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## Abstract

Clinical education experiences (CEEs) serve an essential role in physical therapist (PT) and occupational therapist (OT) student development. The Ascent to Competence Scale (ACS) measures valuable attributes of belongingness, competence, and welcoming associated with CEE placement. The purpose of this study was to examine the relationship between PT and OT students' belongingness and perceived competence during CEE using the ACS. A survey consisting of 35 questions from the ACS measuring students' feelings of belongingness and perceived competence in the clinic was administered to PT and OT students from 7 Midwest universities. Respondents rated statements using a 5-point Likert-type scale ("never true" to "always true"). Ascent to Competence items were aggregated to develop belongingness and perceived competence constructs. One hundred nineteen (67.2% PT, 32.8% OT) of 509 (23.4% response) eligible students completed the survey. Results of a linear regression analysis showed belongingness in the clinical environment significantly predicted perceived competence measures,  $F(1, 117) = 182.389$ ;  $P = r^2 = .609$ ,  $y(\text{comp}) = .721(X_{\text{bel}}) + 1.249$ . Cumulative weeks in CEE and practice environment did not contribute to the predictive model. The analysis lends further support to the role that belongingness plays in advancing perceived competence during the CEE. The results suggest that supportive clinical education environments can positively impact student learning by promoting a sense of belongingness among student therapists.

## Keywords

Clinical education, Ascent to Competence Scale, belongingness, competence

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## Relationship between Occupational and Physical Therapist Students' Belongingness and Perceived Competence in the Clinic using the Ascent to Competence Scale

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### ABSTRACT

Clinical education experiences (CEEs) serve an essential role in physical therapist (PT) and occupational therapist (OT) student development. The Ascent to Competence Scale (ACS) measures valuable attributes of belongingness, competence, and welcoming associated with CEE placement. The purpose of this study was to examine the relationship between PT and OT students' belongingness and perceived competence during CEE using the ACS. A survey consisting of 35 questions from the ACS measuring students' feelings of belongingness and perceived competence in the clinic was administered to PT and OT students from 7 Midwest universities. Respondents rated statements using a 5-point Likert-type scale ("never true" to "always true"). Ascent to Competence items were aggregated to develop belongingness and perceived competence constructs. One hundred nineteen (67.2% PT, 32.8% OT) of 509 (23.4% response) eligible students completed the survey. Results of a linear regression analysis showed belongingness in the clinical environment significantly predicted perceived competence measures,  $F(1, 117) = 182.389$ ;  $P = <0.0001$ ,  $r^2 = .609$ ,  $y(\text{comp}) = .721(X_{\text{bel}}) + 1.249$ . Cumulative weeks in CEE and practice environment did not contribute to the predictive model. The analysis lends further support to the role that belongingness plays in advancing perceived competence during the CEE. The results suggest that supportive clinical education environments can positively impact student learning by promoting a sense of belongingness among student therapists.

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## **INTRODUCTION**

The goal of the clinical education experience (CEE; a.k.a. fieldwork or clinical internship) is to develop occupational (OT) and physical (PT) therapists who are confident and competent practitioners ready to enter into the work environment. Clinical education is vitally important to students' education, as it provides professional interaction opportunities and hands-on learning. Successful mentorship by a clinical supervisor may utilize role modeling, opportunities for delivery of direct clinical services, and appropriate level of support for the student's proficiency level (AOTA, 2012) to guide the student toward clinical competence. For those with a stake in successful clinical education programming, it is important to determine and measure clinical site variables that facilitate learning. Thus, this study examined the relationship between student belongingness and perceived competence during clinical education.

### **Competence**

Competence is "the ability to do something successfully or efficiently" (Oxford Dictionary, 2017). Development of student competence in the clinic requires the acquisition and mastery of key foundational skills and attributes. The American Occupational Therapy Association (AOTA) has identified the constructs of knowledge, critical reasoning, interpersonal skills, performance skills, and ethical practice as the core standards for continued competence in practice (AOTA, 2015). Students who demonstrate competence with these essential foundational standards are well on their way toward achieving entry-level clinical practice skills.

