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Cover Page Footnote

Corrected Table 5 - It had vertical lines and these have been removed for consistency with APA style for tables.

Exploring first semester allied health students' transition to graduate school through the lens of Occupational Adaptation

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Abstract

The purpose of the study was to examine experiences of students transitioning into graduate allied health programs within a public university in the United States. Researchers assessed students' occupational adaptation as well as factors that facilitated and inhibited their transition. Researchers collected data using the Relative Mastery Scale (RMS) (George-Paschal, Krusen, & Fan, 2022) and a researcher-developed transition survey. Participants included 129 students from three allied-health professions. Researchers conducted a mixed ANOVA to explore differences in RMS ratings across three disciplines. There was a statistically significant increase in RMS ratings over time for all disciplines and statistically significant differences between disciplines for some time periods. The top five facilitating and inhibiting factors are presented for each discipline. The study contributes to the literature through use of a person-centered approach to understand students' state and process of adaptation over time.

Key Words

Graduate education, transition, Occupational Adaptation, allied health professions education, Relative Mastery Scale

According to the National Student Clearinghouse Research Center (2023), there is a current decline in undergraduate and graduate college enrollment. It is imperative that academic programs examine student experiences to support their transition into allied health programs. According to the theory of Occupational Adaptation (OA), occupational challenges prompt individuals to modify or generate new strategies (Schkade & Schultz, 1992; Schultz & Schkade, 1992). The focus of OA is on the internal occupational adaptation process which is heightened during times of transition such as entry into graduate school.

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A growing number of researchers have examined the transition into graduate school (Benavides & Keyes, 2016; Malau-Aduli, et al, 2021; Sverdlik, Hall, McAlpine, & Hubbard, 2018; Willison & Gibson, 2011), exploring the impact of environmental influences and personal characteristics on student success. Some of these authors focused on external factors, some on internal factors, and some addressed both. Researchers explored external and internal factors influencing transition across the institution level, interpersonal, and personal level. Influential external factors included moving, socialization, orientation, advising, living situation, and employment. Researchers explored internal factors associated with transition including ability to set goals, organizational skills, resilience, making changes in personal role/lifestyle, and coping strategies. Sverdlik et al. (2018) recommended a complex multifaceted exploration of transition influenced by both types of factors.

The current study focuses on the transition of graduate students within the allied health professions of occupational therapy (OT), physical therapy (PT), and communication sciences and disorders/ speech-language pathology (SLP). Occupational therapy researchers have explored students' transition to graduate programs including self-care (Laposha & Smallfield, 2022), faculty guidance (Chang, et al, 2017; Haughey, et al, 2017), and group educational programs (Lawrence, Chin, & Smallfield, 2021).

Malek-Ismail and Krajnik (2016), examined faculty guidance and changes in occupational roles, routines, patterns, and coping mechanisms. Physical therapy researchers, Flowers and Bernard (2020) examined the influence of stress, exercise, and leisure time on early academic performance of first-year physical therapy students. Multiple researchers cited stress as an inhibitor to occupational performance during the transition to graduate school (Chang, et al, 2017; Flowers & Bernard, 2020; Haughey et al., 2017; & Malek-Ismail, 2021). Stressors included life balance, time management, group projects, long papers, stressful schedules, and numerous tests and deadlines. Researchers also found a correlation between higher stress levels and decreased academic performance. They asserted that stress appears related to new challenges requiring new strategies for success in graduate school. No similar line of research related to speech language pathology student transition is evident.

Transition literature highlights the intersection of the person and environment interaction in graduate school resulting in a press for mastery (Schkade & Schultz, 1992). The internal desire for mastery within the person and the demand for mastery from the environment results in an occupational challenge to which a person responds. Challenges associated with entering a graduate program result in turbulence requiring re-balancing (Malek-Ismail, 2021) leading to the need for new strategies (Lawrence, Chin, and Smallfield (2021). Laposha and Smallfield (2022) echoed the need for new approaches in graduate school when previously used strategies from undergraduate education are no longer working.

In their seminal article, Schkade and Schultz (1992) articulated OA theory integrating occupation and adaptation into a single construct. OA postulates that individuals adapt through participation in daily occupations and measure their relative mastery through an assessment of their effectiveness, efficiency and satisfaction to self and others. Three basic elements within the OA process include the person, the occupational environment, and the occupational challenge(s). OA describes a person as having three interactive systems including cognitive, sensorimotor, and psychosocial (Schkade & Schultz, 1992; Schultz & Schkade, 1992). The theory suggests that individuals respond to occupational challenges and evaluate their response through an assessment of relative mastery. Schkade and Schultz (1992) defined relative mastery as an indicator of occupational adaptation, "the extent to which the person experiences the occupational response as efficient (use of time and energy), effective (production of desired results), and satisfying to self and society" (p. 835).

