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ORIGINAL RESEARCH

Clinical Instructor Perceptions of Preparedness, Performance, and Professionalism of Doctor of Physical Therapy Students from a 2-Year Hybrid Program: A Mixed Methods Study

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Abstract

Objective Doctor of Physical Therapy (DPT) education models vary in length, philosophy, and delivery. The purpose of this study was to explore clinical instructor (CI) perceptions of performance in DPT students from a 2-year hybrid program.

Methods In this mixed methods phenomenological study, data from eight cohorts of students were examined. Correlation analysis was used to examine the relationship between CI background (experience, degree, certification) and their perception of student preparedness for clinical experiences. A Kruskal–Wallis test was used to compare CI perception of preparedness between CI groups. Subjects participated in semi-structured interviews and data were organized using inductive coding prior to analysis.

Results Analysis included 1711 records. The majority of CIs noted students were prepared for clinical experiences (96.3%) and were as prepared or more prepared than students from a 3-year on-site program (89.0%). There were no differences in CI perception based on CI background. Qualitative analysis from 22 interviews revealed four CI perception themes: preparedness, performance, professionalism, and clinical reasoning. Almost all CIs reported that students from a 2-year hybrid program were as strong or stronger than students from a 3-year residential/on-site program. If the CI had a negative performance expectation of the 2-year hybrid student before the rotation, almost all changed to a positive impression following rotation.

Conclusions CI perception is that students from a 2-year hybrid program are as strong or stronger than students from a 3-year residential/on-site program. Our findings suggest clinical preparedness, performance, and professionalism of 2-year hybrid DPT students meet or exceed CI expectations.

Keywords Doctor of Physical Therapy students · Professionalism · Preparedness · Performance · Clinical Education

Introduction

The delivery of Doctor of Physical Therapy (DPT) education is changing. Over the last decade, there has been an increase in DPT programs that have developed or adopted different delivery models [1]. One catalyst for change may be rising tuition costs in higher education and concurrent rising debt [2]. The average debt-to-income ratio for new graduate physical therapists has been reported as 197% [2, 3]. Delivery models such as accelerated programs or hybrid learning models may provide a sustainable solution for financial-related challenges of physical therapy education.

Technological advances have fostered alternative possibilities in DPT higher education delivery including online and blended/hybrid learning formats [4]. Hybrid learning models in higher education have become more prevalent since the Covid-19 pandemic. While hybrid delivery has had criticism, digital strategies in hybrid DPT education have shown to be as effective as traditional strategies with acquiring hands-on skills [5]. The blended/hybrid format, covering didactic content prior to on-site lab time, has been found to support student development while using an adult-learning continuum to promote student learning and satisfaction [6, 7]. Hybrid models in healthcare education are relatively novel across professions, but a search of the literature

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outside of physical therapy showed no significant differences in licensure pass rates and grade outcomes between students in hybrid versus on-campus models for both entry-level nursing and Doctor of Occupational Therapy students [8, 9].

One common goal of DPT programs is to foster competent, prepared, and professional students ready for clinical rotation and physical therapy practice. Differences between 2-year and 3-year DPT programs include program duration and curricular design, condensing program didactics to meet the 2-year timeline. Clinical experiences remain similar between program designs (see Fig. 1 for overview of the 2-year hybrid curriculum). Licensure pass rates for the 2-year hybrid DPT model do meet expectations; however, criticism regarding the quality of professional education provided by 2-year DPT programs exists. Criticisms include doubts about student preparedness specific to the hands-on and interactive skills needed for clinical rotations and work in the field of physical therapy [10]. The purpose of our study was to examine clinical instructor (CI) perceptions of student preparedness for clinical rotation as compared to students from a 3-year residential/on-site program. A secondary goal was to examine ratings of preparedness across CIs based on their background. Although the literature has provided overviews of hybrid education [4], along with identifying successful student outcomes from hybrid learning [11], to the best of our knowledge, no studies have looked at CI perspectives of students in 2-year hybrid programs.

