among the three groups ($p<0.05$). The post-hoc analyses showed that all of the significant differences on teaching philosophy, teaching/research awards, book chapters, and peer-reviewed publications were present in the comparison of the group with post-professional OTD and the group with PhD level degrees (Bonferroni corrected $p<0.0167$). The results indicated that more respondents in the group with PhD level degrees reported more frequent use of teaching philosophy statements, teaching/research awards, book chapters, and peer-reviewed publications as ways of documenting teaching competencies for promotion or evaluation than the respondents in the group with post-professional OTD. We have found no significant results on other documentation of teaching competencies ($p>0.05$). Please see Table 4 for details.

Table 3

Significant Results of Evidence-informed Teaching Practices Use using Kruskal-Wallis Test for the Three Groups Comparison and Dunn Test for the Post-hoc Analysis

| | Entry OTD (n=17) | | PP OTD (n=91) | | PhD etc. (n=128) | | Three Group Comparison | | Post-Hoc Analysis | | | | | |
| | | | | | | | | | Entry OTD vs PP OTD | | PP OTD vs PhD etc. | | Entry OTD vs PhD etc. | |
	n	Mean ±SD	n	Mean ±SD	n	Mean ±SD	χ^2	p	χ^2	Adj p	χ^2	Adj p	χ^2	Adj p
Use of Assessment Rubrics (Q30)	16	2.19± 0.98	90	1.53± 0.62	127	1.54± 0.72	8.54	0.01	NA	0.02	NA	1.00	NA	0.01
Development of Personal Philosophy (Q34)	17	1.82± 1.19	91	1.89± 0.96	127	1.50± 0.78	10.86	<0.01	NA	1.00	NA	<0.01	NA	1.00
Inclusive Learning Environment (Q45)	17	1.18± 0.39	91	1.46± 0.50	128	1.60± 0.61	9.21	0.01	NA	0.12	NA	0.39	NA	0.01

Adj p: Adjusted p-value, p-value was set at 0.05 except *Bonferroni correction for post-hoc analysis p<0.0167

Note:

- The group with PhD etc. includes PhD-equivalent level degrees such as EdD and DPH

- These questions were measured using 5-likert scale from "Always=1" to "Never=5"

Table 4

Significant Results of Teaching Competencies Documentation using Chi-square Test and/or Fisher's Exact Test

| | Entry Level OTD (n=17) | | Post Professional OTD (n=91) | | PhD etc. (n=128) | | Three Group Comparison | | Post-Hoc Analysis | | | | | |
| | | | | | | | | | Entry Level OTD vs Post Professional OTD | | Post Professional OTD vs PhD etc. | | Entry Level OTD vs PhD etc. | |
	N	%	N	%	N	%	χ^2	p	χ^2	p	χ^2	p	χ^2	p
Teaching Philosophy (Q10)	11	64.7	44	48.4	85	66.4	7.41	0.02	1.53	0.22	7.16	0.01*	0.02	0.89
Teaching/Research Awards (Q10)	9	52.9	37	40.7	78	60.9	8.77	0.01	0.88	0.35	8.77	<0.01*	0.40	0.53
Book Chapters (Q10)	7	41.2	21	23.1	59	46.1	12.25	<0.01	2.44	0.12 (0.14[a])	12.15	<0.01*	0.15	0.70
Grants (Q10)	4	23.5	29	31.9	59	46.1	6.36	0.04	0.47	0.49	4.48	0.03	3.11	0.08
Peer-Reviewed Publications (Q10)	13	76.5	51	56.0	99	77.3	11.77	<0.01	2.48	0.12	11.18	<0.01*	0.01	0.94 (1.00[a])

OTD: Doctor of Occupational Therapy, PhD: Doctor of Philosophy

[a] p-value of Fisher's Exact Test

Note: The group with PhD etc. includes PhD-equivalent level degrees such as EdD and DPH