Researchers employed the theory of OA as the lens through which to examine allied health students' occupational adaptation during their transition to graduate school. A person's perception of relative mastery is crucial to their ability to adapt to occupational challenges in order to produce a more satisfying life (Schultz & Schkade, 1992). George-Paschal and Krusen created the Relative Mastery Scale (RMS) to enable individuals to rate their sense of effectiveness, efficiency, and satisfaction as an indicator of occupational adaptation (George-Paschal, Krusen, & Fan, 2022). The purpose of the study was to examine changes in students' occupational adaptation through perceived relative mastery of their transition into an allied health program. Two secondary interests included examining differences between three disciplines, and exploring perceptions of facilitating and inhibitory factors. Applying a valid, theory-based instrument to examine the transition generates evidence-based data regarding the transition to graduate education.

Method

Design

Researchers, including graduate students and faculty mentors, implemented a mixed methods study to explore relative mastery of OT, PT, and SLP students over an eleven-week time span during their first semester in graduate school. Scholarly inquiry included faculty and students as research partners. Quantitative inquiry evaluated changes in RMS ratings over time, and between and within groups. Qualitative descriptive inquiry evaluated students' perspectives on factors influencing their transition.

Participants

Eligible participants were first year occupational therapy doctoral students (OT), doctor of physical therapy (PT) students, and speech language pathology (SLP) master's students, within a health sciences college at a public university, inclusive of race, gender, and age. Eligible participants were English-language fluent.

Instrumentation

Consistent with the theory of OA, relative mastery is the primary measure of the state and process of internal occupational adaptation (Schkade & Schultz, 1992). George-Paschal and Krusen created the psychometrically sound Relative Mastery Scale (RMS) to measure the state and process of occupational adaptation through the construct of relative mastery (George-Paschal, Krusen, & Fan, 2022). George-Paschal and Krusen (personal communication, July, 2019) granted permission to use the RMS for data collection. The RMS consists of 6 items rated on a scale from -2 to +2, with total scores ranging from -12 to 12. Items 1 and 5 are reflective of effectiveness, Items 2 and 4 of efficiency, and Items 3 and 6 satisfaction to self and others. Additionally, the instrument contains one narrative question, Item 7 "How did it go" to obtain open-ended responses. The RMS demonstrates sound psychometric characteristics (George-Paschal, Krusen, & Fan, 2022). The instrument has been used as an outcome measure in both academic and clinical inquiry. Krusen (2017) applied the RMS with learners in higher education to make sense of their professional development over time in standardized patient clinical examinations. George-Paschal and Bowen (2019) used the RMS to measure adolescents' achievement of self-identified goals as part of their participation in a juvenile court mentorship program.

The transition survey is a 20-item researcher-developed tool to illuminate students' perspectives on internal and external factors that facilitated and/or inhibited their transition into graduate school. The authors developed transition survey items based on the review of the literature. To complete the survey respondents identify each factor as inhibiting, facilitating or both: factors include program orientation, academic advisor, volunteering, celebrated holidays with cohort, intramural sports, community connections, eating out with cohort, job, graduate assistant duties, religious activities, living situation, alcohol and/or drugs, romantic relationships, parental responsibilities, creating cohort goals as a group, stress management, commuting, in-state status, and out-of-state status. The psychometric properties of this survey were not assessed.

Procedures

Following IRB approval, each educational program (OT, PT, SLP) granted permission for data collection during specified time frames. In their introductory comments to participants, researchers described the study as focused on the transition process. Researchers defined transition as the process of changing into the new routine and life stage of graduate school but did not define relative mastery. Students who agreed to participate completed a demographic form and the first RMS (RMS 1) within the first two weeks of the semester. Each student responded to the goal transition into graduate school on the RMS. To assure confidentiality, participants created a four digit pin number to use across the three trials of the RMS. The second administration of the RMS (RMS 2) occurred at mid-term and the third RMS (RMS 3) administration occurred just prior to the end of the semester. Researchers invited students to categorize each of 20 survey items. Course faculty requested absent participants to complete ratings at another time.