Students are assessed on their levels of achieved competence periodically throughout the CEE. Physical therapy students are formally assessed with the Clinical Performance Instrument (American Physical Therapy Association [APTA], 2006) at midterm and at final. Student PTs also self-assess their personal feelings of competence at midterm and final. Occupational therapy students are formally assessed, at minimum, twice throughout the CEE. The typical method of evaluation for the Level II fieldwork portion of the CEE is the AOTA Fieldwork Performance Evaluation (AOTA, 2002). This tool allows the fieldwork educator to formally assess the student at midterm and final. Students are encouraged to rate themselves on these same measures. The goal of assessment throughout the CEE is to provide formative feedback about the growth and development of skills such as clinical reasoning and the application of professional standards of practice.

However, while these formal assessments are an important gauge on whether a student is on-track to achieve entry-level clinical status, such formal evaluations are not comprehensive in their ability to fully detect student learning, nor do they inform about barriers and facilitators to student learning. Prior research indicates that learning is linked closely to external factors such as a positive educator attitude (Grenier, 2015), welcoming environment (Martin, Morris, Moore, Sadlo, & Crouch, 2004), ability to be autonomous (Clarke, Martin, Sadlo, & de-Visser, 2014), and a positive orientation period (Evenson, Barnes, & Cohn, 2002). The student's formal evaluation score may not accurately reflect the student's potential if these positive external factors are not

present. Supportive research asserts that the culture of the clinical learning environment is an essential characteristic in facilitating student learning. Cultures that facilitate student learning are ones that value student clinical education (Recker-Hughes et al., 2014; Rindfleisch, Hoversten, Patterson, Thomas, & Dunfee, 2013) and create a supportive climate in which students feel accepted and are afforded a degree of autonomy (Recker-Hughes et al., 2014). These facilitatory cultures for competence are one construct of clinical education. Another construct is the student's sense of belongingness.

### **Belongingness**

Levett-Jones and Lathlean (2009) assert "the need to belong exerts a powerful influence on cognitive processes, emotional patterns, behavioural responses, health and wellbeing" (p. 2870). The construct of "belongingness" is operationalized as "the need for connectedness, acceptance, and fit, as well as the assurance of having a legitimate place in the clinical milieu" (Levett-Jones & Lathlean, 2009, p. 2873). While it is argued that a sense of belonging creates fertile ground for learning, Levett-Jones and Lathlean argue that when this basic need is unsatisfied, the drive to achieve a sense of belongingness may also overthrow inquisitiveness in favor of acquiescence and, in such case, can interfere with learning.

A model of learning in nurse education created by Edgecombe and Bowden (2009) identified factors that affect a student's development into proficient novice registered nurses. One of the subthemes of this model is the construct of belonging. A positive or negative sense of belonging impacted the student nurse education for all participants in the study. Students reported that a sense of trust and value communicated by facility staff had a positive impact on their learning experience. Conversely, a sense of isolation associated with student status negatively impacted the learning experience (Edgecombe & Bowden, 2009). These findings are supported by the Ascent to Competence Framework (ACF), a conceptual model developed by Levett-Jones and Lathlean (2009).

### **Ascent to Competence Conceptual Framework**

Maslow's pyramid of basic needs proposes that certain basic physiological and psychological needs must be met in order for a human to both survive and thrive. These hierarchical levels, in order of ascension, are physiological, safety, love and belonging, esteem, and self-actualization. Higher-level needs are not achieved without first securing lower level needs (Maslow, 1987). A mixed-model approach was undertaken by Levett-Jones and colleagues (Levett-Jones & Lathlean, 2009; Levett-Jones, Lathlean, Higgins, & McMillan, 2009) to explore the experience of belongingness as it relates to Maslow's hierarchy of needs (Maslow, 1987). The researchers conceptualized that belongingness, as a basic psychological need, would be foundational to students achieving their potential for hierarchically superior achievements. Such achievements include clinical competence, which parallels Maslow's "self-actualization" (Maslow, 1987). In fact, the qualitative work affirmed that a sense of belongingness supports engagement, motivates meaningful involvement, and promotes an essential feeling that

one is an integral member of the clinical team. The ACF is a theoretical model grounded in Maslow's hierarchy of needs theory and proposes that student clinical development is reliant upon the hierarchical acquisition of ascending basic needs (Levett-Jones & Lathlean, 2009). Each clinical placement opportunity offers a degree of potential, whether large or small, to cultivate safety and security, a sense of belongingness, and self-concept in the student learner and to shape the learning experience toward the achievement of practice competency (Levett-Jones & Lathlean, 2009).