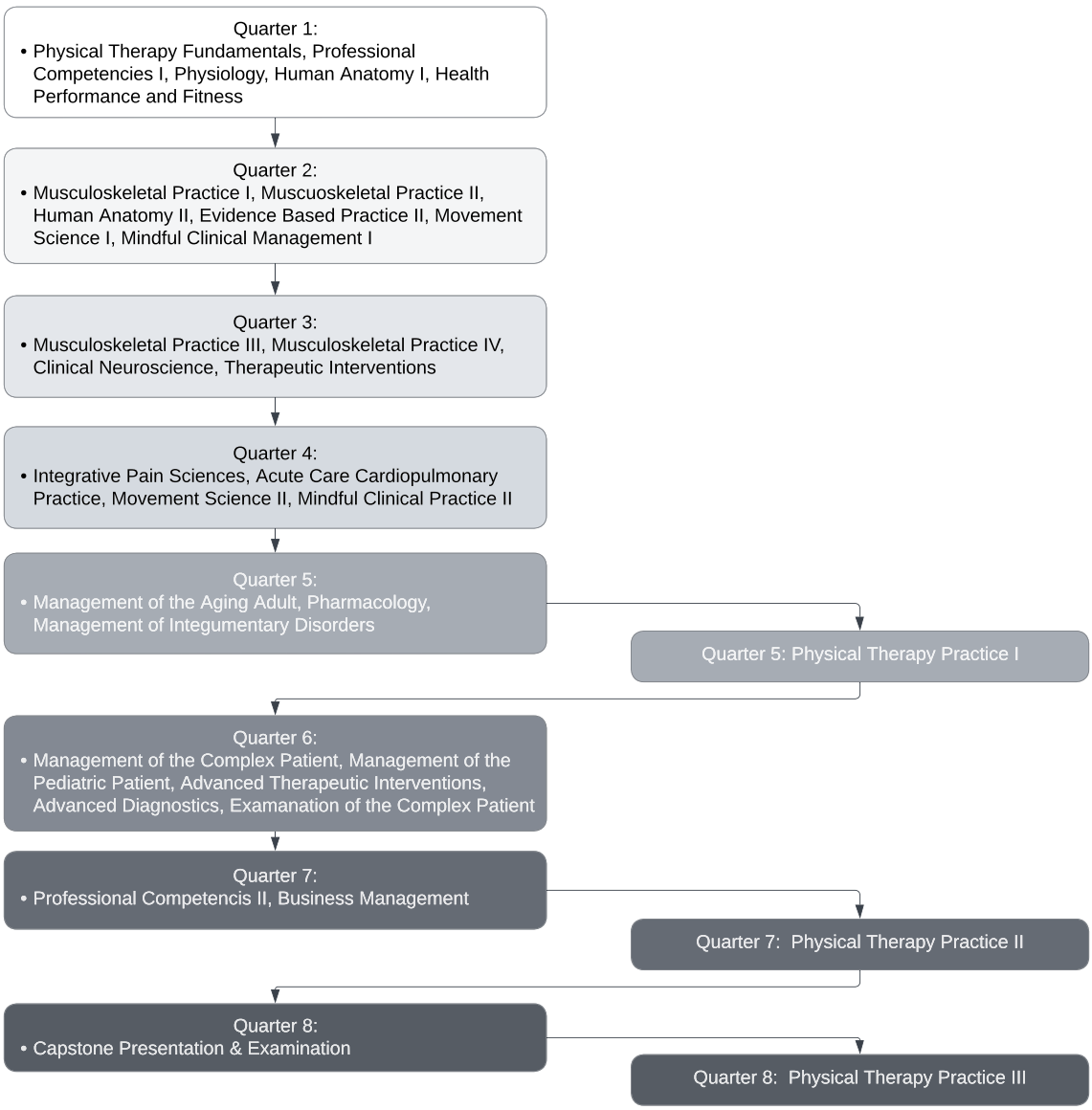

Fig. 1 Overview of hybrid DPT curriculum. Legend: The program consisted of 8 quarters across 2 years. Courses taken in each quarter are listed

Aim

This study aimed to explore CI perceptions of preparedness, performance, and professionalism in students from a 2-year, hybrid DPT program during clinical rotations. The authors defined preparedness for clinical education as the student's readiness for clinical experiences. This includes both their level of knowledge and their openness to learning. The authors defined performance as the student's ability to execute components of patient care, including demonstrating the appropriate level of clinical reasoning and competency with psychomotor assessment and intervention skills. Finally, the authors defined professionalism as encompassing attitudes and behaviors observed during clinical rotation including communication, accountability, and response to feedback.

Specific objectives are as follows:

1. Identify CI perspectives on 2-year hybrid DPT student preparedness, performance, and professionalism during clinical experiences.
2. Compare perceptions of student preparedness, performance, and professionalism during clinical experiences between 2-year hybrid and residential/on-site programs via CI assessment.
3. Determine if any relationships existed between CI perceptions and the background of the CI (years of experience, degree, certification).

Methods

This study was approved by the Institutional Review Board of South College before initial data collection, protocol number 22–018.

Study Design

Mixed methods retrospective analysis of data collected from physical therapists serving as CIs to DPT students at a 2-year hybrid DPT program was performed. Quantitative analysis utilized data routinely collected as part of the typical clinical education placement process (post-clinical rotation survey). For DPT students, the preferred method of assessment for entry-level preparedness continues to be CI perception [12, 13]. Whether documented objectively or subjectively, the perception of student clinical readiness by the CI during clinical experiences is often a guide to determination of successful entry-level curriculum completion.

For the qualitative portion of this study, subjects were chosen based on voluntary participation from physical therapists who have served as CIs with South College. A purposeful sampling method was employed with an emphasis on similarity as the strategy. The qualitative design used a phenomenological approach, seeking to identify what the experience was like from the perspective of the CI [14]. This approach is consistent with grounded theory, a theoretical framework that allows patterns and themes to emerge from the data rather than imposing preconceived theories [15].

By using a semi-structured interview, the research team was able to gain an in-depth perspective of the CI's experience [16]. Qualitative data was captured from live interviews that occurred via web-based interface, such as Zoom [17], between the participant and one of three research study team members. The research study team members who performed the interviews were all licensed physical therapists, fellowship trained, and faculty at South College. Two of the three interviewers held terminal doctorate degrees, two were Directors of Clinical Education at South College, and two were female. No relationship between interviewers and participants was intentionally established prior to the interview process. Participants were informed of the goals of the research study team during informed consent. Interviewers shared the characteristic of interest in clinical education and how a CI's training may affect their perception of student performance (see Fig. 2 for overview of methods design).

Consensus on an optimal sample size for qualitative research is lacking, although best practice recommendations suggest that each design and setting will have unique considerations [16]. Usually, a sample of 15–30 provides enough variability to reach theme saturation [18]. A sample size of 22 was determined a priori based on meeting the threshold for an adequate qualitative sample. This study is reported in accordance with the Standards for Reporting Qualitative Research (SRQR) [19].

Participants and Recruitment

DPT students at South College and their CIs live across the USA. To be included in the qualitative interview process, subjects must have had experience as a CI with at least five students total from any DPT program, at least one student from South College's 2-year hybrid program, and at least one student from a 3-year residential/on-site program. Participants also needed to be a licensed physical therapist in good standing. Subjects were excluded if they had served as faculty at South College. All previously serving CIs who were willing to complete a Study Screening Form (Table 1) and undergo an interview with a study investigator were included. Exclusion for the qualitative portion included inability or unwillingness to receive electronic communication or participate in the interview.