Data Analysis

To evaluate changes in relative mastery, researchers applied descriptive statistics and a mixed-model analysis of variance (ANOVA) (Murrar & Brauer, 2018) using the Statistical Package for the Social Sciences (SPSS) (Version 27) predictive analytics software. (2020, May 8). After applying Box's M screening, researchers removed participants having a z-score of +/- 3.3. Mixed model ANOVA assumptions were met for normality, ensuring unbiased estimates of the main and interaction effects. A power analysis of the interaction term revealed an estimated sample of 51 participants would be needed for 90% power at a moderate effect size (f=.24) and alpha of 0.05 (Faul, Erdfelder, Lang, & Buchner, 2007). Researchers organized data according to discipline and participants' four-digit pin number. Each RMS item rating ranges from -2 to +2, with scores converted to positive integers from 1 to 5 for statistical analysis. The within-subjects factor is the RMS rating across time, and the between-groups factor is the discipline.

Researchers applied Wilks' lambda to assess differences between the interaction of time and means of identified groups (Portney, 2020). Researchers completed a Levene's Test of Equality to examine groups for variances (Portney, 2020). Researchers conducted post-hoc analyses in the event of statistically significant differences between groups. Researchers applied Tukey's B for RMS 2 and RMS 3 because the assumption of equal variances was met (Portney, 2020). Researchers applied Dunnett's for the instance of unequal variances in RMS 1 (Portney, 2020). Researchers reviewed transition survey responses to address the secondary aim of exploring students' perceptions of factors influencing their transition. Two researchers summarized students' ratings by discipline on factors as facilitating or inhibiting, or both. Researchers also examined responses to RMS Item #7 for patterns of responses.

Results

A convenience sample of participants included 129 first semester occupational therapy (OT) doctoral students (n=46), doctor of physical therapy (PT) students (n=48), and speech language pathology (SLP) master's students (n=35), within a health sciences college at a public university. While all participants persisted in their respective programs, data of 14 participants were not included in the analysis due to failure to complete one or more trials of the RMS or for invalid pin numbers. Following Box's M screening for potential outliers, researchers removed four participants. Table 1 depicts key demographics of participants, including age, self-identified gender, and race. Table 2 shows RMS ratings mean and standard deviation over time for each discipline.

Table 1

Participant Demographics across Disciplines

Discipline	N	Age Range	Gender	Race
OT	46	22-31	4 males 42 females	1 African American or Black 2 Asian 0 American Indian 42 Caucasian or White 0 Hispanic or Latino 1 Multiracial
PT	48	20-36	14 males 34 females	3 African American or Black 2 Asian 0 American Indian 40 Caucasian or White 3 Hispanic or Latino 1 Multiracial
SLP	35	21-29	0 males 35 females	3 African American or Black 2 Asian 0 American Indian 27 Caucasian or White 0 Hispanic or Latino 3 Multiracial

Note. Four SLP participants did not provide their age

Table 2

Mean RMS Rating over Time by Discipline

Discipline	RMS	Mean	SD
OT (n=46)	RMS 1	24.8	2.6
	RMS 2	25.4	2.4
	RMS 3	24.8	3.1
PT (n=48)	RMS 1	23.1	3.1
	RMS 2	23.3	3.6
	RMS 3	24.6	2.7
SLP (n=35)	RMS 1	23.1	4.0
	RMS 2	23.5	3.3
	RMS 3	24.5	2.1

The mixed-model ANOVA (Table 3) indicates mean RMS ratings were statistically significant over time (p=.000) and across disciplines (p=.022). Additionally, the interaction between time and discipline was sigificant [F 3.678, p. .006] indicating the need for post hoc analyses. Levene's Test of Equality (Table 4) indicated a slight violation of equal variances in the RMS 1 data.

Table 3

Mixed-Model ANOVA within and between subjects' effects

	Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared
Within Subjects (RMS 1, 2, 3)	223243.66	1	223243.66	11374.56	.000*	0.99
Between groups (OT, PT, SLP)	154.05	2	77.03	3.93	.022*	0.06
Error	2492.58	127				

Note. *=p <.05

Table 4

Levene's Test of Equality of Error Variance

	Levene Statistic	df1	df2	Sig
RMS1	3.79	2	127	.025*
RMS2	1.41	2	127	.249
RMS3	2.64	2	127	.076

Note. *p <.05

Researchers applied Dunnett's post hoc analysis to address unequal variances for RMS 1, revealing a statistically significant difference (p=.018) in mean ratings between OT and PT. Researchers applied Tukey's B for post hoc analysis for RMS 2 and RMS 3 as data met the assumptions for equality. Tukey's B analysis showed a statistically significant difference in mean RMS 2 ratings between OT and SLP cohorts (p=.015), and OT and PT cohorts (p=.003). Tukey's B analysis showed no statistically significant differences between cohorts in RMS 3 ratings. Table 5 shows results between administrations by group.

