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Relationship Between Allied Health Student's Behavioral Style and Ideal Clinical Instructor Behaviors

Tonya Y. Miller
Harrisburg University of Science and Technology, tmiller2@harrisburgu.edu

Robert Creath
Lebanon Valley College, creath@lvc.edu

Eva M. Frank
Lebanon Valley College, frank@lvc.edu

Lori Portzer
Lebanon Valley College, portzer@lvc.edu

Jennifer Price
Lebanon Valley College, jprice@lvc.edu

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Abstract

Purpose*:* The focus of this research is to understand the relationship between students' primary DISC behavioral styles (dominant, influencing, steadiness, compliance) and their perception of ideal clinical instructor behaviors. A review of the literature supports the connection between the behaviors of the clinical instructor (CI) and the success of the allied health professional student (AHPS). Additionally, a body of research supports the connection between DISC behavioral styles and student success. The purpose of this study is to examine the relationship between AHPS primary DISC behavioral styles and their perception of the ideal CI behaviors. Methods*:* A total number of n=90 participants completed the Allied Health Professional Preceptor Assessment exploring ideal CI behaviors and the DISC assessment across the three disciplines of athletic training (14), exercises science (7), and physical therapy (69). Results: S (steadiness) scores had the highest frequency (53.3%), followed by I (influencing) (22.2%), then C (compliance) (13.3.7%), and lastly, D (dominant) (11.1%). Using regression modeling, the "D" model (p=0.01) and the "S" model (pConclusion:This study provides preliminary evidence for the DISC behavioral assessment as a tool to inform CIs in ways to engage AHPS effectively. The findings of this study provide applicable techniques for CIs mentoring students with "D," "S," and "C" primary behavioral styles. Further research is warranted to determine engagement strategies for "I" primary behavioral styles. By leveraging these findings, clinical education programs can provide CIs with simple behavioral techniques to best engage students based on the student's primary behavioral style.

Author Bio(s)

Tonya Y Miller PT, DPT, Ph.D. is the Academic Program Lead for the Doctor of Physical Therapy at Harrisburg University of Science and Technology in Harrisburg, PA. She is also a licensed physical therapist in the state of Pennsylvania.

Robert Creath, Ph.D., is an Associate Professor and Director of the Lewis Human Performance Lab in the Exercise Science Program at Lebanon Valley College in Annville, PA.

Eva Frank, Ph.D., LAT, ATC, is an Assistant Professor in the Athletic Training Program at Lebanon Valley College in Annville, PA.

Lori Portzer, Ph.D. ACSM-EP, is an Assistant Profesor in the Exercise Program at Lebanon Valley College in Annville, PA.

Jennifer Price, PT, DPT is an Assistant Professor and Director of Clinical Education in the Physical Therapy Program at Lebanon Valley College in Annville, PA. She is a Board Certified Clinical Specialist in Pediatric Physical Therapy and is a licensed physical therapist in the state of PA.

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Tonya Y. Miller[1]
Robert Creath[2]
Eva M. Frank[2]
Lori Portzer[2]
Jennifer Price[2]