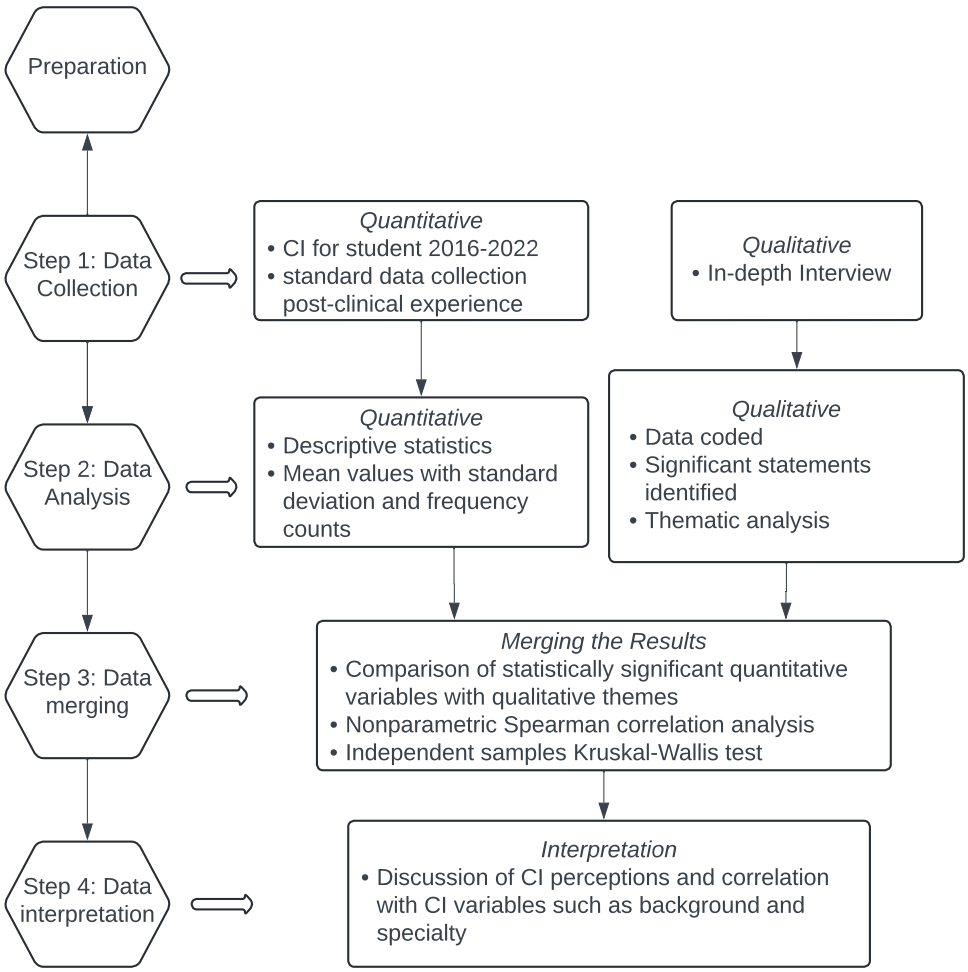

Fig. 2 Overview of study methods. Legend: Qualitative and quantitative methodology is described. *CI* clinical instructor

Entry into Study

For the quantitative portion of this study, CI data from previous cohorts of South College DPT student clinical rotations was pulled retrospectively from clinical education databases and analyzed. No additional recruitment or screening was necessary for the quantitative portion.

For the qualitative portion of this study, CIs who agreed to participate were screened via survey and then provided informed consent via survey, both by Qualtrics version January 2023 (Qualtrics, Provo, UT, USA), a secure web application for building and managing online surveys. All clinicians who have served as CIs for students from the South College DPT program were invited to participate in the study. Twenty-five CIs consented to participate and 22 completed the interview process. All participant data were assigned an anonymous study number to reduce possible bias. Participant enrollment began in September 2022 and ended in January 2023.

Demographics and Outcome Measures

Demographics

CI demographics included age, gender, entry-level degree, highest degree and area of focus, current practice setting, years as CI, years of clinical experience, specialty training, certifications (including residency and fellowship), American Physical Therapy Association (APTA) credentialed CI status, and areas of expertise. This information was standard data collected as part of the clinical education process.

Interview

An interview template was created by the research team to ensure consistent questioning of CIs during the interview and to identify the CI's perceptions of student preparedness, performance, and professionalism (Table 2). During development of the interview template, clarity of questions and ensuring

Table 1 Study Screening Form Questions and Clinical Instructor Demographics. To demonstrate our sample representativeness, to identify any trends and to assist us in interpreting results. *NPS* Net Promotor Scale, *PhD* Doctor of Philosophy, *DSc* Doctor of Science, *EdD* Doctor of Education, *DPH* Doctor of Public Health, *FAAOMPT* Fellow of the American Academy of Orthopedic Manual Physical Therapists, *ABPTS* American Board of Physical Therapy Specialists, *APTA* American Physical Therapy Association

Variable (sample responding to this item)	Category (*N*, percent)	Mean (sd)
NPS—On a scale of 0–100 how likely are you to recommend South College Doctor of Physical Therapy program to a friend?		83.5 (19.1)
Have you served as a clinical instructor for a South College Doctor of Physical Therapy student?	Yes (22, 100%)	
Are you a licensed physical therapist in good standing?	Yes (22, 100%)	
Are you willing to complete the research study process including: completing the informed consent form and 20-min live interview with study investigator(s) at a time of your choosing?	Yes (22, 100%)	
Have you ever served as adjunct faculty or faculty at South College?	No (22, 100.0%)	
For how many students have you served as a clinical instructor?	5–6 (7, 31.8%) 7–9 (6, 27.3%) 10 (9, 40.9%)	
Please list the physical therapy programs that you have served as a clinical instructor?	Anderson University (1, 4.5%), Angelo State University (1, 4.5%), Army-Baylor University (1, 4.5%), Augusta University (2), Azusa Pacific University (1, 4.5%), Baylor University (5, 4.5%), Belmont University (2, 9.1%), Bradley University (1, 4.5%), Brenau University (1, 4.5%), Campbell University (1, 4.5%), Carroll University (2, 9.1%), Cleveland State University (1, 4.5%), Concordia University St. Paul (2, 9.1%), California State University Long Beach (1, 4.5%), University of Colorado (2, 9.1%), Duke University (2, 9.1%), East Carolina University, East Tennessee State University (2, 9.1%), Eastern Washington University (1, 4.5%), Elon University (1, 4.5%), Emory University (2, 9.1%), Franklin Pierce University (1, 4.5%), Gannon University (1, 4.5%), George Washington University (2, 9.1%), Georgia State University (2, 9.1%), Governors State University (1, 4.5%), Idaho State University (1, 4.5%), Lacrosse (1, 4.5%), Lincoln Memorial University (1, 4.5%), Loma Linda University (1, 4.5%), Marquette University (1, 4.5%), Marshall University (1, 4.5%), Mayo Clinic School of Health Sciences (1, 4.5%), Mercer University (1, 4.5%), Missouri State University (1, 4.5%), Medical University of South Carolina (2, 9.1%), Northern Arizona University (1, 4.5%), Regis University (2, 9.1%), Rocky Mountain University of Health Professions (3, 13.6%), Rosalind Franklin University of Medicine and Science (1, 4.5%), Shenandoah University (1, 4.5%), South College (22, 100.0%), Southwest Baptist University (1, 4.5%), Stockton University (1, 4.5%), Texas Tech University Health Sciences Center (1, 4.5%), Texas Women's University (1, 4.5%), The University of New Mexico (1, 4.5%), Trine University (1, 4.5%), University of Alabama Birmingham (1, 4.5%), University of Cincinnati (1, 4.5%), University of Dayton (1, 4.5%), University of Florida (2, 9.1%), University of Mary Hardin-Baylor (1, 4.5%), University of Michigan-Flint (2, 9.1%), University of Minnesota (1, 4.5%), University of North Georgia (1, 4.5%), University of Puget Sound (1, 4.5%), University of South Alabama (1, 4.5%), University of St. Augustine (4, 18.2%), University of Utah (1, 4.5%), University of Washington (1, 4.5%), University of Tennessee Health Science Center (1, 4.5%), University of Texas Health Science Center at San Antonio (1, 4.5%), Upstate Medical University Syracuse (1, 4.5%), Western Carolina (1, 4.5%), Wheeling Jesuit (1, 4.5%), Wingate (1, 4.5%)	

