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Abstract

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Keywords

Simulation, level II fieldwork, level I fieldwork, occupational therapy education

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ABSTRACT

Occupational therapy programs can use a variety of delivery modes for Level I fieldwork. All experiences aim to contribute to the clinical and professional preparation for Level II fieldwork. This study compared the Level II fieldwork outcomes for two cohorts of students, one that participated in simulation-based Level I fieldwork and one that completed community and clinic-based Level I fieldwork. The student outcomes on the American Occupational Therapy Association AOTA Fieldwork Performance Evaluation (FWPE) for the Occupational Therapy Student were used for comparative data. The results indicated no statistically significant difference in the two cohorts' midterm score ratings. Statistically significant differences with higher performance for the cohort that participated in simulation-based Level I fieldwork were noted in the areas of safety and use of occupation-based interventions. The results of this study support the effective use of high-fidelity simulation in preparing students for success on Level II fieldwork.

Level II fieldwork is a critical component in all occupational therapy programs and serves as a bridge between the didactic program and clinical practice. Occupational therapy programs aim to successfully prepare students for these experiences based on the areas of fieldwork evaluation, including safety, clinical practice skills and professionalism. Level I fieldwork is one way that occupational therapy programs strive to introduce fieldwork and develop an understanding of clinical practice in preparation for Level II fieldwork (Accreditation Council for Occupational Therapy Education [ACOTE], 2018; Patterson & D'Amico, 2020). The mode in which Level I fieldwork is

delivered varies across programs and can include clinical practice settings, community practice, simulated environments, standardized patients, and many others (ACOTE, 2018). There is limited information within the occupational therapy field specific to the relationship of the delivery mode of Level I fieldwork and the preparedness of students for Level II fieldwork. The purpose of this study was to compare the Level II fieldwork outcomes of two group of students; those that participated in simulation-based Level I fieldwork, and those that participated in community and clinical practice settings for Level I fieldwork.

Simulation as an Educational Method

Simulation based learning involves engaging in a variety of structured activities that mirror real or potential situations encountered in education and professional practice (Agency for Healthcare Research and Quality, 2020). Simulation is a learning tool that allows students to participate in real world scenarios in a safe and controlled environment with the ability to enhance clinical reasoning, communication and professionalism (Chernikova et al., 2020). In a previous study, the authors shared that simulation is a commonly used learning experience in higher education and may be effective with healthcare students to transition from didactic course work to clinical environments (Coss et al., 2023). Effective simulation-based learning requires intentional planning and use of best practices to ensure successful outcomes. One type of simulation experience that has been outlined are high fidelity simulations. These are defined as “experiences that are extremely realistic and provide a high level of interactivity and realism for the learner" (Agency for Healthcare Research and Quality, 2020, p. 4). The International Nursing Association for Clinical Simulation and Learning (INACSL, 2021) developed health care simulation guidelines to include “professional development, prebriefing, simulation design, facilitation, debriefing process, operations, outcomes and objectives, professional integrity, simulation-enhanced IPE [interprofessional education], and evaluation of learning and performance” (Watts et al., 2021, p. 2). The use of these guidelines allows for a standardization of simulation and facilitated learning through meaningful preparation and feedback.

Simulation based experiences are used by occupational therapy programs as a pedagogical method to teach clinical and professional practice skills as Level I fieldwork (Coss et al., 2023; Grant et al., 2021). Research supports simulation as a means to scaffold learning needed to match the curriculum design of the program (Layne et al., 2021; Mattila et al., 2020). Previously, the same authors showed how they effectively achieved the student learning outcomes for Level I fieldwork using high fidelity simulations and reported positive student perceptions of the experience (Coss et al., 2023). A similar study outlined how a simulated environment can provide clinic-based scenarios with consistent learning outcomes among all students in a given occupational therapy program (Imms et al., 2018). Occupational therapy students found simulation-based learning to be a positive experience and help build important clinical and professional skills (Bergstresser-Simpson et al., 2023). Lastly, simulation in occupational therapy education can increase communication and practice specific skills (Ozelie et al., 2016). Research supports simulation as an effective tool for facilitating the development of the skills needed to be successful during Level II fieldwork.