During the CEE, the degree to which a student experiences belongingness may influence not only a student's capacity to learn but also the motivation to engage in clinical learning opportunities and other learning events (Levett-Jones et al., 2009). In fact, Nolan (1998) determined the degree of acceptance and belongingness students felt while completing a CEE was directly related to their active participation and learning during the experience.

Feelings of alienation and negative staff-student relationships lead some students to report overall negative CEEs (Levett-Jones et al., 2009). Nursing literature reports a link between the conceptual levels of belongingness and perceived competence in the clinical education setting. However, this link has not been researched or studied in the fields of OT and PT. Because the CEE is so important to the development of competent OTs and PTs, research in this area is essential in assuring the highest level of learning is achieved by students (Levett-Jones et al., 2009).

### **Purpose**

The purpose of this study was to examine the relationships between OT and PT students' belongingness and perceived competence in the clinic using the Ascent to Competence Scale [ACS] (McCoy, Levett-Jones, & Pitt, 2013). The specific objective of this study was to investigate the relationship between students' feelings of belongingness and perceived competence within the clinical setting. The researchers hypothesized that a direct positive relationship would exist between students' feelings of belongingness in the clinical setting and their perceived level of learning and competency.

## **METHODOLOGY**

### **Design**

The study employed a correlational design and surveyed OT and PT students from entry-level educational programs within participating Midwestern institutions.

### **Subjects**

Study inclusion requirements included enrollment in a participating university's OT or PT graduate program and current enrollment in a CEE. The surveyed sample (87.4% female) was drawn from seven participating Midwest universities. All participating programs had a minimum CEE length of six weeks; maximum length varied by program curricular need. This variation in CEE length was used to justify a data collection week

that captured all participants. For that reason, exclusion criteria included those who were participating in a CEE less than five weeks in length.

The sample of convenience consisted of 119 of 509 (23.4% response) eligible entry level (Masters) OT (32.8%) and (Doctoral) PT (67.2%) students. Mean age of students was 24.7 (SD = 2.9) years (see Table 1; see Figure 1). Cumulative weeks enrolled in CEE for participants ranged from 5 weeks to 23 weeks, with the mean clinical experience being 14.9 (SD = 6.3) weeks (see Table 1). Responding students reported placement within a variety of practice settings (see Table 2).

Table 1

*Demographic Characteristics by Student Discipline*

|                                       | <b>Occupational<br/>Therapy Students<br/>(OTS; n=39)</b> | <b>Student Physical<br/>Therapists<br/>(SPT; n=80)</b> | <b>Sample<br/>(N=119)</b> |
|---------------------------------------|--|--|---------------------------|
| <b>Cumulative Weeks Full-time CEE</b> |  |  |                           |
| <i>Minimum</i>                        | 5 weeks  | 5 weeks  |                           |
| <i>Maximum</i>                        | 20 weeks   | 23 weeks   |                           |
| <i>Mean, SD</i>                       | 19.28, 2.43  | 12.78, 6.49  | 14.91, 6.28               |
| <b>Age in Years</b>                   |  |  |                           |
| <i>Mean, SD</i>                       | 24.46, 3.00  | 24.75, 2.83  | 24.66, 2.87               |