Discussion

Use of Evidence-informed Teaching Practices
Although there were three significant differences in using assessment rubrics (ELOTD > PPOTD and PhD) and teaching philosophy statements (PPOTD > PhD) and building inclusive learning environments (PhD > PPOTD), these are somewhat inconclusive in terms of potential impact on teaching in the larger context of our research. More strikingly, the results from this study indicate that faculty across all degree types reported on average, very low implementation rates of the surveyed evidence-based teaching competencies representing formal instructional design approaches, teaching perspectives, and models of program evaluation to assess curricula, instruction, and outcomes. Additionally, faculty respondents reported using instructional practices unsupported by evidence, such as using course materials handed down from previous instructors as the basis of course design (meaning they had not learned or do not use the valuable and necessary process of designing and/or evaluating a course) or practices they learned by experiencing them as a student.

These trends highlight the need to more thoroughly prepare OT educators to ensure high quality, evidence-informed instructional practices in OT and OTA programs in contrast to 'doing what has always been done' or following examples unsupported by the learning sciences (i.e. using folk pedagogies and/or pseudo-theories; Drumm, 2019; Hedges, 2012). This is not to say that tacit knowledge and informal teaching strategies based upon personal or role model experience are completely irrelevant or useless, but certainly are not ideal if used as a primary method. Additionally, it is important to note here that institutional type and culture may have affected survey responses in significant ways. For example, faculty in research-focused institutions where promotion trajectories minimize teaching contributions often experience less motivation (and have less time and financial resources) to adopt evidence-informed best practices (Brenner et al., 2018). For those reasons, increased presence in accreditation standards and- more critically- developing professionally endorsed teaching competencies would be important considerations to nudge institutional support.

Documenting Teaching Competency Outcomes
The results from our study indicate that although there were significant differences in some documented outcomes of teaching competencies (e.g., use of teaching philosophy, teaching awards, peer-reviewed publications) between educators with a PhD and a Post-professional OTD, the only significant differences in teaching competencies between educators with an entry-level terminal degree or a post-professional terminal degree was the use of assessment rubrics. Ultimately, the implication that there is not a quantifiable difference in teaching competency or documented academic products related to teaching effectiveness challenges the approach of relying on degree type to measure the skill and competency of a program faculty as a whole. Correspondingly, the 2023 ACOTE standards revised the standard related to faculty degrees and removed the requirement for at least 50% of core faculty to have a post-professional degree. Our data supports this shift to not relying on degree

type for faculty qualifications and importantly, provides opportunities for institutions to recruit and hire faculty based on need and qualifications and experience of the individual instead of degree alone.

To more fully address our research question about whether evidence-informed teaching practices differ across the terminal degree category, we also must consider how our profession defines terminal degrees and related qualifications. Accreditation standards for occupational therapy education provide one example for considering faculty degree type and competency. Entry-level OT and OTA degrees, at all levels, are accredited by ACOTE and now include the following standard related to teaching: B.2.12. *Demonstrate the application of principles of instructional design and teaching and learning in content related to occupational therapy* (ACOTE, 2023). In contrast, post-professional OTD programs are not currently accredited by ACOTE, and the content and degree expectations of these programs vary widely. There is no requirement or guarantee that a post-professional doctorate or PhD program requires preparation for roles in academia, including best practices in teaching, instructional design, and related knowledge. Relatedly, Brown and colleagues (2015) posed the question "Are academic staff with post-professional OTD credentials qualified to teach entry-level OTD students?" and mentioned that discussions about what qualifies as a terminal degree will need to occur. The AOTA Commission on Education does not differentiate between entry-level and post-professional OT doctorate degrees in their statement on the Academic Terminal Degree (AOTA, 2022). According to the statement, all doctorate degrees in OT are considered terminal.