Level I Fieldwork

Occupational therapy programs offer Level I fieldwork experiences in a variety of ways. A change in the 2018 Accreditation Council for Occupational Therapy Education (ACOTE) standards allowed for traditional clinical practice experiences, nontraditional practice experiences and simulations experiences as options for Level I fieldwork. Clinical practice Level I fieldwork, sometimes referred to as “traditional,” is typically 1:1 supervision by an occupational therapy practitioner and immersed in a practice area directly serving patients (Nielsen et al., 2020). Community based Level I fieldwork, sometimes referred to as “nontraditional,” is an experience in a practice area in which an occupational therapy practitioner is not actively reimbursed for services and students are exposed to a population that can benefit from occupational therapy services (Nielsen et al., 2017). Simulation as Level I fieldwork is the use of real-world case scenarios and exposure to clients and practice situations that allow application of knowledge (Andrzejewski et al., 2020). All Level I fieldwork experiences seek to prepare students with the skills they need for success in the field, particularly those skills that will be further assessed during Level II fieldwork.

Level II Fieldwork Outcome Measurements

Students must complete 24 total weeks of Level II fieldwork in more than one diverse practice setting in order to demonstrate competency in entry level practice (ACOTE, 2018). During the experiences, students are assessed using the American Occupational Therapy Association (AOTA) Fieldwork Performance Evaluation (FWPE) for the Occupational Therapy Student (AOTA, 2020). Students are assessed in five categories and on thirty-seven items to represent the skills needed to be an entry level practitioner (AOTA, 2020). A fieldwork educator completes the evaluation of the student at midterm and final. All students are rated on the same scale and must be competent in skills such as clinical reasoning, communication, and professional practice specific skills to be successful. While there is not a standardized evaluation form for Level I fieldwork, many programs consider the skill categories on the AOTA FWPE (AOTA, 2020) when creating program specific evaluation forms for Level I fieldwork. Occupational therapy educational programs must use Level I fieldwork in an effective way to educate occupational therapy students to ensure they are well prepared for Level II fieldwork.

The aim of this study was to compare the outcomes of Level II fieldwork evaluations between two cohorts of students; one that participated in simulation-based Level I fieldwork, and another that completed community and clinic-based fieldwork. The authors sought to explore if either group of students showed a difference in Level II fieldwork outcomes based on the mode of Level I fieldwork delivery.

Methods

Design

This descriptive study examined Level II fieldwork outcomes of students who participated in high-fidelity simulation as their Level I fieldwork experiences compared to students who participated in Level I fieldwork in clinical and community-based practice settings. The students in both groups were in the third year of the entry level master’s or doctoral program. Items from the AOTA FWPE (AOTA, 2020) were mapped to the