Table 1 (continued)

Variable (sample responding to this item)	Category (*N*, percent)	Mean (sd)
What is your age range?	25–34 (6, 27.3%) 35–40 (13, 59.1%) 41–45 (1, 4.5%) 46–50 (2, 9.1%)	
With which gender do you identify?	Female (11, 50%) Male (11, 50%)	
What is your entry level physical therapy degree?	Master (4, 18.2%) Doctor of Physical Therapy (18, 81.8%)	
What is your highest degree earned?	Master (1, 4.5%) Other: (1, 4.5%) PhD, DSc, EdD, DPH, etc. (2, 9.1%) Doctor of Physical Therapy (18, 81.8%)	
What is the area of focus for your highest degree?	Physical Therapy (22, 100.0%)	
What is your current practice setting?	Outpatient (17, 77.3%) Inpatient: acute care or rehab (2, 9.1%) Outpatient pediatrics (1, 4.5%) Outpatient military (1, 4.5%) Pediatrics (1, 4.5%)	
How many years of experience do you have as a clinical instructor?	1–5 years (7, 31.8%) 6–10 years (11, 50.0%) 11–15 years (1, 4.5%) 16–20 years (3, 13.6%)	
How many years of clinical experience do you have?	0–5 years (2, 9.1%) 6–10 years (13, 59.1%) 11–15 years (4, 18.2%) 16–20 years (1, 4.5%)	
Which of the following have you achieved?	Residency Training (3, 13.6%) Fellowship Training (10, 45.5%) FAAOMPT (6, 27.3%)	
Residency training, please specify focus area	Orthopedics (3, 13.6%)	
If you have an ABPTS specialty certification, please indicate	Orthopedic Clinical Specialist (15, 68.2%) Pediatric Clinical Specialist (1, 4.5%)	
Are you an APTA credentialed clinical instructor?	Yes (16, 72.7%) No (6, 27.3%)	
Which of the following certifications do you hold?	Dry Needling (13, 59.15), Manual Therapy (6, 27.3%), Kinesiotape (2, 9.1%), Clinical Management of the Fitness Athlete Certification (1, 4.5%), Institute of Clinical Excellence Certification (1, 4.5%), Astym (1, 4.5%), Certified Cervical and Temporomandibular Therapist (1, 4.5%), Pelvic Health (1, 4.5%), Therapeutic Pain Specialist (1, 4.5%), Ekso Clinical Trainer (1, 4.5%), Blood Flow Restriction (1, 4.5%), Certification in Spinal Manipulative Therapy (1, 4.5%), Diploma in Osteopractic (1, 4.5%), Vestibular (1, 4.5%), Motivational Interviewing (1, 4.5%), Athletic Trainer Certified (1, 4.5%)	
What are your areas of expertise?	Orthopedics (18, 81.8%) Sports Medicine/Athletic Training (7, 31.8%) Pelvic Health (3, 13.6%) Pediatrics (3, 13.6%) Pelvic Health (1, 4.5%) Geriatrics (1, 4.5%) Acute care (1, 4.5%) Neurology (1, 4.5%)	

Table 2 Interview Template. Research study team members utilized this template to ask clinical instructors questions and create a transcript of their responses regarding their experiences and perceptions

Domains	Questions
Clinical Instructor Focus	Question 1: Would you consider yourself to be an experienced clinical instructor? How many students have you had?
	Question 2: What were your expectations for this student knowing that they were from a 2-year hybrid model program?
	Question 3: Was your impression about the 2-year hybrid program model different after you worked with our student?
	Question 4: How was your experience working with this student different than that of working with a student from a residential/brick and mortar/on-site program?
Student Preparedness	Question 5: How did you find the clinical preparedness of your South College student compared to a student from a residential/brick and mortar/on-site program?
Student Knowledge	Question 6: Please describe your perception of the student's knowledge base compared to a student from a residential/brick and mortar/on-site program?
Student Psychomotor Skills	Question 7: How would you describe your student's ability to perform psychomotor interventions such as manual therapy, transfers, guarding, lines and tubes, neurological handling, compared to a student from a residential/brick and mortar/on-site program?
	Question 8: How would you describe your student's psychomotor examination skills such as neuromotor screen, use of overpressure, neurodynamic testing, joint mobility assessment, compared to a student from a residential/brick and mortar/on-site program?
Student Professionalism	Question 9: How would you describe your student's overall professionalism compared to a student from a residential/brick and mortar/on-site program?
	Question 10: How did your student respond to critical feedback, compared to a student from a residential/brick and mortar/on-site program?
	Question 11: How would you describe your student's ability to develop a collaborative relationship with their patients compared to a student from a residential/brick and mortar/on-site program?
Student Clinical Reasoning	Question 12: How would you describe your student's skill in differential diagnosis and clinical reasoning compared to a student from a residential/brick and mortar/on-site program?

thoughtful responses from participants were considered in order to improve reliability. This form consisted of six separate and distinct domains with 12 questions between them. At the time of this study, no other tools were found in the literature that measured Cl's perceptions of student preparedness, performance, and professionalism. Qualitative analysis of CI perceptions is described below.

Data Analysis: Qualitative

Interviews between participants and three research study team members were performed in real time via web-based interface. Research study team members utilized an interview template (Table 2) to ask questions and create a transcript of answers, each interview lasting approximately 20 min; no recordings were made. The completed interview forms were uploaded to an encrypted and password-protected folder accessible only by the research team.