1. Harrisburg University of Science and Technology
2. Lebanon Valley College

United States

ABSTRACT

Purpose*:* The focus of this research is to understand the relationship between students' primary DISC behavioral styles (dominant, influencing, steadiness, compliance) and their perception of ideal clinical instructor behaviors. A review of the literature supports the connection between the behaviors of the clinical instructor (CI) and the success of the allied health professional student (AHPS). Additionally, a body of research supports the connection between DISC behavioral styles and student success. The purpose of this study is to examine the relationship between AHPS primary DISC behavioral styles and their perception of the ideal CI behaviors. **Methods***:* A total number of n=90 participants completed the Allied Health Professional Preceptor Assessment exploring ideal CI behaviors and the DISC assessment across the three disciplines of athletic training (14), exercises science (7), and physical therapy (69). **Results:** S (steadiness) scores had the highest frequency (53.3%), followed by I (influencing) (22.2%), then C (compliance) (13.3.7%), and lastly, D (dominant) (11.1%). Using regression modeling, the "D" model ($p=0.01$) and the "S" model ($p<0.01$) have three significant predictors of CI behaviors. The "C" model has two significant predictors of CI behaviors ($p<0.05$). The "I" model did not produce any significant predictors. **Conclusion:** This study provides preliminary evidence for the DISC behavioral assessment as a tool to inform CIs in ways to engage AHPS effectively. The findings of this study provide applicable techniques for CIs mentoring students with "D," "S," and "C" primary behavioral styles. Further research is warranted to determine engagement strategies for "I" primary behavioral styles. By leveraging these findings, clinical education programs can provide CIs with simple behavioral techniques to best engage students based on the student's primary behavioral style.

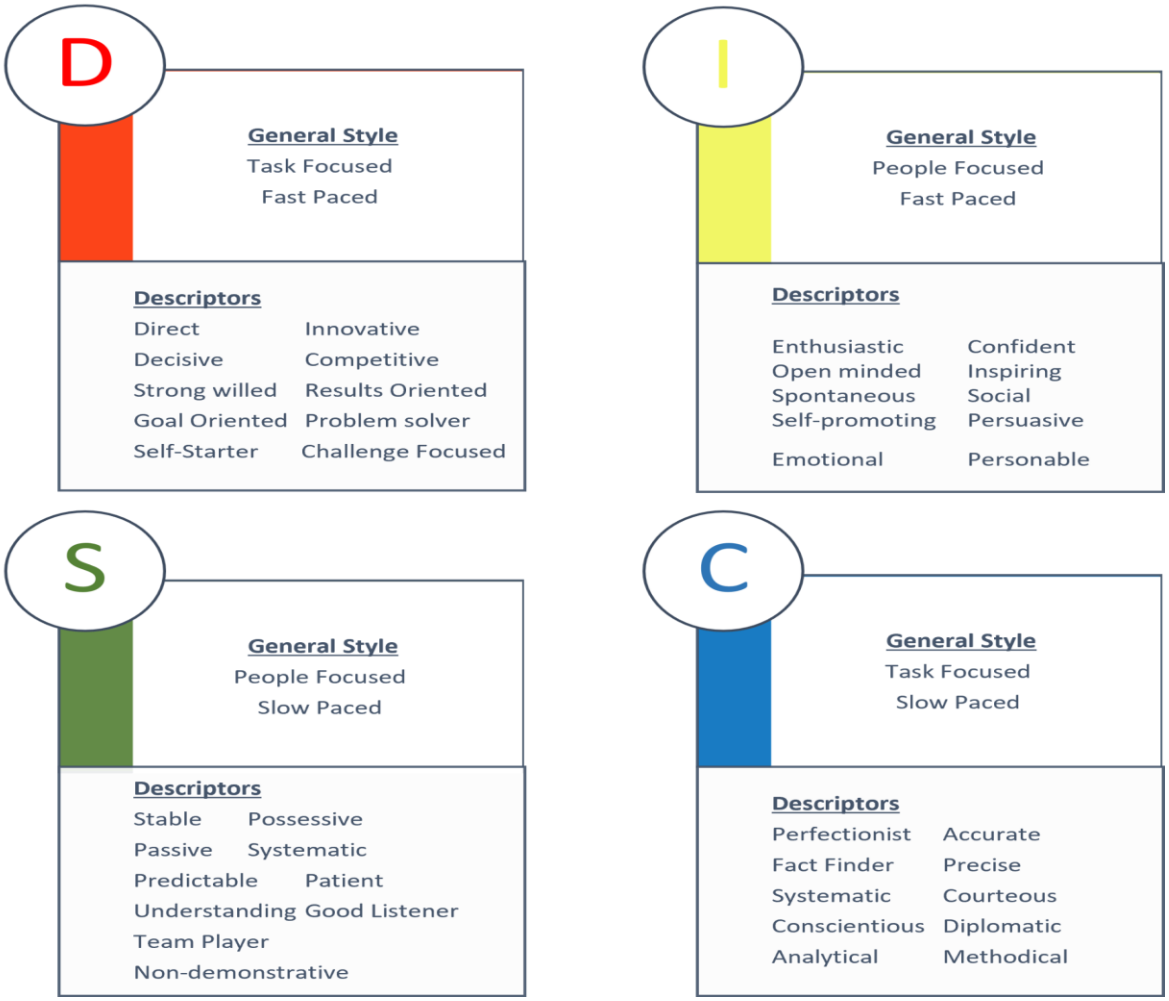
Keywords: professionalism, teaching materials, exercise science, physical therapy specialty