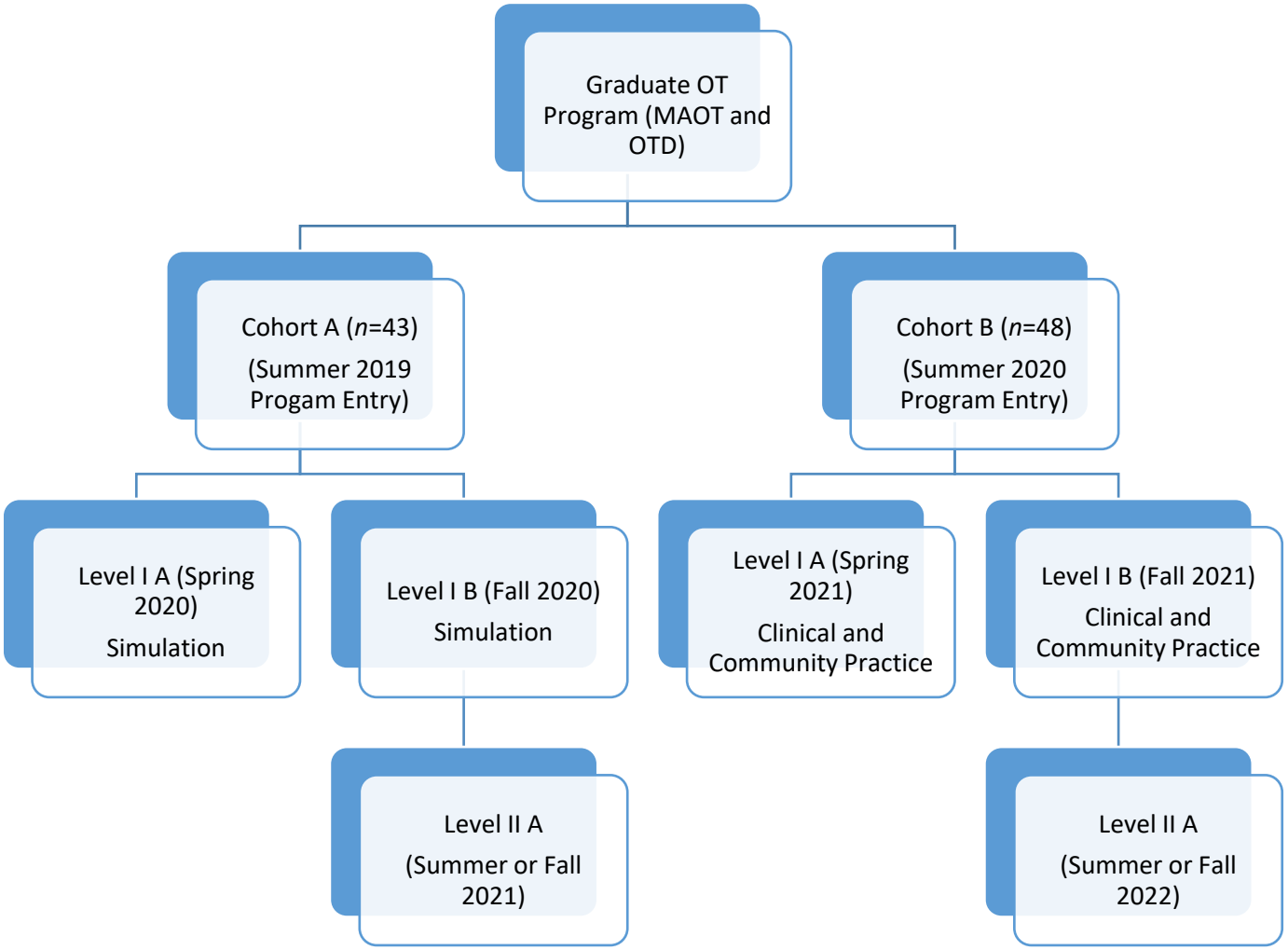
competency areas assessed within Level I fieldwork in the graduate occupational therapy programs at this institution. Descriptive statistics, t-tests, and calculation of Chi-Square statistic and p-values for differences in proportions between groups was used to analyze the data. This study occurred at a graduate occupational therapy program located at a Doctoral Professional University in the Midwest. The Institutional Review Board at the university reviewed and approved this study as exempt research.