While the employment outlook for OT remains strong, some academic institutions are facing faculty shortages and difficulties with faculty retention, especially following the recent global pandemic (Murray et al., 2014; Sinclair, 2021). Further challenges loom for OT/OTA education, including a significant increase in new applicant OT programs coupled with an overall decline in enrollment. These dual issues create a more competitive environment where teaching quality is not simply best practice but also a recruiting showcase. Additionally, the movement to shift to competency-based education in health care (Thibault, 2020) and OT (Hamed et al., 2023) extends the call to use competencies for educators as well. All these variables set up a scenario in which it is imperative that OT and OTA education programs can assess, quantify, and support the development of teaching-related competencies of their faculty regardless of institution size or faculty position type. Rather than utilizing a degree type as a standard for competency and qualification as faculty member, it is imperative that this standard is measured by objective and specific competencies related to curriculum design, inclusive instructional delivery, learning assessment, use of learning theories, inclusive learning environments, mentoring, and dissemination of scholarly work.

Limitations and Future Research
While yielding very important information, this study was limited by a lower than anticipated survey return rate. Content validity indices were not calculated, but this was noted by the authors as a necessary step for future study. We used the Kruskal-Wallis test to minimize the impact of the differences in sample size across groups, but this

remains a limitation. Although the survey instrument used was not standardized, these initial results could inform a valid and reliable revision that could be distributed on a regular basis as a quality improvement tool. Evidence-informed practice and knowledge translation resources have been and continue to be a major focus of AOTA, including systematic reviews, practice guidelines, and critically appraised topics. While most of these resources have focused on clinical practice, evidence-informed OT education should be similarly emphasized and resources for evidence-informed competencies within OT education should be a major focus for AOTA going forward. The lack of training in educational degree programs specific to teaching could be addressed through a combination of additional curricular experiences and more in-depth or longitudinal continuing education programs. Educators should be expected to implement evidence-informed education strategies to the same degree as practitioners in clinical practice.

Implications for Occupational Therapy Education
This study generates and offers initial findings that could lead to the transformation of OT education through more systematic and evidence-informed training and required competencies for educators. These implications include, but are not limited to:

- Development and use of accepted OT educator competencies will provide standardization of expectations for quality across educational programs, independent of degree type.
- Competency-based ACOTE standards will provide a wider pathway for highly trained individuals with entry-level OTDs to become qualified educators, increasing the supply of OT educators, which will address the OT faculty shortages.
- Educators can use teaching competencies to help outline a trajectory for skill development.
- Future clinicians, scientists, and educators will benefit from educators who are competent to engage in evidence-informed best teaching practices.
- OT learning spaces will be more inclusive and better support all learners, particularly those from marginalized identity groups.
- OT educators will have a development tool to guide their own learning and identify gaps in their teaching skills.
- Competency areas can serve as program evaluation indicators.

Conclusion
As the profession of OT continues to grow, so does the need for high quality educational programs with skilled educators. Occupational therapy education programs recruit a variety of faculty members based on their institutional missions, curricular designs, and clinical content expertise needs. New faculty members are hired from a variety of educational backgrounds that range from terminal research doctorate preparation (PhD or EdD) to entry-level clinical degrees. The path to academia is often winding and preparation in high quality teaching practices is not often achieved prior to faculty appointment. Occupational therapy educators often bring deep clinical expertise and experience as clinical supervisors of fieldwork students, but often lack formal

pedagogical training (Sparks-Keeney & Jirikowic, 2020). Our study adds to the current state and future needs (Sweetman & Giles, 2023) of preparation and development of OT faculty at all levels and highlights new systems of accountability that will enhance faculty recruitment and retention, as well as student learning outcomes. Rather than judge the quality or capacity of an educator by their degree type, we must shift our determination of faculty qualifications to a clearly defined set of educator competencies to guide the future of OT education. Occupational therapy stakeholders, specifically recipients of OT services, deserve to have clearly identified quality parameters and accreditation standard criteria – beyond degree type - for those teaching the next generation of OT practitioners.