INTRODUCTION

Allied health professional programs, such as Athletic Training, Exercise Science, and Physical Therapy, utilize clinical education as a means to reinforce classroom learning.[1,2] The reliance on clinical education places the clinical instructor (CI) in a position to influence student success.[1,3,4] As an example, in the Doctorate of Physical Therapy program, nearly 30% of the educational requirements depend on the student's successful interaction with the CI.[1,3,4] There is value in examining the behaviors of the CI as it relates to the student's individualized needs as a part of the clinical education process.[5–7] By having a method to understand the relationship between a student's behavioral style and a CI's behaviors, educational programs gain a tool to enhance students and CI interactions, thus providing the opportunity for improved clinical, educational experiences.

The DISC behavioral assessment (DISC) is a valid and reliable tool that examines the behavioral style of an individual.[8] The DISC quantifies human behaviors into four quadrants titled dominance, influencing, steadiness, and compliance.[8,9] The theoretical work of William Marston, M.D., as published in *Emotions of Normal People* (1928), describe four latent dimensions of behaviors that developed into the current DISC.[8,10] As outlined in Figure 1, the four DISC quadrants each consist of predictable behavioral characteristics.[8] The DISC assessment tool is helpful in the academic setting due to its cost-effectiveness, ease of administration, and ease of interpretation.[8,11–13] By utilizing DISC, the researchers strive to understand the relationship between allied health professional students (AHPS) DISC and their perception of ideal CI behaviors. Understanding this relationship could improve CI's understanding of student engagement and enhance the student's educational experience. Knowledge of the variation by DISC quadrants provides educational programs insight to leverage the DISC assessment as a tool to assist with CI education on student engagement techniques to optimize student success in clinical education.

Figure 1. DISC Behavioral Styles



Prior studies demonstrate the role of the DISC assessment as a tool for the academic setting, including examining academic success, determining ideal job roles, and mentorship placement.[8,11,14,15] For example, a study examining entrance evaluations of students discussed the relevance of understanding DISC behavioral styles in surgical residency programs.[12] This study concluded that although there was no right or wrong fit based solely on DISC behavioral styles, understanding DISC behavioral styles gave insight into coaching and mentoring strategies for program success.[12] A follow-up study examined the relationship between 117 surgical residents DISC and their exam performance. It found that specific DISC indicators correlated to residents who may be at risk for deficient exam performance.[11] A similar study examined the relationship between DISC and student grade point average for 211 high school students and found significantly different mean scores related to behavioral tendencies.[15] Researchers demonstrated the role of DISC in enhancing professional competency.[16] The researchers found that the assessments gave students insight into six different areas related to workforce interactions. These areas included: working in a team environment, career matching, ability to best communicate their strengths and ideal work environment, access to norm-referenced competencies, and insight into their perspectives. This insight provided students with a deeper understanding of mentorship opportunities.[16] Expanding upon the role of student success, others found a connection between understanding DISC behavioral styles and career success in nursing leadership.[13] Nursing leaders who incorporated awareness of team members' DISC behavioral styles enhanced team communication and effectiveness.[13] The examples from the literature demonstrate the utility of the DISC in student success. Building on the literature, this study examines the potential of the DISC in AHPS clinical placement by examining the relationship of AHPS primary DISC behavioral quadrants to CI behaviors.