Participants

Cohort A (*n*=43) of entry level master's (*n*=26) and doctoral (*n*=17) occupational therapy students entered the program in Summer of 2019 and participated in virtual and on-campus simulations for Level I fieldwork during the spring of their first year and the fall of their second year (Coss et al., 2023). Students in the entry level master's and doctoral programs were from the same institution. The curriculum related to ACOTE (2018) content requirement standards in foundational content requirements, basic tenets of occupational therapy, and referral, screening, evaluation, and intervention were provided in courses jointly attended by master's and doctoral level students. Students in both programs participated in an identical curriculum in the first year and the first half of the second year, prior to the completion of both Level I fieldwork experiences with the exception of four courses (10 graduate credit hours) on scholarly work, educational methodologies, theory development and its application to occupational therapy practice, and leadership competencies that doctoral students took but master's students did not take. These first simulation experiences included working with a variety of age groups virtually and the second, high fidelity simulation represented eight clinical settings and included a pediatric client, two adult clients and an older adult (see Coss et al., 2023 for details). Cohort B (*n*=48) of entry level master's (*n*=26) and doctoral (*n*=22) occupational therapy students entered the program in Summer of 2020 and participated in clinical and community-based Level I fieldwork during the spring of their first year and fall of their second year. The clinical and community-based Level I fieldwork experiences included a variety of practice areas and populations, including but not limited to acute care, sub-acute rehab, school-based practice, outpatient mental health, and older adult facilities. Both cohorts participated in Level II fieldwork following the completion of their didactic course work and students were assigned to Level II fieldwork placements in a wide variety of practice settings and locations, including but not limited to acute care, sub-acute rehab, skilled nursing facilities, outpatient pediatrics and school-based practice. Prior to Level II fieldwork all students in both cohorts were asked to consent to having their de-identified Level II fieldwork data used for this study. See Figure 1 for details on the progression and timeline of both cohorts through fieldwork experiences within the program.

Figure 1

Student Progression and Timeline through Fieldwork Experiences

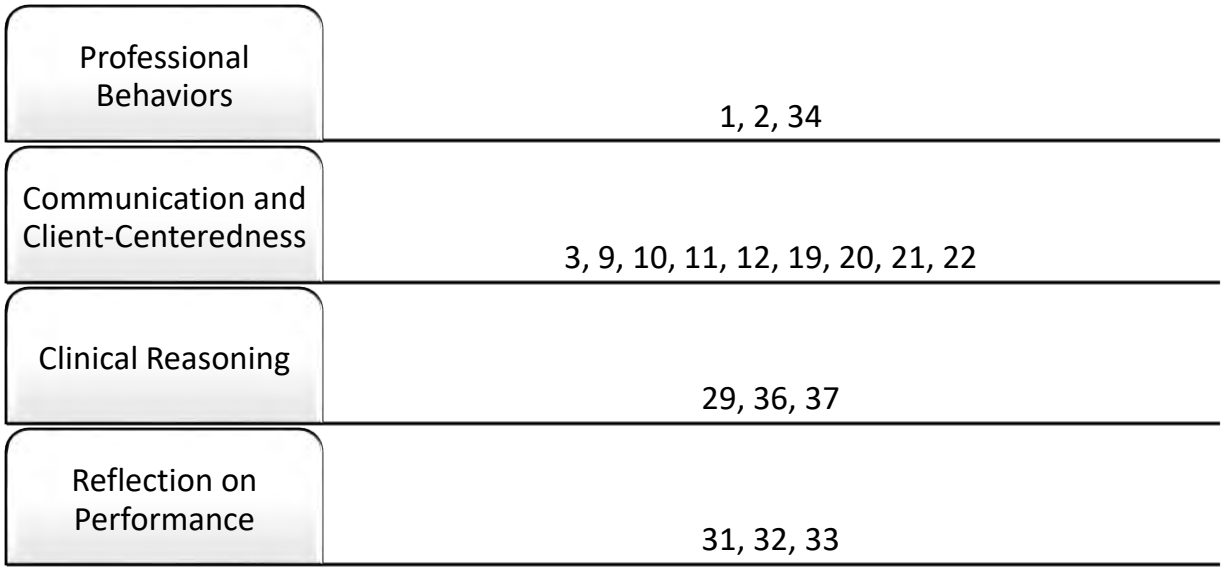


Procedures

The occupational therapy program evaluated professional behavior, clinical reasoning, communication and client-centeredness, and reflection of performance in its Level I fieldwork performance evaluation. Individual researchers mapped items from the AOTA FWPE Occupational Therapy Student (AOTA, 2020) to the four areas evaluated in Level I fieldwork and then came together for consensus on the mapping for use during data collection and analysis. Of the 37 FWPE items, 18 were included and found to best align with the four categories for the Level I fieldwork outcomes (professional behaviors, clinical reasoning, communication and client centeredness and reflection on performance). The majority of items that were not selected were in the categories of "basics tenets" and "management of occupational therapy services" (AOTA, 2020, p. 1). See Figure 2 for details on mapping.