Table 5

Post Hoc Analyses between Administrations by Group

	Mean Difference	SE	Sig	95% CI Upper/Lower Bound
RMS1[D] OT-SLP	1.70	0.72	0.05	3.41/-0.01
RMS 1[D] SLP-PT	-0.04	0.71	0.99	1.95/-1.73
RMS 1[D] OT-PT	1.66	0.59	0.02**	3.09/0.22
RMS 2[T] OT-SLP	1.96	0.69	0.02**	3.61/0.32
RMS 2[T] SLP-PT	0.20	0.69	0.95	1.83/-1.43
RMS 2[T] OT-PT	2.16	0.64	0.00**	3.67/0.64
RMS 3[T] OT-SLP	0.23	0.60	0.92	1.66/-1.19
RMS 3[T] SLP-PT	-0.08	0.59	0.99	1.33/-1.49
RMS 3[T] OT-PT	-0.16	.56	0.96	1.48/-1.16

Note. [D]=Dunnett's, [T]=Tukey's B, ** p <.05

All participants completed the transition survey, categorizing each item as facilitation, inhibiting, or both. Qualitative descriptive analysis shows common factors that facilitate or inhibit transition

into graduate school for these participants. Tables 6 and 7 present the top five facilitating factors and the top five inhibiting factors for each discipline. Students from two or more disciplines identified orientation, in-state residency, eating out with their cohort, and academic advising as facilitating their transition. Students from all three disciplines identified stress, job, commuting, and living situation in the top five inhibiting factors. Students within one discipline (SLP) identified living situation as both facilitating and inhibiting.

Table 6

Top 5 Facilitating Transition Factors by Discipline

Occupational Therapy (OT)	Physical Therapy (PT)	Speech Language Pathology (SLP)
orientation	academic advisor	academic advisor
volunteering	orientation	eating out with cohort
celebrating holidays with cohort	eating out with cohort	orientation
eating out with cohort	in state student	living situation
in state student	intramural sports	stress management

Table 7

Top 5 Inhibiting Transition Factors by Discipline

Occupational Therapy (OT)	Physical Therapy (PT)	Speech Language Pathology (SLP)
stress	job	job
commuting	stress	stress
job	living situation	commuting
living situation	commuting	living situation
out of state student	romantic relationship	out of state student

Respondents to open-ended Item #7 (How did it go?) on the first, second, and third RMS administration included 5 OT (11%), 6 PT (13%), and 2 SLP (6%). While data were insufficient for qualitative content analysis, a review of respondent RMS ratings revealed the process of adaptation. Selected case graphs in Figures 1, 2, and 3 show relative mastery ratings over time with a positive slope (Figure 1), negative slope (Figure 2), and neutral slope (Figure 3). Figures include effectiveness, efficiency and satisfaction ratings (-4 to +4), RMS raw scores (-12 to +12), and quotations of narrative responses to Item #7.

Figure 1

Pattern of Relative Mastery Ratings (Positive Slope)
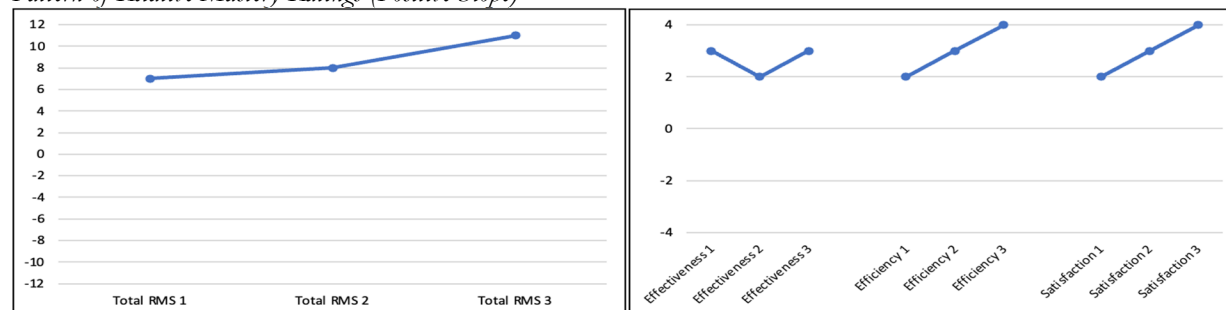
Item #7: How did it go?