References

Accreditation Council for Occupational Therapy Education. (2018). *2018 Accreditation Council for Occupational Therapy Education (ACOTE®) standards and interpretive guide.*

Accreditation Council for Occupational Therapy Education. (2023). *2023 Accreditation Council for Occupational Therapy Education (ACOTE®) standards and interpretive guide.*

Allgood, S., Hoyt, G., & McGoldrick, K. (2018). Teacher training for PhD students and new faculty in economics. *Journal of Economic Education, 49*(2)*,* 209-219. https://doi.org/10.1080/00220485.2018.1438947

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy, 15*, 214–221. https://doi.org/10.1016/j. sapharm.2018.03.066

American Occupational Therapy Association. (2009). Specialized knowledge and skills of occupational therapy educators of the future. *American Journal of Occupational Therapy, 63*, 804–818. https://doi.org/10.5014/ajot.63.6.804

American Occupational Therapy Association. (2019). *Cultural competency toolkits.* https://www.aota.org/Practice/Manage/Multicultural/Cultural-Competency Tool-Kit.aspx

American Occupational Therapy Association. (2022). Academic terminal degree. *American Journal of Occupational Therapy, 76*(Suppl. 3), 7613410260. https://doi.org/10.5014/ajot.2022.76S3013

Artino, A. R., Jr, Phillips, A. W., Utrankar, A., Ta, A. Q., & Durning, S. J. (2018). "The questions shape the answers": Assessing the quality of published survey instruments in health professions education research. *Academic Medicine, 93*(3), 456–463. https://doi.org/10.1097/ACM.0000000000002002

Bonner, R. L., Stone, C. B., Mittal, S., Phillips, W., & Utecht, R. L. (2020). Preparing academics to teach: Example of a structured method of preparing doctoral students in business programs to teach. *Journal of Management Education, 44*(4), 435-463. https://doi.org/10.1037/0022-3514.92.3.458

Brenner, A. M., Beresin, E. V., Coverdale, J. H., Louie, A. K., Balon, R., Guerrero, A. P. S., & Roberts, L. W. (2018). Time to teach: Addressing the pressure on faculty time for education. *Academic Psychiatry, 42*, 5–10. https://doi.org/10.1007/s40596-017-0851-9

Brown, T., Crabtree, J. L., Mu, K., & Wells, J. (2015). The next paradigm shift in occupational therapy education: The move to the entry-level clinical doctorate. *American Journal of Occupational Therapy*, *69* (Supplement_2), 6912360020p1-6912360020p6. https://doi.org/10.5014/ajot.2015.016527

Bureau of Labor Statistics, U.S. Department of Labor. (2023). *Occupational outlook handbook, occupational therapists*. Retrieved May 07, 2024, from https://www.bls.gov/ooh/healthcare/occupational-therapists.htm

Chen, H. C., Wamsley, M. A., Azzam, A., Julian, K., Irby, D. M., & O'Sullivan, P. S. (2017). The health professions education pathway: Preparing students, residents, and fellows to become future educators. *Teaching and Learning in Medicine*, *29*(2), 216–227. https://doi.org/10.1080/10401334.2016.1230500

Connolly, M. R., Lee, Y. G., & Savoy, J. N. (2018). The effects of doctoral teaching development on early-career STEM scholars' college teaching self-efficacy. *CBE—Life Sciences Education*, *17*(1), ar14. https://doi.org/10.1187/cbe.17-02-0039

Drumm, L. (2019). Folk pedagogies and pseudo-theories: How lecturers rationalise their digital teaching. *Research in Learning Technology, 27*. https://doi.org/10.25304/rlt.v27.2094

Eddy, P. L., & Gaston-Gayles, J. L. (2008). New faculty on the block: Issues of stress and support. *Journal of Human Behavior in the Social Environment*, *17*(1-2), 89-106. https://doi.org/10.1080/10911350802168878

Foy, C. (2017). Identifying barriers and pathways to success for new occupational therapy faculty members: A pilot survey. *Occupational Therapy in Health Care, 31*(4), 329– 340. https://doi.org/10.1080/07380577.2017.1354269

Gardner, A. K., Waters, V., & McLaughlin, R. J. (2017). What do faculty in health professions need to be competent educators? Results from a school-wide needs assessment. *Journal of Allied Health*, *46*(4), 77E-80E.