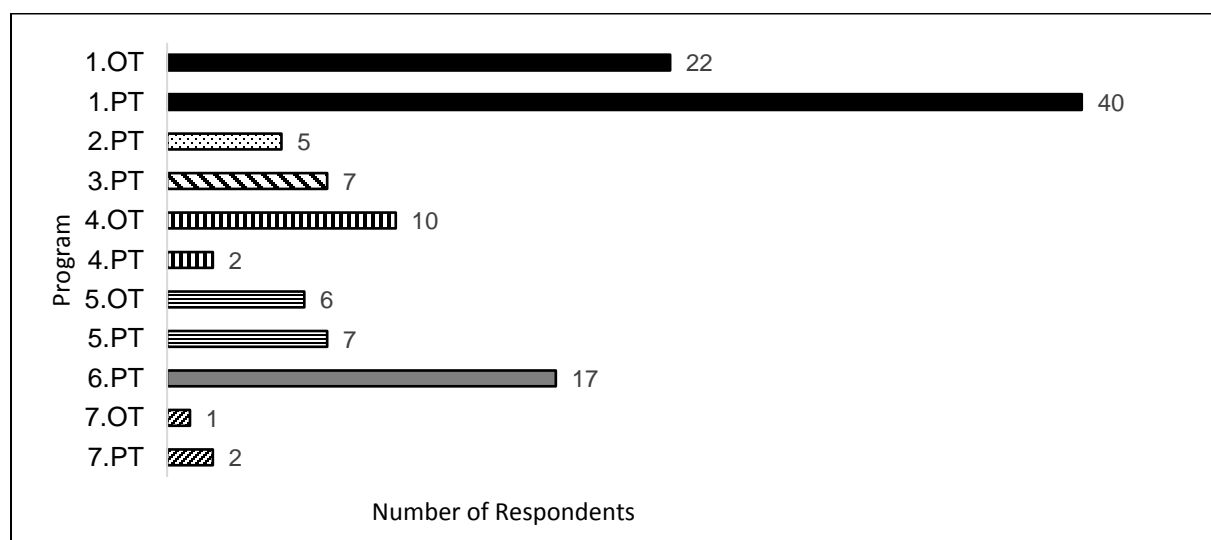


Figure 1. Number of respondents by program.

Table 2

*Student Distribution: Primary Practice Setting of Clinical Education Experience*

|  | Frequency | Percent |
|--|-----------|---------|
| General Practice   | 22        | 18.49%  |
| Inpatient Acute  | 26        | 21.85%  |
| Inpatient Rehabilitation   | 9         | 7.56%   |
| Inpatient Subacute/Long-term Care/Extended Care Facility               | 16        | 13.45%  |
| Mental Health  | 2         | 1.68%   |
| Outpatient Orthopedic  | 30        | 25.21%  |
| Outpatient Neurologic  | 3         | 2.52%   |
| Pediatrics: Medical (Inpatient or Outpatient)                          | 6         | 5.04%   |
| Pediatrics: Educational (School-Based, Behavioral, or Early Childhood) | 4         | 3.36%   |
| Other  | 1         | 0.84%   |
| <i>Total</i>   | 119       | 100.00% |

**Instrument**

The ACS (McCoy et al., 2013) was developed specifically for purposes of measuring student feelings of belongingness and perceived competence during the CEE. The ACS (McCoy et al., 2013) comprises 35 statements related to and measuring students' feelings of being welcomed (6 items; i.e., "I was introduced to the therapy staff in the clinic/unit when I commenced the placement"), belongingness (22 items; i.e., "I developed a good working relationship with my mentor"), and perceived competence (13 items; i.e., "I felt more capable at the end of my placement") in the clinical education process. McCoy, Levett-Jones, and Pitt (2013) showed evidence of ACS construct validity through exploratory factor analysis with promax oblique rotation; the results yielded a three component structure with each subscale demonstrating high internal consistency (being welcomed,  $\alpha = 0.89$ ; belongingness,  $\alpha = 0.90$ ; perceived competence,  $\alpha = 0.93$ ). The full scale's internal consistency was determined using Cronbach's coefficient alpha, with satisfactory reliability ( $\alpha = 0.98$ ). Questions were answered using a 5-point rating scale, with 1 = never true, 2 = rarely true, 3 = sometimes true, 4 = often true and 5 = always true. Reverse scoring was used for the scale's 3 negative items. Permission to use the ACS with modifications specific to the PT and OT disciplines was received from the instrument authors (personal e-mail communication, April 17, 2013). The modified ACS was disseminated via SurveyMonkey® (<https://www.surveymonkey.com/>) and included questions related to cumulative number of weeks of full-time CEE across-settings, age at the start of current CEE, rural or urban environment, practice setting, and therapy discipline.



## Procedure

The research study was approved by the institution's IRB prior to survey dissemination, and all participants provided consent. Data were collected from a sample of convenience, consisting of students in OT and PT programs from participating institutions. The research institution's Academic Fieldwork Coordinator (AFWC) and Director of Clinical Education (DCE) communicated directly with the participating universities' DCEs/AFWCs, who subsequently forwarded all communication to their students. Other than the students from the research partner's university, there was no direct communication between the research partners and the student participants. Clinical placements between programs differed in length, location, and timing within the curriculum (see Figure 2). Researchers communicated with the DCEs/AFWCs at Weeks 1, 4, and 5 of the chosen CEE's. Initial information was forwarded to students during Week 1 of the CEE. A reminder email with the electronic survey link was forwarded during Week 4 indicating the survey would be open during the fifth week of the CEE. Students were alerted during the middle of Week 5 that the survey would close Friday of the same week.