The role of the CI is essential in preparing AHPS to assume the roles and responsibilities of their professions. The CI has a pivotal role in shaping the interpersonal, communication, and clinical skills of the AHPS.[7,17,18] Research supports a connection between the behaviors of the CI and the success of students. In 1984, Emery first explored the Bachelor of Physical Therapy Students' perspective of CI effectiveness in physical therapy. This study described 43 characteristics divided into four categories of communication, interpersonal relations, professional skills behaviors, and teaching as necessary qualities of a CI. Emery found that students desired CIs to possess competency in the communication, interpersonal relations, and teaching categories but found CIs lacking in these areas.[19] The results of this study provided the foundation for the American Physical Therapy Associations' Credentialed Clinical Instructor Program (CCIP), which aims to develop physical therapy CIs' skills in these domains. In 2016 researchers used the Clinical Behavior Assessment Form to explore the perceptions of CI behaviors by doctoral physical therapy students following the completion of their final clinical experience. They found that students rated interpersonal relations as the highest importance, followed by communication, professional skills, and teaching behaviors. This study demonstrated the ongoing importance of the perception of CI behaviors by physical therapy students regardless of entry-level degree status.[7]

Studies support similar behaviors in other allied health professions. A literature review examined allied health professions and medical physicians and found that good communication skills, interpersonal skills, teaching skills, and professional skills were key desired characteristics of clinical instructors.[5] Others identified several themes related to exemplary CIs in physical therapy programs. These themes included creating and maintaining an open, collegial relationship, adapting the experience to the student, facilitating clinical reasoning, making time for the student, and environmental support. Of these themes, open communication was the most crucial factor in a positive learning experience, even beyond day-to-day clinical activities.[18]

Research supports the connection between the behaviors of the CI and the success of the AHPS. Additionally, a body of research supports the connection between DISC and student success. The aim of this study is to examine the relationship between AHPS DISC primary behavioral style and their perception of the ideal CI behaviors.

METHODS

Subjects

A convenience sample of students enrolled at Lebanon Valley College in the Master of Athletic Training, Bachelor of Science in Exercise Science, or the Doctoral of Physical Therapy programs participated in the study. The study included students enrolled in clinical education or practicum. Student cohort participation ranged from fourth-year undergraduate students enrolled in the exercise science program, graduate students completing their second year of the Master of Athletic Training program, and graduate students completing their third year of the Doctoral of Physical Therapy program. (Table 1)

Table 1. Subject Characteristics

Subject Characteristics	
Characteristics	**All subjects(n=90)**
Gender	
Male	16 (17.8%)
Female	71 (80.0%)

Subject Characteristics	
Characteristics	**All subjects(n=90)**
Not Identified	2 (2.2%)
Age (years)	22.2±1.36
Race/Ethnicity	
Hispanic/Latino	2(2.2%)
Asian, not Hispanic/Latino	2(2.2%)
Black or African American, not Hispanic/Latino	2 (2.2%)
White, not Hispanic/Latino	80 (88.9%)
Two or more races	4 (4.4%)
Academic Focus	
Athletic Training	14 (15.6%)
Exercise Science	7 (7.8%)
Physical Therapy	69 (76.7%)
Values are n (%) or mean ± SD.	

Research Design

This study utilized a nonexperimental survey methodology. Students who met the inclusion criteria received a recruitment email. Upon consent to participate in the study, students evaluated CI behaviors utilizing the Allied Health Professional Preceptor Assessment via the online Qualtrics survey and the DISC assessment via Talent Insight Assessment provided by TTI Success Insights. Lebanon Valley College Institutional Review Board (IRB) approved this study.