Figure 2

Mapping of the Level I Fieldwork Areas to the AOTA Level II Fieldwork Performance Evaluation Items (AOTA, 2020).



Note. Selected items from the AOTA fieldwork performance evaluation mapped to the four areas evaluated during Level I fieldwork in this graduate occupational therapy program.

In order to examine the impact of different types of Level I fieldwork experiences on Level II performance, Level II midterm evaluation scores were utilized for the data analysis. The Level II fieldwork midterm scores were chosen as this is the first evaluation point following the completion of the didactic portion and Level I fieldwork portions of the curriculum. Eighteen individual midterm items and total midterm scores

were extracted and analyzed. After the midterm point of the first Level II fieldwork experience for all cohorts of students, the 18 individual item scores along with total midterm scores were collated into an excel spreadsheet and all identifying information was removed before analysis.

Data Analysis

Fieldwork performance evaluation data from each student's midterm performance on their first Level II fieldwork was extracted into a master excel spreadsheet by cohort and deidentified for analysis. During the deidentification process it was noted whether the student was a master's or doctoral occupational therapy student. Before performing analysis comparing Cohort A to Cohort B, variance tests and independent t-tests were run to compare total midterm scores between master's and doctoral level students in each cohort and across both cohorts to ensure there were no differences between students based on degree program. Following that an independent t-test was run to compare total midterm scores between Cohort A and Cohort B along with t-tests to compare the total scores in each of the four categories between Cohort A and Cohort B. Microsoft Excel was used to compute all t-test scores.

Descriptive statistics were utilized to examine the percentage of students scoring in the unsatisfactory (1), emerging (2), meets (3), and exemplary (4) for each item on the FWPE for Level II fieldwork for Cohort A and Cohort B. Additionally, Chi-Square analyses were conducted on each of the 18 items to determine if there were statistically significant differences. To analyze the most meaningful data, the authors decided to pool the "1"s and "2"s (unsatisfactory, emerging) together and the "3"s and "4"s (meets, exemplary) together. This was done as there were generally very few "4" (exemplary) and "1" (unsatisfactory) ratings at midterm. Chi-Square analyses compared the "1"s and "2"s to the "3"s and "4"s for each cohort on each item. Microsoft Excel was used to calculate descriptive statistics information and to perform Chi-Square analyses on the data.

Results

Across all t-tests utilized to analyze midterm scores on the FWPE for students' first Level II experience, no significant differences between master's and doctoral students or cohorts existed. The t-test comparing master's students (mean = 92.56) to doctoral students (mean = 90.07) in Cohort A resulted in t=0.7284 (p=0.4707). The t-test comparing master's students (mean = 88.8) to doctoral students (mean = 89.95) in Cohort B resulted in t= -0.4046 (p=0.6877). The t-test comparing master's students (mean = 90.61) to doctoral students (mean = 90.14) across both cohorts resulted in t=0.2174 (p=0.8284). The t-test comparing total midterm scores between Cohort A (mean = 91.186) and Cohort B (mean = 89.396) resulted in t=0.8904 (p=0.3756). The t-tests for each of the categories were as follows: category 1 (professional behavior) t=-0.2629 (p=0.7932), category 2 (clinical reasoning) t=0.7904 (p=0.4314), category 3 (communication and client-centeredness) t=0.0633 (p=0.9497), and category 4 (reflection on performance) t=0.0071 (p=0.9944). Tables 2-5 provide descriptive statistical information for all of the items and categories.