Hamed, R., Banks, T. M., Mahoney, D., Simon, P., Timmerberg, J.E., & Nilsen, D. M. (2023). The Issue Is—A call to shift to competency-based education. *American Journal of Occupational Therapy, 77*, 7706347010. https://doi.org/10.5014/ajot.2023.050402

Harvison, N. (2024). *Academic programs annual data report: Academic year 2022-2023.* American Occupational Therapy Association. https://www.aota.org/-/media/corporate/files/educationcareers/educators/2022-2023-annual-data-report.pdf

Hedges, H. (2012). Teachers' funds of knowledge: A challenge to evidence-based practice. *Teachers and Teaching: Theory and Practice, 18*, 7–24. https://doi.org/10.1080/13540602.2011.622548

Henderson, W. (2017). *Clinician to educator series*. American Occupational Therapy Association Continuing Education.

Henderson, W. (2021). *Effective teaching: Instructional methods and strategies for occupational therapy education*. Routledge.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277-1288. https://doi.org/10.1177/1049732305276687

Karp, P., Lavin, K. A., & Collins, T. (2022). Exploring fieldwork educator development: Preparation, methods and support tools. *Journal of Occupational Therapy Education*, 6(1), 13. https://doi.org/10.26681/jote.2022.060113

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*(3), 805–820. https://doi.org/10.1037/a0032583

Kyriakides, L., Christoforou, C., & Charalambous, C. Y. (2013). What matters for student learning outcomes: A meta-analysis of studies exploring factors of effective teaching. *Teaching and Teacher Education*, *36*, 143–152. https://doi.org/10.1016/j.tate.2013.07.010

Lockhart-Keene, L., & Potvin, M. (2018). Occupational therapy adjunct faculty self-perceptions of readiness to teach. *Open Journal of Occupational Therapy, 6*(2). https://doi.org/10.15453/2168-6408.1415

Marx, R. D., Garcia, J. E., Butterfield, D. A., Kappen, J. A., & Baldwin, T. T. (2016). Isn't it time we did something about the lack of teaching preparation in business doctoral programs? *Journal of Management Education, 40*(5*),* 489-515. https://doi.org/10.1177/1052562915616430

Murray, C., Stanley, M., & Wright, S. (2014). Weighing up the commitment: A grounded theory of the transition from occupational therapy clinician to academic. *Australian Occupational Therapy Journal, 61,* 437- 445. https://doi.org/10.1111/1440-1630.12146

Schram, L. N., & Wright, M. C. (2011). Teaching mentorship programs for graduate student development. *Studies in Graduate and Professional Student Development*, *14*, 53-67.

Sidhu, N. S., Allen, K. J., Civil, N., Johnstone, C. S., Wong, M., Taylor, J. A., Gough, K., & Hennessy, M. (2023). Competency domains of educators in medical, nursing, and health sciences education: an integrative review. *Medical Teacher*, *45*(2), 219-228. https://doi.org/10.1080/0142159X.2022.2126758

Sinclair, K. (2021). Occupational therapy and COVID-19. *World Federation of Occupational Therapists Bulletin, 77*, 1-2. https://doi.org/10.1080/14473828.2021.1897291

Sparks-Keeney, T. J., & Jirikowic, T. (2020). Challenges in transitioning from clinician to educator for occupational therapy assistant program faculty members. *Journal of Occupational Therapy Education, 4*(3). https://doi.org/10.26681/jote.2020.040302

Stensaker, B., Bilbow, G. T., Breslow, L., & Van der Vaart, R. (Eds.). (2017). *Strengthening teaching and learning in research universities: Strategies and initiatives for institutional change*. Springer.