| Program | n/N   | June          | July          | August                | September                            | October        | November        | December |
|---------|-------|---------------|---------------|-----------------------|--------------------------------------|----------------|-----------------|----------|
| 1.OT    | 22/50 |               |               |                       | Year 3, CEE Level IIB                |                |                 |          |
| 1.PT    | 40/59 |               | Year 2, CEE I |                       |                                      |                | Year 3, CEE III |          |
| 2.PT    | 5/50  |               |               |                       |                                      | Year 2, CEE II |                 |          |
| 3.PT    | 7/50  |               |               |                       |                                      |                | Year 3, CEE II  |          |
| 4.OT    | 10/32 |               |               | Year 3, CEE Level IIB |                                      |                |                 |          |
| 4.PT    | 2/36  |               | Year 1, CEE I |                       |                                      |                |                 |          |
| 5.OT    | 6/36  |               |               |                       | Year 3, CEE Level IIB (1/2 students) |                |                 |          |
| 5.PT    | 7/48  |               |               |                       |                                      |                | Year 2, CEE II  |          |
| 6.PT    | 17/67 | Year 1, CEE I |               |                       | Year 3, CEE III                      |                |                 |          |
| 7.OT    | 1/30  |               |               |                       | Year 3, CEE Level IIB                |                |                 |          |
| 7.PT    | 2/35  |               |               |                       | Year 3, CEE III                      |                |                 |          |

Figure 2. Timing and length of CEE rotations and number of student responses by school and discipline.

## Data Analysis

Statistical analysis was conducted using descriptive statistics for demographic information. Questions from main survey components were aggregated to develop belongingness and perceived competence constructs. Linear regression was used to analyze the relationship between belongingness, experience as measured by cumulative weeks of CEE, type of setting, and perceived competence. Statistical analysis was completed using IBM SPSS Statistics for Windows (Version 24.0) with alpha set at 0.05.

## RESULTS

A stepwise linear regression was conducted with the “perceived competence” variable regressed on predictors, “belongingness,” cumulative weeks of CEE (as an indicator of experience within clinical environments), and primary setting (to account for varied caseload complexities that may be setting-specific). Cumulative weeks of CEE and primary setting did not significantly contribute to a predictive model (see Table 3). The best fit model showed feelings of belongingness in the clinical environment significantly predicted perceived competence,  $F(1, 117) = 182.389$ ;  $p = <0.0001$ ,  $r^2 = 0.609$ ,  $y_{\text{comp}} = 0.721x_{\text{bel}} + 1.249$ . Thus, 60.9% of the variance in the perceived competence within the clinical environment was predicted by belongingness, indicating a large effect.

Table 3

*Stepwise Regression Model Predicting Perceived Learning and Competence*

| Dependent Variable                | $\beta$ | t      | p                   |
|-----------------------------------|---------|--------|---------------------|
| Belongingness                     | 0.713   | 13.066 | 0.0001 <sup>a</sup> |
| Cumulative Weeks in Full-time CEE | -0.003  | -0.720 | 0.473               |
| Primary Setting Type              | -0.006  | -0.444 | 0.658               |

<sup>a</sup> $p < 0.0001$

To study the influence of gender and OT or PT discipline on the relationship between belongingness and perceived competence, an examination of moderation using a series of regression analyses was undertaken. Gender moderated the relationship between belongingness and perceived competence ( $R^2 = 0.622$ ,  $R^2$  change = 0.013,  $p = 0.046$ ), with a stronger direct association between belongingness and perceived competence reported by male student therapists ( $r = 0.906$ ,  $p = <0.0001$ ) than female student therapists ( $r = 0.767$ ,  $p = <0.0001$ ). Discipline did not influence the relationship between belongingness and perceived competence.

## DISCUSSION

Student healthcare professionals involved in the clinical education process are often surrounded with competing needs, such as those of security and acceptance, connectedness and respect, and freedom to self-direct. The extent to which these needs are met is decisive in determining whether a student placed within a particular CEE is likely to ascend the ACF hierarchy toward successful student learning. The purpose of this study was to investigate the relationship between students' feelings of belongingness and perceived competence within the clinical setting. The current study concludes that when students feel a stronger sense of belongingness, they are more apt to have higher levels of perceived competence. This relationship is not OT or PT discipline-specific, and transcends differences in practice environments.