During the item-by-item Chi-Square Analysis, only two items showed a statistically significant difference with a higher-than-expected number of students receiving 3s and 4s in Cohort A. These items were both in the clinical reasoning section and included item 3, related to safety of self and others, (p=0.041233) and item 19, related to the selection of targeted client-centered and occupation-based approaches to intervention, (p=0.028625; AOTA, 2020). For ten of the eighteen items, Cohort B had a larger percentage of students with "3"s or "4"s than Cohort A. However, none of these items showed a statistically significant difference. In general, students in both cohorts performed higher (larger percentage with "3"s and "4"s) in the professional behaviors (range 52.08% to 91.67% scoring a 3 or 4), communication and client-centeredness (range 55.81% to79.07% scoring a 3 or 4), and reflection on performance (range 60.47% to 87.5%) than in the clinical reasoning items (range 9.30% to 65.12% scoring a 3 or 4). Of note, when the two items for which there was a statistically significant difference are removed, the range of students in both cohorts receiving a 3 or 4 in any clinical reasoning item was 9.30% to 43.75%. See Tables 1-4 for more specific details.

Table 1

Cohort Scores for Items Mapped to Professional Behaviors

Item (AOTA, 2020)	**3&4 *n* (%)**	**1&2 *n* (%)**	**Chi-Square Stat. (p-value)**
Item 1. Ethics			
Cohort A	36 (83.72%)	7 (16.28%)	0.095563 (p = 0.755722)
Cohort B	39 (81.25%)	9 (18.75%)	
Item 2. Safety			
Cohort A	28 (65.12%)	15 (34.88%)	1.584079 (p = 0.208174)
Cohort B	25 (52.08%)	23 (47.92%)	
Item 34. Work Behaviors			
Cohort A	37 (86.05%)	6 (13.95%)	0.732424 (p = 0.392099)
Cohort B	44 (91.67%)	4 (8.33%)	

Note. The number of students across all items in Cohort A was 43 and the number of students across all items in Cohort B was 48.

Table 2

Cohort Scores for Items Mapped to Clinical Reasoning

Item (AOTA, 2020)	**3&4 *n* (%)**	**1&2 *n* (%)**	**Chi-Square Stat. (p-value)**
Item 3. Safety			
Cohort A	28 (65.12%)	15 (34.88%)	4.16642 (p = 0.041233)
Cohort B	21 (43.75%)	27 (56.25%)	
Item 9. Identifies Assessments			
Cohort A	4 (9.30%)	39 (90.70%)	2.31668 (p=0.12799)
Cohort B	10 (20.83%)	38 (79.17%)	
Item 10. Occupational Profile			
Cohort A	15 (34.88%)	28 (65.12%)	2.24721 (p = 0.13386)
Cohort B	10 (20.83%)	38 (79.17%)	
Item 11. Client Factors			
Cohort A	11 (25.58%)	32 (74.42%)	0.35712 (p = 0.55011)
Cohort B	15 (31.25%)	33 (68.75%)	
Item 12. Assessment Results			
Cohort A	13 (30.23%)	30 (69.77%)	2.35142 (p = 0.12517)
Cohort B	8 (16.67%)	40 (83.33%)	
Item 19. Chooses Interventions			
Cohort A	26 (60.47%)	17 (39.53%)	4.79003 (p = 0.028625)
Cohort B	18 (37.50%)	30 (62.50%)	
Item 20. Leads Interventions			
Cohort A	16 (37.21%)	27 (62.79%)	0.40216 (p = 0.52597)
Cohort B	21 (43.75%)	27 (56.25%)	
Item 21. Selects Approach			
Cohort A	11 (25.58%)	32 (74.42%)	0.14632 (p = 0.70207)
Cohort B	14 (29.17%)	34 (70.83%)	
Item 22. Adapts Activity/Env.			
Cohort A	15 (34.88%)	28 (65.12%)	0.06717 (p = 0.7955)
Cohort B	18 (37.50%)	30 (62.50%)	

Note. The number of students across all items in Cohort A was 43 and the number of students across all items in Cohort B was 48.