RMS 1: Applying and getting into grad school was difficult, but it was very worth it.	RMS 2: It's been going well so far. It's been hard but overall I feel like I've been successful.	RMS 3: I think overall it went really well, but it took a lot of hard work, time, and energy.

Figure 2

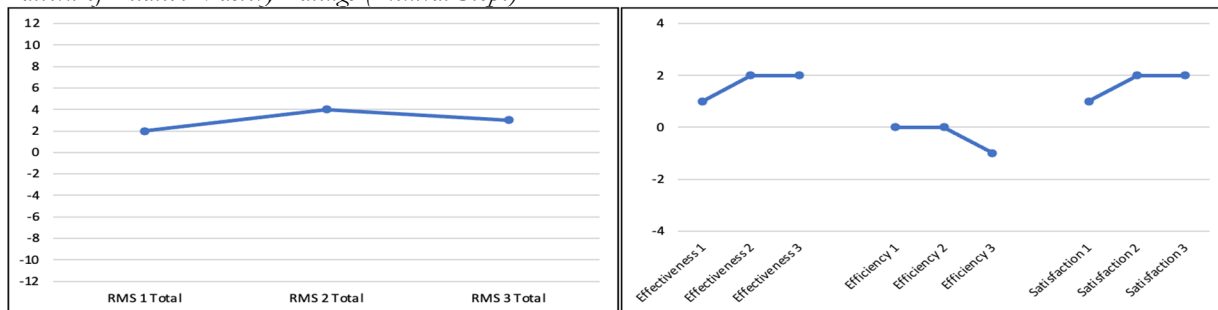*Pattern of Relative Mastery Ratings (Negative Slope)*
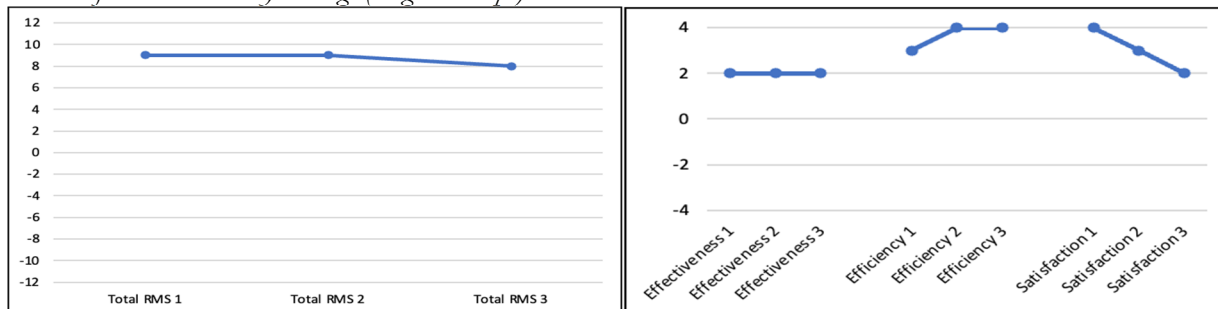
Item #7: How did it go?

RMS 1: Overwhelmed	RMS 2: Going well, have adjusted to studying & balancing it with social life	RMS 3: Going well, but stressed with finals, getting hang of things

Figure 3

Pattern of Relative Mastery Ratings (Neutral Slope)

Item #7: How did it go?

RMS 1: Not the best but I survived	RMS 2: It's ROUGH	RMS 3: Rough but I'm making it. Hopefully, I will be back next semester

Discussion

This study examined students' transition into graduate school during their first semester from an OA perspective. Statistically significant RMS rating changes over time for all participants suggest participants generated adaptive responses to challenges, as proposed by the OA theory.

Statistically significant differences in RMS ratings between disciplines for some time periods may be attributed to several factors, not clearly addressed in the literature. While contemporary authors suggest individual and environmental supports as helpful for healthy lifestyles (Dyer, 2023) and mind-body approaches to manage stress levels (Kulchar & Haddad, 2022), Sverlik et al (2018) recommended future research to consider a focus away from a single influencing factor.

Results from a single RMS administration provide a snapshot in time of a person's state of occupational adaptation, while repeat administrations give insight into the process of occupational adaptation. Exemplar participant responses show different patterns of occupational adaptation. Exemplar 1 demonstrates a student whose overall RMS ratings started high and gradually increased over the semester. Open responses to Item #7 at Time 2 reflect challenges to effectiveness but no

adaptive responses, It's been hard overall. Effectiveness rating at Time 3 describes adaptive responses, … it took a lot of hard work, time, and energy.