To qualitatively assess CI perceptions, the data from the interview forms was coded via inductive coding principles and then explored for common themes; these were all documented via use of a Sharepoint Sheet [20]. A similar process was used as described by Greenfield et al. [21]. Two reviewers read each interview transcript several times to gain an overall understanding of the CI experience while at the same time identifying significant statements [16] and coding them in the Sharepoint Sheet. Significant statements for this study were defined as statements relating to the CI's perception of student preparedness, performance, and professionalism. Researchers placed notes in the adjacent column to the significant statement describing their reasoning for choosing the idea. After completing analysis on each interview transcript, significant statements and notes were compared across reviewers in order to ensure all significant ideas had been identified. The reviewers next compiled a final list of significant statements for each study participant in order to keep a full record for future referencing and coding. Each reviewer once again read each interview transcript to compare their personal assessment to the other reviewer's looking for inconsistencies and omissions. Any disagreements between two reviewers were resolved through discussion, and, if necessary, a third reviewer was consulted for consensus. The reviewers next created a final list of significant statements which formed the major themes associated with CI perceptions. To enhance trustworthiness and credibility, the final list of significant statements along with the interview transcript was then emailed to each interview participant to give them an opportunity to provide feedback and request edits or clarifications.

Data Analysis: Quantitative

For the quantitative analysis, all CI data from eight cohorts of DPT student clinical rotations was pulled retrospectively from clinical education databases from the start of the South College DPT program (2016) until 2022. The primary questions of this study were focused on the outcome variable, preparedness for clinical rotation. CIs were asked first if the student was prepared for the clinical rotation and how preparedness compared to that of students from a 3-year DPT program. For the first question, if a CI chose well prepared or prepared, both were categorized as "prepared." The other two potential coded options included "somewhat prepared" and "not prepared," coded separately based on response. For the second question, options included "more prepared," "equally prepared," and "less prepared," and each of these three was coded separately.

Other dependent (outcome) variables included the dichotomous response to whether a CI would hire the student and if they would consider taking a future student from this institution. CIs were asked how long they had practiced as a physical therapist and how long they had been a CI.

When examining the independent variable of CI academic degree, results were examined with three categories: Bachelors, Masters, DPT (including transitional DPT degrees). For the independent variable of CI specialization, results were examined first with three categories for Orthopedic Certified Specialist (OCS), Fellow of the American Academy of Orthopedic Manual Physical Therapists (FAAOMPT), and other. Results were then examined pooling OCS and FAAOMPT into one category of "specialization" and another for no OCS or fellowship background.

Mean values with standard deviation and frequency counts were calculated for all descriptive sample information. Statistical analysis was completed using IBM SPSS Statistics version 27 (IBM Corp, Armonk, NY, USA). Nonparametric Spearman's correlation analysis was used to examine the relationship between a CI's years of experience as a physical therapist and years of experience as a CI with their perception of preparation for clinical education. An independent samples Kruskal–Wallis test was used to compare CI perception of preparedness between groups of CIs (groups based on CI academic degree, CI background of specialization). Alpha was set at 0.05 and significance level of $p < 0.05$ was used for all statistical comparisons.

Results

Participants

Of the 58 CIs noting interest in participating in the study, 36 met inclusion criteria; of those, 22 participants completed intake paperwork and underwent the interview process. The 14 incomplete data cases were due to CIs not scheduling the live interview. Demographic and background information, taken from the Study Screening Form, for the CIs is noted in Table 1.

Qualitative Findings

Each participant was asked a series of 12 questions (Table 2) and allowed to respond however they chose. Based on participant responses, several themes arose which are discussed below.

Theme 1: After working with students from a 2-year hybrid program, CIs report a positive or neutral impression when asked to compare to students from 3-year residential/on-site programs.

If the CI had a negative performance expectation of the 2-year hybrid student prior to the clinical rotation, almost all changed to a positive impression after working with the student. The majority of CIs also reported a positive or neutral difference when working with a 2-year hybrid student when compared to working with a student from a 3-year residential/on-site program.

One instructor stated, "Absolutely. I was excited when I got a South College student because they were more independent and invested in their learning. They were more willing to ask questions and do things that made them uncomfortable. Their decision making and clinical reasoning was ahead of the curve."

Theme 2: Students from 2-year hybrid programs are just as prepared or more prepared than students from 3-year residential/on-site programs regarding overall knowledge base and skill performance.

The majority of CIs reported a positive or neutral difference regarding student preparedness for hybrid accelerated students compared to students from 3-year residential/on-site programs.

In regard to this theme, a study participant reported, "Better. I think they were more willing to get their hands on patients. They were more willing to ask for feedback. With all the discussion and weekend intensives on campus, it helped them get more confidence and dive into it a little more." (The authors note that lab intensives at South College typically occur in 2 week blocks rather than on weekends.)

Theme 3: Students from 2-year hybrid programs are equally or more professional than students from 3-year residential/on-site programs including receiving critical feedback and developing collaborative relationships.

The majority of respondents reported a neutral or positive difference regarding student professionalism, response to critical feedback, and the student's ability to develop a collaborative relationship with their patients when compared to students from 3-year residential/on-site programs.

Another CI is quoted as saying, "South College students had a better understanding of why they were in clinic, to learn, so understood the feedback as a learning process and was able to take critical feedback."

Theme 4: Students from 2-year hybrid programs are more skilled or just as skilled as students from 3-year residential/on-site programs regarding differential diagnosis and clinical reasoning.

The majority of respondents reported a positive or neutral difference regarding student skill with differential diagnosis and clinical reasoning when compared to students from 3-year residential/on-site programs.

Another CI stated, "Overall better, there is an understanding of lateral thinking and hypothesis development, always a struggle coming out of school, the South College interns have a better understanding of the gray versus black/white, important in the application setting."

Quantitative Findings

A total of 1711 student records were included in this retrospective analysis. However, the response rate for each item varied (see survey data including response rate for each item in Table 3). The majority of CIs noted that DPT students from the 2-year hybrid program were prepared or well prepared for the clinical rotation, totaling 96.3% (Fig. 3). The majority of CIs reported students from the 2-year hybrid program were as prepared or more prepared than students from a 3-year residential/on-site program, totaling 89.0% (Fig. 4). When asked if they would hire their DPT student if an opportunity arose, 96.0% of CIs said yes. When asked if they would accept another DPT student from South College for a clinical rotation, 99.5% of CIs said yes (Table 3).