Sweetman, M. M., & Giles, A. K. (2023). Faculty preparation for teaching in occupational therapy: Current state and future needs. *American Journal of Occupational Therapy*, *77*(3), 7703345010. https://doi.org/10.5014/ajot.2023.050146

Ten Cate, O. (2013). Nuts and bolts of entrustable professional activities. *Journal of Graduate Medical Education, 5*(1), 157-158. https://doi.org/10.4300/JGME-D-12-00380.1

Thibault, G. E. (2020). The future of health professions education: Emerging trends in
the United States. *FASEBbioAdvances, 685–694*.
https://doi.org/10.1096/fba. 2020-00061

van Dijk, E. E., van Tartwijk, J., van der Schaaf, M. F., & Kluijtmans, M. (2020). What
makes an expert university teacher? A systematic review and synthesis of
frameworks for teacher expertise in higher education. *Educational Research
Review, 31*, 100365. https://doi.org/10.1016/j.edurev.2020.100365

von Hoene, L. & Mintz, J. (2002). Research on faculty as teaching mentors: Lessons
learned from a study of participants in UC Berkeley's seminar for faculty who
teach with graduate student instructors. *To Improve the Academy*, *20*(1), 77-93.
https://doi.org/10.1002/j.2334-4822.2002.tb00575.x

Wakely L. (2021). Does the culture of academia support developing academics
transitioning from professional practice? *Journal of Higher Education Policy and
Management 43*(6): 654–665. https://doi.org/10.1080/1360080x.2021.1905495

Appendix

Survey Results of Teaching Competency Practice (Curriculum Design, Instructional Delivery, Assessment, Use of Learning Theories, Mentoring, and Inclusive Environments)

	Entry Level OTD			Post Professional OTD			PhD etc.		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Curriculum Design (Q12-Q18)									
#Q12. I primarily use my clinical knowledge/experience to design course sessions and content	17	2.06	0.90	90	2.10	0.81	127	2.13	0.86
Q13. I use a backwards design process when designing a course and curricula	17	2.59	1.18	88	2.39	0.90	125	2.30	1.06
#Q14. I use content topic lists to create courses	16	2.50	0.97	89	2.47	1.02	126	2.33	1.00
#Q15. I use content-specific textbooks as the foundation for course design	17	2.88	0.99	89	2.71	0.97	127	2.61	1.08
#Q16. I use the ACOTE standards as the foundation for course design	17	1.53	0.72	90	1.66	0.89	127	1.82	1.06
Q17. I use the Subject-Centered Integrated Learning Model in OT as a guide for course design	17	3.59	1.50	86	3.58	1.25	122	3.90	1.33
#Q18. I use course materials created by colleagues as the basis of course design	17	3.41	0.87	90	3.41	0.79	126	3.37	0.83
Instructional Delivery (Q19-Q26)									
Q19. I modify my teaching based upon student feedback and formative assessment	17	1.47	0.62	90	1.54	0.64	127	1.51	0.64
#Q20. I teach using models of instruction based on experiences from when I was a student	17	3.29	0.77	90	3.34	0.77	127	3.31	0.86
Q21. I use collaborative learning models as a primary mode of instruction	17	2.41	0.80	90	2.26	0.65	127	2.27	0.78
Q22. I use instructional design models (Gagne, 5E, ADDIE, Hunter, other) to develop a roadmap for class sessions	17	4.06	1.09	90	3.63	1.23	124	3.87	1.22
Q23. I use interactive and engaged learning activities	17	1.65	0.70	90	1.67	0.60	127	1.62	0.67
Q24. I use learning taxonomies (Bloom, Fink, Marzano, other) to develop learning objectives and inform instruction	17	1.76	0.75	90	1.66	0.94	127	1.75	0.89
Q25. I use lecture as my primary	17	3.00	0.71	90	3.06	0.74	127	3.12	0.73