Table 3

Cohort Scores for Items Mapped to Communication and Client-Centeredness

Item (AOTA, 2020)	**3&4 *n* (%)**	**1&2 *n* (%)**	**Chi-Square Stat. (p-value)**
Item 29. Communication			
Cohort A	24 (55.81%)	19 (44.19%)	0.058786 (p =0.808426)
Cohort B	28 (58.33%)	20 (41.67%)	
Item 36. Therapeutic Use of Self			
Cohort A	26 (60.47%)	17 (39.53%)	0.164367 (p = 0.685167)
Cohort B	31 (64.58%)	17 (35.42%)	
Item 37. Appreciation for Diversity			
Cohort A	34 (79.07%)	9 (20.93%)	0.468454 (p = 0.4393699)
Cohort B	35 (72.92%)	13 (27.08%)	

Note. The number of students across all items in Cohort A was 43 and the number of students across all items in Cohort B was 48.

Table 4

Cohort Scores for Items Mapped to Reflection on Performance

Item (AOTA, 2020)	**3&4 *n* (%)**	**1&2 *n* (%)**	**Chi-Square Stat. (p-value)**
Item 31. Collaboration in Learning			
Cohort A	30 (69.77%)	13 (30.23%)	1.631386 (p=0.201512)
Cohort B	39 (81.25%)	9 (18.75%)	
Item 32. Responsibility for Learning			
Cohort A	26 (60.47%)	17 (39.53%)	0.36741 (p = 0.54442)
Cohort B	26 (54.17%)	22 (45.83%)	
Item 33. Feedback			
Cohort A	35 (81.40%)	8 (18.60%)	0.649313 (p = 0.420358)
Cohort B	42 (87.5%)	6 (12.5%)	

Note. The number of students across all items in Cohort A was 43 and the number of students across all items in Cohort B was 48.

Discussion

This study found that students were equally successful in Level II fieldwork whether they participated in community and clinical practice Level I fieldwork (Cohort B), or simulation only Level I fieldwork (Cohort A). In addition, though this program included some variation in the didactic preparation of master's and doctoral students prior to Level I and between Level I and Level II experiences, no differences were noted in their Level II performance based on the program in which they were enrolled. While statistically significant differences in midterm scores were not seen, students in Cohort A had a higher mean midterm score than Cohort B. Of note, students prepared with simulation had statistically significant positive ratings in two areas of clinical reasoning; one related to safety of self and others (p=.041), and another related to selection of client centered and occupation-based assessments and interventions (p=. 028). A recent study reported a similar conclusion; there were no statistically significant differences in Level II fieldwork outcomes between those who experienced high fidelity simulation as part of Level I fieldwork and those who did not (Ozelie et al., 2023). In addition, they found that students who participated in HFS did have higher mean rank scores in three areas: evaluation and screening, communication, and professional behaviors (Ozelie et al., 2023). Similarly, Molitor and Nissen (2020) found a positive correlation between simulation activities embedded in didactic coursework and performance on the AOTA FWPE for Level II FW.

Students prepared with simulation as Level I fieldwork in this study had rigorous real-life exposure to scenarios that were specifically built to identify any issues with safety. Prior to the creation of the simulations, faculty expressed the desire to see students engage in situations that would intentionally focus on safety of self and others within the scenarios. As students engaged in Level I fieldwork in community and clinic settings, they may or may not be afforded the opportunity to test their ability to react to potentially unsafe situations, as student experiences vary. Additionally, the simulations were intentionally designed to have the student engaged in scenarios in which they needed to select occupation-based assessments and interventions for their clients. In clinical and community placements, these opportunities are not always available to students. The simulation experiences were able to meet intended student learning outcomes that clinical based settings may not be able to control for with all students.