Table 3 Survey Response Items. A total of 1711 student records were included in this retrospective analysis. This table contains survey data including response rate for each item. *OCS* Orthopedic Certified Specialist, *FAAOMPT* Fellow of the American Academy of Orthopedic Manual Physical Therapists, *APTA* American Physical Therapy Association, *AAOMPT* American Academy of Orthopedic Manual Physical Therapists

Variable (sample responding to this item)	Category (*N*, percent)	Mean (sd)
Clinical instructor years of experience as a physical therapist (1425)		11.32 years (9.3)
Clinical instructor years of experience as a clinical instructor (1425)		7.55 years (7.9)
Clinical instructor specialization (1711)	OCS (330, 19.3%) FAAOMPT (60, 3.5%) Other (1321, 77.2%)	
Clinical instructor degree (1402)	Bachelors (133, 9.5%) Bachelors + transitional Doctor of Physical Therapy (59, 4.2%) Masters (165, 11.8%) Masters + transitional Doctor of Physical Therapy (30, 2.1%) Doctor of Physical Therapy (1015, 72.4%)	
Clinical instructor certifications (1407)	APTA (712, 50.6%) AAOMPT (3, 0.2%) APTA + AAOMPT (44, 3.1%) Neither (648, 46.1%)	
Clinical instructor would hire their student (324)	Yes (311, 96.0%) No (13, 4.0%)	
Clinical instructor would take another student from this institution (737)	Yes (733, 99.5%) No (4, 0.5%)	
Clinical instructor rating of preparation for clinical experience (785)	Well Prepared (415, 52.9%) Prepared (341, 43.4%) Somewhat or Minimally Prepared (28, 3.6%) Not Prepared (1, 0.1%)	
Clinical instructor rating of preparation compared to students from a 3-year program (474)	More prepared (121, 25.5%) About the same (301, 63.5%) Less prepared (52, 11.0%)	

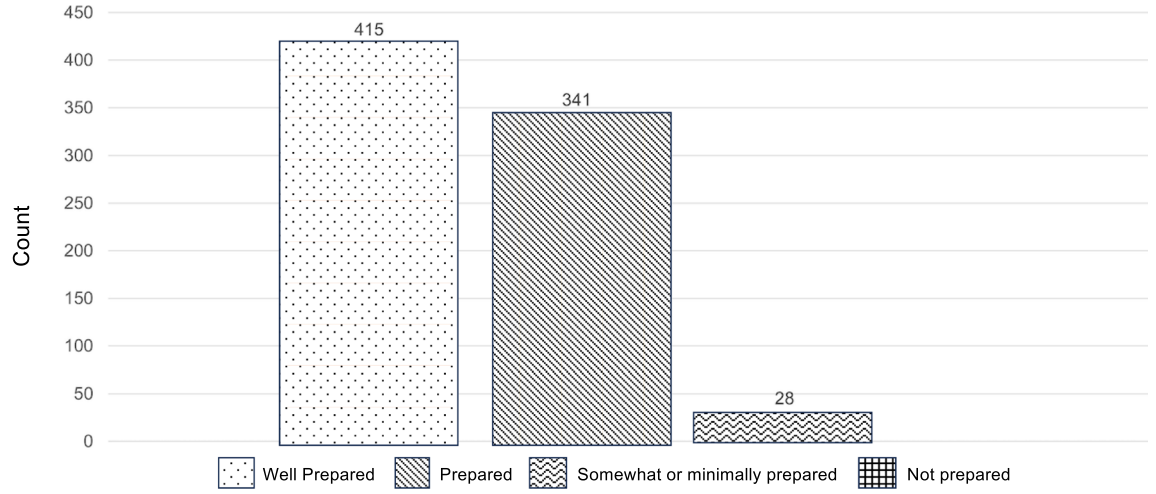

Fig. 3 CI perception of preparedness in 2-year hybrid program. Legend: The majority of CIs noted that DPT students from the 2-year hybrid program were prepared or well prepared for the clinical rotation, totaling 96.3% (total $N=785$). *CI* clinical instructor

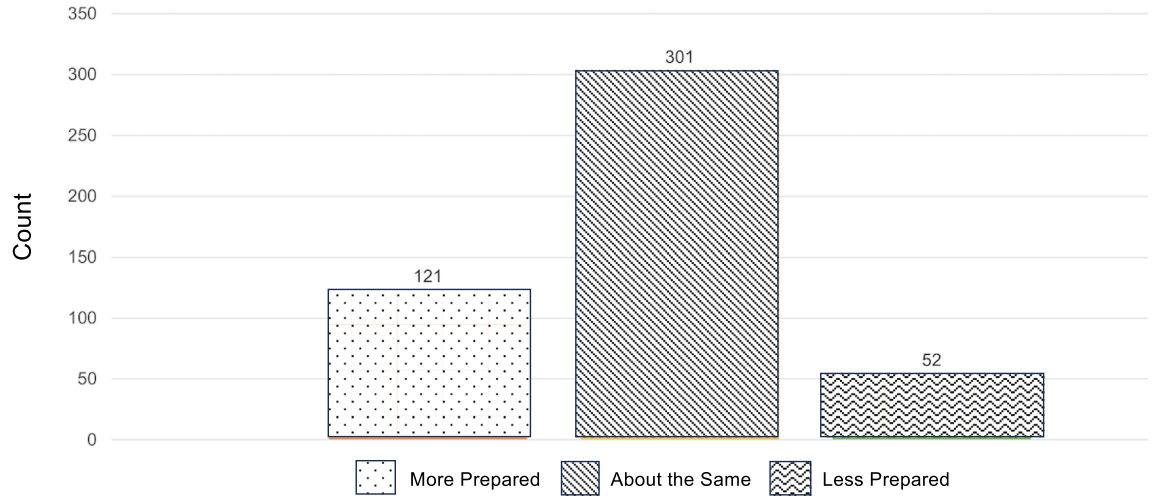

Fig. 4 CI perception of preparedness, comparison between 2-year hybrid and 3-year residential/on-site programs. Legend: The majority of CIs reported students from the 2-year hybrid program were as prepared or more prepared than students from a 3-year residential/on-site program, totaling 89.0% (total $N=474$). *CI* clinical instructor

Relationship between CI Experience (as A Clinician and as A CI) and Preparation Scores

A Spearman's rank-order correlation was conducted to assess the relationship between a CI's rating of preparation for clinical rotation and the CI's years of experience as a physical therapist and years of experience as a CI. There was no statistically significant correlation between years of physical therapy experience and overall clinical preparedness rating ($\rho(1423)=0.024$ (95% CI − 0.055, 0.103), $p=0.538$). There was also no statistically significant correlation between years of physical therapy experience and preparedness rating compared to students from a 3-year program ($\rho(1423)=0.047$ (95% CI − 0.046, 0.139), $p=0.311$). There was no statistically significant correlation between years of CI experience and overall clinical preparedness rating ($\rho(1423)=0.014$ (95% CI − 0.093, 0.066), $p=0.722$). There was also no statistically significant correlation between years of CI experience and preparedness rating compared to students from a 3-year program ($\rho(1423)=0.011$ (95% CI − 0.104, 0.083), $p=0.819$).