instructional strategy									
Q26. I use Pratt's five perspectives of teaching to frame instruction	17	4.35	0.93	86	4.41	0.91	122	4.37	1.11
Assessment (Q27-Q33)									
Q27. I use formative assessment methods when I evaluate a student's performance in the classroom	17	2.12	0.93	90	2.09	0.80	127	1.99	0.70
Q28. I use formative assessment methods when I evaluate a student's performance in lab, clinic or community	17	2.18	0.95	90	2.01	0.79	125	2.10	0.92
Q29. I provide specific feedback on assignments	17	1.41	0.51	89	1.42	0.54	127	1.44	0.57
Q30. I use assessment rubrics in grading	16	2.19	0.98	90	1.53	0.62	127	1.54	0.72
Q31. I use models of program evaluation (Kirkpatrick, logic models, CIPP) to assess continuing education, faculty development workshops, and curricula	16	3.94	1.24	87	3.80	1.18	125	3.88	1.14
Q32. I use summative assessment methods	16	2.37	0.96	90	2.21	0.98	125	1.96	0.86
Q33. I use assessment as a learning activity	17	2.41	1.00	90	2.72	0.84	126	2.51	0.90
Use of Learning Theories (Q34-Q36)									
Q34. I have developed a personal philosophy of teaching or teaching statement that guides my instruction	17	1.82	1.19	91	1.89	0.96	127	1.50	0.78
Q35. I implement various evidence-based instructional strategies from cognitive psychology and the learning sciences to enhance student learning	17	2.24	0.83	91	2.15	0.89	127	1.96	0.84
Q36. I use learning theories as foundations to guide instruction	17	2.29	0.99	91	2.13	0.87	127	2.05	0.87
Mentoring (Q37-Q41)									
Q37. I see that my role as mentor is to support student growth	17	1.29	0.47	91	1.18	0.46	128	1.10	0.33
Q38. I grow as I mentor students to gain skills and competencies to achieve their goals	17	1.29	0.47	91	1.40	0.65	127	1.36	0.60
Q39. I introduce my mentees to others, including leading professionals in their area of contribution to help them build professional networks	17	1.94	0.83	90	2.16	1.03	128	1.88	0.85
Q40. I support each student's growth even when mentoring multiple students	17	1.47	0.51	90	1.47	0.56	128	1.43	0.56

Q41. I continue my own development in my work, and thus model scholarly behaviors	17	1.47	0.62	90	1.56	0.67	128	1.43	0.64
Inclusive Environments (Q42-Q53)								
Q42. I am aware of the common sources of non-inclusive learning environments	17	1.35	0.49	91	1.66	0.64	128	1.64	0.60
Q43. I consider student emotional well-being in terms of feedback, classroom engagement, and scheduling of assignments/assessments	17	1.41	0.62	91	1.43	0.60	128	1.55	0.65
Q44. I build flexibility into instructional time, due dates, and attendance	17	1.82	0.81	91	2.03	0.81	128	1.86	0.84
Q45. I design the learning environment to be receptive and make every student feel like they belong	17	1.18	0.39	91	1.46	0.50	128	1.60	0.61
Q46. I explicitly design curriculum and instruction to minimize or avoid engaging stereotype threat	17	1.71	0.92	89	1.98	0.69	127	1.94	0.90
Q47. I follow accommodations requests	17	1.00	0.00	91	1.07	0.25	128	1.05	0.23
Q48. I include dimensions of diversity in course content and processes, including syllabi, case studies, assignments, tests/quizzes, papers, and projects	17	1.82	0.73	91	1.79	0.62	128	1.77	0.74
Q49. I monitor work groups to make certain all voices are heard and respected	17	2.12	0.49	90	2.11	0.89	128	2.03	0.78
Q50. I provide additional learning resources for those who need them	17	1.71	0.77	91	1.79	0.77	128	1.66	0.75
Q51. I try to get to know students by preferred name and pronoun	17	1.41	1.06	91	1.34	0.65	127	1.50	0.82
Q52. I use cooperative and collaborative instructional models	17	1.65	0.61	91	1.70	0.67	128	1.72	0.72
Q53. My classrooms are psychologically safe learning spaces for all students	17	1.41	0.51	91	1.58	0.54	127	1.57	0.53

Note.
- This table shows the survey from Q12 to Q53; Q1 to Q9 include questions regarding demographic information (presented in Table 1 and Table 2) and Q10 and Q11 are questions regarding teaching competencies (presented in Table 3).
- #NOT best practices and errors which can happen in teaching
- These questions were measured using 5-likert scale from "Always=1" to "Never=5"