In addition to the statistically significant differences found in this study, descriptive statistics differences between categories of learning outcomes were noted. For instance, while at least half of the students in both of the cohorts received a rating of 3 or greater in professional behaviors, communication and client centeredness, and reflection on performance, less than half of the students in both cohorts received a rating of 3 or above in any of the items related to clinical reasoning, with the exception of the two items that had significantly significant differences. This indicates that students may require the most support for preparation in clinical reasoning skills as related to other skills. One notable difference between Level I fieldwork as simulation versus community and clinic-based settings is the formal debriefing process that occurs with simulation. In this study, simulations were followed by 60 minutes of debrief, led by trained faculty. The process followed best practices and used a Socratic approach, with

three phases: description, reaction/diffuse, and analysis/discovery (INACSL, 2021). In this approach, the facilitated debrief allowed students ample time to react to the situation and analyze not only what occurred, but more importantly what they could improve upon and why. The principles of “Make it Safe, Make it Stick, Make it Last” (Salik & Paige, 2022) underpinned the process. It could be postulated that the debriefing process is partly responsible for the statistically significant findings and can support student development of clinical reasoning skills. Debriefing may not occur in community or clinical experiences for a variety of reasons. The time commitment to the process is one barrier in many settings. Further research is needed on this topic to better understand the specific skill development in occupational therapy students.

Limitations

This was a small sample of two cohorts of students at a private midwestern University. There were some differences in didactic delivery of curriculum between the two groups due to the disruption of in-person activities with the Covid-19 pandemic. Specifically, Cohort A was interrupted during clinical practice courses and lab-based courses, resulting in some lab experiences being taught virtually. Cohort B was interrupted during theory and foundational knowledge courses and returned for all lab-based courses in person. Additionally, it is difficult to detect variation in student performance with the AOTA FWPE tool due to the ceiling effect, in that 98% of graduate occupational therapy students successfully complete Level II fieldwork (AOTA, 2022). Collecting data at midterm was intentional to account for this ceiling effect and high pass rate.

Implications for Occupational Therapy Education

A variety of intrinsic and extrinsic factors contribute to preparedness for Level II fieldwork. ACOTE (2018) standards ensure occupational therapy curriculum prepares students via didactic coursework, experiential learning, and Level I fieldwork experiences, but these factors vary greatly and there is a wide berth of delivery in both classroom and experiential education. Additionally, an individual student’s resiliency (Brown et al., 2020) and personal attributes and experiences play a part in successful completion of Level II fieldwork. This study, with control only of type of Level I fieldwork, categorized as simulation based or community and clinical, found both cohorts of students to be successful in Level II fieldwork. This supports the notion that the use of simulation can prepare students for Level II fieldwork, and students who have participated in simulation may grasp and demonstrate earlier than expected levels of clinical reasoning.

Students that participate in well-designed, high-fidelity simulation experiences as Level I fieldwork can be equally successful on Level II fieldwork as compared to students that participate in community and clinic-based Level I fieldwork. This allows occupational therapy programs flexibility within the delivery mode of Level I fieldwork. In addition, with an ongoing shortage of fieldwork sites, occupational therapy education programs can confidently use simulation to support the development of communication, clinical reasoning, and other professional skills, and adequately prepare students for success in Level II fieldwork. This study can help advance professional support for simulation in

recognizing that students prepared with either mode of Level I fieldwork may advance to Level II fieldwork with similar degrees of competence. Further research is needed to continue to explore the most effective preparation for Level II fieldwork and the development of clinical reasoning skills.

Conclusion

This descriptive study adds to the body of literature in support of the effectiveness of the use of simulation as Level I fieldwork to prepare students for clinical practice. This study revealed that two cohorts of occupational therapy students were rated equally as successful on Level II fieldwork following two different formats to their Level I fieldwork experiences. The study supports the notion that no matter the type of simulation, clinical, or community-based Level I experience, students were equally prepared for success across a variety of Level II practice settings. That being said, simulation experiences may allow programs increased flexibility, scaffolded learning, and targeted skill development in highly sought skills in Level II fieldwork such as safety and clinical reasoning. Future research is needed to continue to explore the outcomes of the use of simulation as Level I fieldwork to understand student perceptions of the experience and fieldwork educators' perceptions of the level of preparedness as the students enter into clinical practice.

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