Between-group differences were examined for the outcome of CI rating of overall preparedness for clinical rotation and again for CI rating of preparedness as compared to students from a 3-year residential/on-site program. Groups were examined based on CI education and CI specialty using a Kruskal–Wallis *H* test.

For all between-group comparisons, distributions of scores were similar for all groups as assessed by visual inspection of a boxplot. There was no statistically significant difference between

CIs based on their specialty (Orthopedic Certified Specialists, Fellows of the American Academy of Orthopedic Manual Physical Therapists, or those without these specialties) for the ratings of student preparation overall or their preparation compared to that of students from a 3-year program: $\chi^2(1)=1.01$, $p=0.315$; $\chi^2(1)=1.65$, $p=0.199$, respectively (see Fig. 5). There was no significant difference between CIs based on their education (Bachelor's, Master's, Doctorate (including transitional DPT)) for ratings of student preparation overall or their preparation compared to that of students from a 3-year program: $\chi^2(2)=0.727$, $p=0.695$; $\chi^2(2)=0.031$, $p=0.985$, respectively (see Fig. 6).

Discussion

The current physical therapy practice environment is increasing in complexity and employers expect graduates to be prepared to enter and thrive in this environment. At the same time, models of DPT education are evolving. Hybrid and 2-year DPT models have received criticism regarding potential problems in the efficacy and quality of student performance on clinical rotation. Results of this study demonstrate graduates from these programs not only meet CI expectations but often exceed them when compared to students from 3-year residential/on-site models. The average ultimate National Physical Therapy Examination pass rate for cohorts that were included in this study was 97.6%, graduates reported 100% employment on alumni surveys, and employer surveys indicated 97.5% of these students graduating from the program were as prepared or more prepared than other new graduates they have hired. The combination of this data and findings from our study indicates the 2-year hybrid model can be a sound alternative to the 3-year residential/on-site model for DPT education.

An interesting finding from our qualitative data is that there is a common CI misperception that students from a 2-year hybrid program will be less prepared than their 3-year residential/on-site counterparts. The data gathered from our retrospective data analysis and from the CI interviews demonstrates that once CIs interact and work with students from 2-year hybrid programs, their perceptions change. CIs with specialty certifications or FAAOMPT status report students from this 2-year hybrid program are meeting and exceeding CI expectations. Similar to other hybrid DPT programs, this model of education is hybrid, not online; students spend a significant amount of time in on-site hands-on training. As entry-level DPT education continues to evolve, many more programs are adding a hybrid option to their existing program, targeting students unable to relocate. There will be more hybrid students in entry-level DPT programs, and it is important for CIs to understand that the student quality is similar between models. All overarching themes were positive in nature; there were no negative themes or repeated statements; however, a few negative comments were received during interviews. These negative comments were isolated and mostly related to specialty

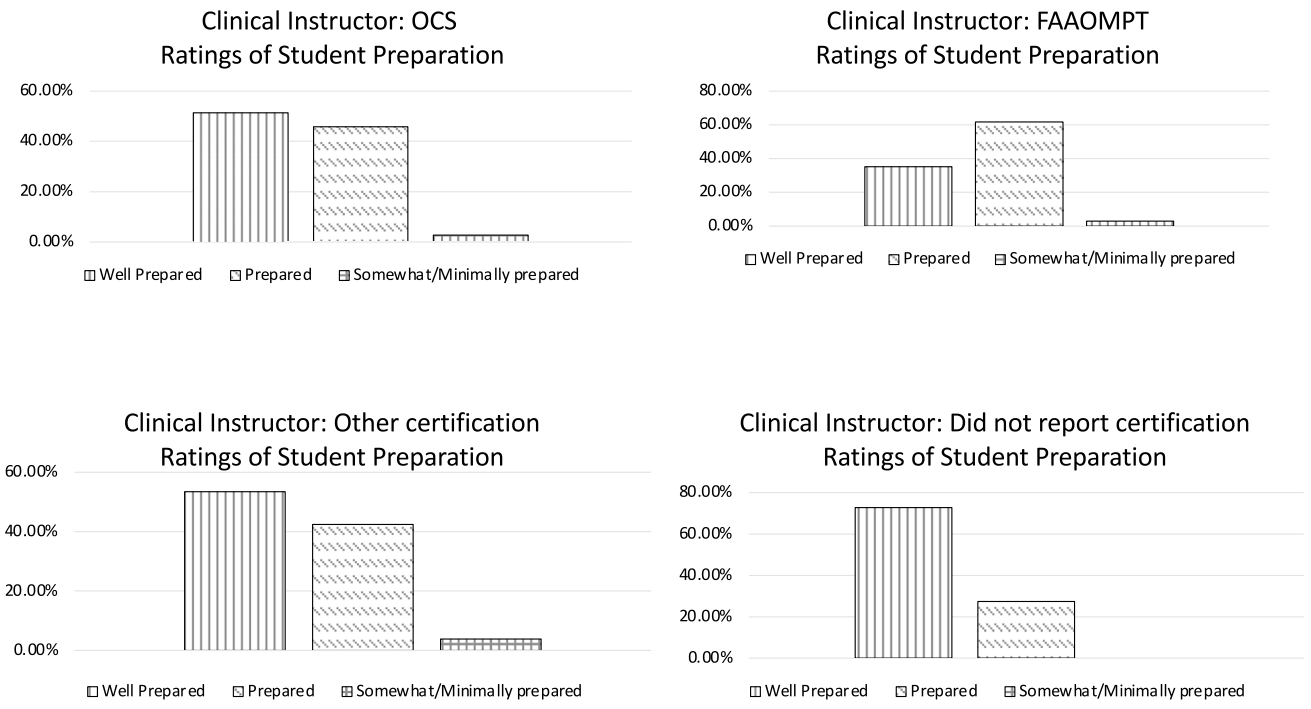

Fig. 5 CI ratings of student preparation for clinical rotations organized by CI certification. Legend: CIs reported a certification of OCS Orthopedic Certified Specialist, FAAOMPT Fellow of the American Academy of Orthopedic Manual Physical Therapists, or other. *CI* clinical instructor