Data Collection

Researchers obtained permission from the American Physical Therapy Association to use the CI Behavior Survey developed by Emery.[20] The research team adapted the Clinical Instructor Behavior Survey Form to reflect language inclusive to all three programs entitled the Allied Health Professional Preceptor Assessment (AHPPA). The electronic Qualtrics survey included consent, demographics, and AHPPA. If a participant consented to participate, they moved on to the survey. The demographic section gathered data about the age, gender, race/ethnicity, academic degree focus, current academic year, and an estimated number of clinical education credits completed. The AHPPA consisted of four categories: communication, interpersonal relations, professional skills, and teaching behaviors, totaling 43 observable behaviors in the CI.[7,19] Each participant rated the importance of the CI behaviors to achieve effective clinical education. A Likert scale included the choices significant, moderately significant, somewhat significant, and not significant at all (Table 2).

Table 2. Allied Health Professional Preceptor Assessment Behaviors

Clinical Instructor Behavior	**Importance Rating Mean (95%, CI)**
Communication	
Provides Useful Feedback	1.11 (1.04, 1.18)
Communicates in a nonthreatening manner	1.17 (1.08, 1.25)
Makes him/herself understood	1.23 (1.14, 1.31)
Open in discussing issues	1.27 (1.17, 1.36)
Teaches in an interactive way, encourages dialog	1.29 (1.17, 1.41)
Is an active listener	1.29 (1.19, 1.39)
Provides Timely feedback	1.36 (1.23, 1.48)
Provides positive feedback on performance	1.47 (1.33, 1.60)
Openly and honestly reveals perception of student	1.50 (1.36, 1.64)
Provides feedback in private	1.83 (1.64, 2.06)
Interpersonal Relations	
Genuine concern for patients	1.09 (1.03, 1.15)
Demonstrates positive regard for students as a person	1.20 (1.11, 1.29)
Establishes environment student feels comfortable in	1.30 (1.18, 1.42)

Clinical Instructor Behavior	Importance Rating Mean (95%, CI)
Presents students as a professional to others	1.34 (1.23, 1.46)
Provides appropriate support for student concerns	1.30 (1.20, 1.40)
Is empathetic	1.39 (1.27, 1.51)
Professional Skills	
Employs Clinical Practice with competence	1.18 (1.09, 1.27)
Demonstrates Professional Behavior as a team member	1.22 (1.13, 1.32)
Serves as an appropriate role model	1.19 (1.10, 1.28)
Demonstrates appropriate role of professional	1.22 (1.13, 1.32)
Explains the basis for intervention based on evidence	1.43 (1.31, 1.56)
Demonstrates a systematic approach to problem-solving	1.43 (1.31, 1.56)
Explains physiological basis of examination	1.51 (1.36, 1.66)
Manages own time well	1.50 (1.38, 1.62)
Demonstrates leadership among peers	1.53 (1.39, 1.68)
Teaching	
Is available to student	1.20 (1.12, 1.29)
Makes effective learning experiences out of situations (teachable moments)	1.19 (1.10, 1.29)
Provides students with learning opportunities	1.20 (1.11, 1.29)
Questions/Coaches in a way to facilitate learning	1.38 (1.26, 1.51)
Is accurate and objective in documenting student performance evaluation	1.38 (1.25, 1.51)
Makes the formal evaluation a constructive process	1.47 (1.34, 1.60)
Provides a variety of patients	1.52 (1.38, 1.66)
Draws a relationship between academic knowledge and clinical practice	1.30 (1.19, 1.42)
Makes the students' time constructive	1.38 (1.27, 1.50)
Points out discrepancies in students' performance	1.39 (1.26, 1.52)
Plans effective learning experiences	1.55 (1.41, 1.68)
Provides unique learning experiences	1.56 (1.41, 1.70)
Is perceived as a consistent extension of the academic program	1.64 (1.49, 1.79)
Observes performance in a discrete manner	1.88 (1.72, 2.06)
Is timely in documenting students' performance	1.62 (1.46, 1.78)
Assists the student to define specific objectives for clinical education experience	1.70 (1.53, 1.86)
Schedules regular meetings with the student	2.17 (1.97, 2.37)
Plans learning experiences before the student arrives	2.06 (1.87, 2.24)
Values are mean (95% CI)	