Exemplar 2 demonstrates overall high ratings with a slight decrease over the semester, reflective of negative relative mastery. Negative relative mastery describes the concept of learning and adapting from challenges. Time 1 RMS ratings appear initially high though open response to Item #7 describe a sense of being overwhelmed at the beginning of the semester. Time 2 ratings show an increase in efficiency, describing adaptive responses related to studying & balancing it with social life. While Exemplar 2 demonstrates decreased RMS ratings at Time 3, the open response to Item #7 indicates the student is experiencing an increase in mastery, getting the hang of things, but is stressed with finals.

Exemplar 3 demonstrates overall neutral RMS ratings across Time 1, 2, and 3, suggesting challenges exceeding the student's current adaptive capacity. Scattered effectiveness, efficiency, and satisfaction ratings reflect hypermobility in an attempt to generate adaptive responses. Within OA theory, hypermobility represents an immature transitional process during which a person may attempt unfocused occupational responses. This exploratory process may result in unplanned success which supports growth and adaptation, shown in slight increases in effectiveness and satisfaction.

Participants identified factors in the transition survey that facilitated and inhibited their occupational adaptation. Across disciplines, participants cited orientation and cohort socialization opportunities as the most supportive, similar to supports cited in Benavides and Keyes (2016). All participants identified stress as an inhibiting factor, frequently identified in the literature (Chang, et al, 2017; Flowers & Bernard, 2020; Haughey et al., 2017; & Malek-Ismail (2021). Participants across disciplines selected four common factors as inhibiting. These factors are reflective of the complexity of life as noted by Sverdlik et al (2018).

We intentionally did not compare relative mastery with grades, retention, or other objective measures of performance. Relative mastery addresses an individual's sense effectiveness, efficiency, and satisfaction not skill mastery. RMS ratings reflect an individual's perception of their idiosyncratic response to challenges. Analyzing relative mastery provides insight into the state and process of adaptation for individuals and groups. Neither grades nor retention are an indication of adaptation as a state or trait. Making intentional decisions about occupational balance with good-enough grades may be a reasonable and viable adaptive strategy for an individual. Delaying progression or withdrawing from a program may be a reasonable and viable adaptive strategy for an individual. Patterns and narrative responses indicate opportunities to facilitate students' development of adaptive strategies. The transition literature does not address assessment as part of the process to establish goals or develop adaptive strategies. Smallfield, et al (2022) proposed a program for graduate student well-being recognizing the intersection of person, occupation, and environment, including goal setting.

One limitation of the study was the lack of a debrief with the participants or the program faculty. Participants may have viewed their changes over time but it was not intrinsic to the project as it would be within the therapeutic process. Researchers were divided in their opinions about sharing aggregate outcomes programmatically due to concerns with confidentiality identifying a specific cohort. Another study limitation was the use of a researcher-developed transition survey for measuring factors that facilitate and inhibit the transition. Survey items were based on factors identified within the current transition literature, which did not offer participants an opportunity to articulate factors unique to their circumstances.

Implications

Results from the study contribute to the transition literature, highlighting the complexity of internal and external factors. Existing literature for graduate health professions has not historically applied a theoretically grounded, psychometrically sound assessment to support student directed reflection on their state and process of adaptation. The RMS provides a structure for individuals to reflect on their occupational responses to challenges, which may lead to adaptive strategies during times of transition. Within the current study, RMS ratings of all participants reflected an increase in internal occupational adaptation over time.

The theory of Occupational Adaptation examines the complexity of adaptation to life challenges. Examining the idiosyncratic process of individuals, cohorts, and disciplines supports learning about challenges and strategies used in occupational adaptation and negative relative mastery. Educational institutions could facilitate students' internal adaptation through reflection and encourage their development of adaptive strategies. Future research could explore interventions for graduate school transitions using the RMS ratings over time. As students apply theoretical tenants to their own daily life challenges, they will model the application of OA within their future lives and practice. The authors also recommend a practice of inquiry including the voices of knowledge users.

Recognizing and facilitating development of internal adaptive strategies can support student retention. Retaining students is critical in light of the steep decline in college enrollment (National Student Clearinghouse, 2022). Results of the study may facilitate "health, well-being and quality of life for all people, populations, and communities" (AOTA, 2017, p. 1).

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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