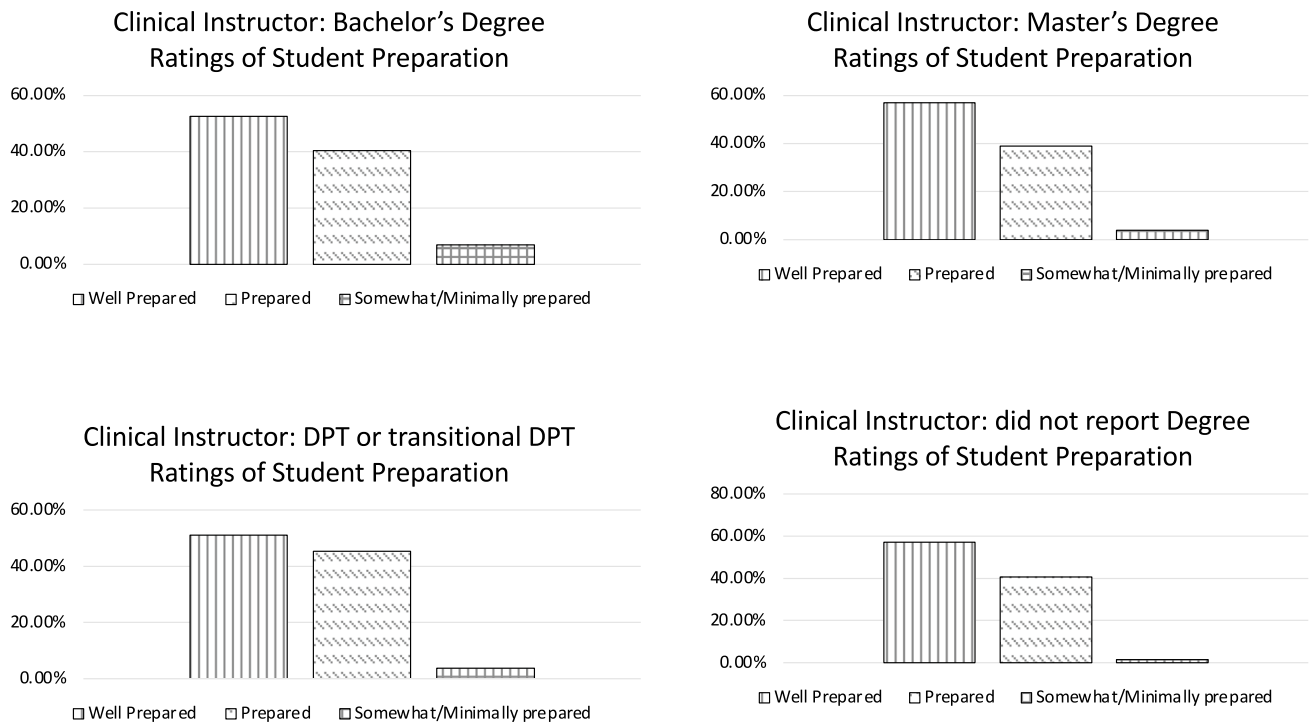

Fig. 6 CI ratings of student preparation for clinical rotations organized by CI degree. Legend: CIs reported a degree of Bachelor's, Master's, or Doctorate. *CI* clinical instructor

clinical settings that would be beyond entry-level expectations for DPT students on clinical rotations.

Data for this study was gathered from 2016 through 2023 which included time during the COVID-19 pandemic. It is important to note that due to the hybrid nature of our program, we were well-suited to weather pandemic challenges with very few changes to our program compared to programs that had to adjust quickly to the hybrid format. Throughout the pandemic, we were able to maintain high CI ratings of student preparedness, performance, and professionalism as evidenced by the data presented here.

Student debt threatens the sustainability of our profession at a time when the demand for our services is growing at an alarming rate. As education delivery and technology continue to change, exploration of hybrid delivery for DPT education is warranted. If this model of education can produce similar clinical outcomes at a potentially lower cost with quicker time to completion, it may be a sustainable and valuable option.

Limitations

The current study was limited to a single 2-year hybrid DPT program and may not be generalizable to other programs. All available data was analyzed for the retrospective analysis, but some gaps in data did occur due to dependence on CI survey response rate and variability in response to individual questions. Although no relationship between interviewers and participants was intentionally established prior to the interview process, due to the nature of the interviewer's status as Directors of Clinical Education and South College faculty, and the participants as CIs for South College, there were interactions between interviewers and CIs before this study due to the standard clinical education process. Although concepts of clinical reasoning and professionalism were assessed quantitatively through the Clinical Instruction Evaluation Tool, a student assessment tool used during clinical rotation, qualitatively they were assessed through CI interview only which may not reveal all facets of these complex concepts.

Conclusion

CIs reported a positive or neutral difference in preparedness and professionalism when working with a 2-year hybrid DPT student when compared to working with a student from a 3-year residential/on-site program. More specifically, the CIs noted students from 2-year hybrid programs are just as prepared or more prepared than students from 3-year residential/on-site programs regarding overall knowledge base, skill performance, differential diagnosis, and clinical reasoning. CI ratings of student preparedness were not related to the CI's background, education, or area of specialty practice. Qualitative analysis revealed four themes which spoke to student

preparedness, performance, professionalism, and clinical reasoning. Almost all CIs reported that students from a 2-year hybrid program were as strong or stronger than students from a 3-year residential/on-site program in each of these areas. If the CI had a negative performance expectation of the 2-year hybrid student prior to the clinical rotation, almost all changed to a positive impression of the student following the rotation.

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Authors' Contributions All authors contributed to the study conception and design. Project management was performed by Christina Myers. Data collection was performed by Christina Myers, Hannah Norton, and Aubrey Thompson. Data analysis was performed by Christina Myers, Hannah Norton, Breanna Reynolds, and Judith Moore. All authors contributed to the first draft of the manuscript and contributed to revisions. All authors read and approved the final manuscript.

Data Availability The data underlying this article will be shared on reasonable request to the corresponding author.

Declarations

Ethics Approval Consent to Participate This study was approved by the Institutional Review Board of South College before initial data collection, protocol number 22–018. This study conforms to recognized standards and all participants provided signed informed consent. Participation was voluntary. All participants gave their written informed consent.

Consent for Publication All co-authors have read the final version of the manuscript and have approved its submission to *Medical Science Educator*.

Competing Interests The authors declare no competing interests.

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