The results support research conducted by several in the field of nursing (Grobeck, 2016; Kim & Park, 2011; Levett-Jones & Lathlean, 2009; Luanaigh, 2015; Russell, Allix, & Gluyas, 2016; Thomson, Docherty, & Duffy, 2017) and indicate that the level of perceived belongingness that students feel during CEE is a significant predictor of perceived competence. A path model generated by Kim and Park (Kim & Park, 2011) helps explain the relationship between belongingness and competence observed in the current research. Their model, accounting for 37% of the variation for self-directed learning, revealed that reported level of belongingness within the CEE had a negative effect on stress and positive effect on satisfaction, self-esteem, and self-directed learning. Belongingness had a direct effect on self-directed learning as well as an indirect effect on self-directed learning through self-esteem. In fact, while belongingness and self-esteem had a positive effect on self-directed learning, the model revealed no effects of stress and satisfaction on self-directed learning. Drawing from this study, it may be speculated that students in the current study who felt a stronger sense of belonging benefitted from the direct effects of belongingness as well as the indirect effects through self-esteem buoyed by a supportive clinical environment. Future research may test this path model with a sample of OT and PT students, examining the relationships among belongingness, satisfaction, self-directed learning, self-esteem, and stress.

The results also indicate that the relationship between competence and belonging was more strongly relevant for male students than for female students. The reasoning for this difference is not clearly understood; however, a study by Kim and Sax (2009) found similar gender differences. Their study examined the effect of student-faculty interaction as mediated by several student characteristics, one of which was gender. The results of that study indicate the male students had a higher sense of belonging when they had increased levels of interaction with faculty regarding course related content. Females also benefited from course-related interaction; however, they preferred a one on one context, whereas males were more comfortable in the group context.

One study that may give some explanation to why male students feel a greater sense of belonging with more direct interaction involves the field of science. A study conducted by Moss-Racusin, Dovidio, Brescoll, Graham and Handelsman (2012) found that male students were ranked as more competent and hireable with a higher starting pay offer and increased mentoring by faculty as compared to an identical female student. The results of the study indicate the differences were likely due to inadvertent gender biases held by faculty regardless of the faculty's gender, age, rank, or field (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012). This study could explain an unintentional bias by CEE supervisors toward male students, resulting in a higher sense of belonging, but this is pure speculation. Understanding the full context for which a gender difference exists during CEE is beyond the scope of this current study and is an area for future research.

## Limitations

Limitations of this study included a small sample size, questionable generalizability, self-reported data, and survey distribution timing. The study included participants from multiple programs and graduate universities, which enhanced the generalizability of the results. However, the relatively low response rate and the narrow range of student demographics limited the overall generalizability of the study to the entire population of OT and PT students. Survey data collected was based on participant self-report, which potentially led to answers biased towards social norms. The collection of data in an anonymous online survey form could have improved the likelihood that participants responded candidly.

## Implications for Clinical Education

Findings from this research could be used to help re-design CEE guidelines within educational programs in order to ensure maximal learning is achieved with each experience. Results could also help to mentor clinical educators in providing supportive knowledge, behaviors, and qualities that would ultimately allow students to have a more positive CEE. Overall awareness of the profound impact that belongingness has on students' learning is important for clinical educators to acknowledge. Without proper understanding of its importance, clinical instructors may inadvertently inhibit students from achieving their full potential.

Furthermore, the implications of these findings are important to clinical education program directors and clinical instructors alike. Education provided to CEE sites by directors of clinical education may emphasize the importance of creating environments in which students feel valued, significant, connected, and accepted. Clinical instructors should be encouraged to treat student therapists as young professionals and team members, rather than outsiders or underlings. Finally, creating a culture of inquisitiveness and exchange rather than acquiescence and delivery during the educational experience may promote student feelings of legitimacy and harmony conducive to learning and competence.

## CONCLUSION

The analysis lends further support to the role that belongingness plays in advancing perceived competence during the CEE, extending similar research from the field of nursing to PT and OT professional students. The results suggest that the clinical education environment highly impacts student learning, especially in the area of belongingness.

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