AHPS completed an online DISC assessment entitled Talent Insight Assessment provided by TTI Insight for this research project. Each student received a copy of their DISC assessment. The DISC categorizes participants into four quadrants and provides a tendency score from 0-100 for each of the four quadrants. The quadrant with the highest numerical score translated to AHPS's DISC quadrant style (Figure1).[8]

Statistical Analysis

SPSS version 26.0 was used for statistical analysis. An alpha level of 0.05 was used to define statistical significance Data analysis included descriptive statistics of participant demographics The means and 95% confidence intervals for the importance of each CI behavior were calculated using a one-sample t-test as all assumptions were met. R version 3.5.2 was used to run the regression models. Four separate regression models were tested, one for each DISC quadrant. Pearson correlations calculated between the DISC quadrants and the student questionnaire reduced the number of predictors.[21]

The means and 95% confidence intervals for the importance of each preceptor behavior were calculated using a one-sample t-test as all assumptions were met. Values are mean (95% CI). 1.00 indicates greater importance.

The general form of the models was: Y(DISC) = b1x1 + b2x2 + b3x3 + … + bnxn + b0 (1)
Where Y(DISC) is the outcome for the four models, x1 … xn are the predictor variables, b1 … bn are the associated regression coefficients, and b0 is a constant.

Significant correlations were used as starting points to build four top-down models using the R programming language (functions lm and ANOVA). Overall significance was determined for each model using the summarize function. Predictor significance was determined using the function ANOVA.[22]

A model containing all correlated predictors utilized stepwise elimination of predictors for a specific category (D, I, S, and C). The sequence for elimination started with the predictor with the highest p-value and repeated to obtain the final model. Significance was determined for alpha ≤ 0.05.

Since this was an exploratory study with an unknown number of variables, no correction was made for the multiplicity of testing.

RESULTS
A total of n= 90 subjects recruited to participate in this study completed the DISC assessment and the AHPPA. Seventy-two respondents self-identified as female, sixteen respondents self-identified as male, and two respondents chose not to identify as either male or female. The average age of respondents was 22.2 ±1.36 years. The majority of the respondents (88.9%) self-identified as white, not Hispanic/Latino. Fourteen subjects responded from the Athletic Training Program, seven responded from the Exercise Science program, and 69 responded from the Physical Therapy Program (Table 1).

"D" Score values ranged from 3-92 with a mean of 34.01 ± 23.652. The "I" score values ranged from 6-94 with a mean of 57.16 ± 23.504. "S" score values ranged from 8-100 with a mean of 72.39 ± 22.814. "C" score values ranged from 6-94 with a mean of 53.48± 26.672. Subjects were stratified by their highest DISC score. "S" scores had the highest frequency (53.3%), followed by "I" (22.2%), then "C" (13.3.7%), and lastly, "D" (11.1%). This dispersion of behavioral quadrants is representative of the normative DISC trend.[8,23] (Table 3)

Table 3. Clinical Instructor Behavior: Mean Importance

Clinical Instructor Behavior: Mean Importance		
	Mean Score	**n**
"D" Category		
C5: Teaches in an interactive way; encourages dialogue	1.10 (0.316)	10
T10: Points out discrepancies in students' performance	1.10 (0.316)	10
"S" Category		
C2: Communicates in a non-threatening manner	1.10 (0.309)	48
C10: Provides feedback in private	1.67 (0.808)	48
PS9: Demonstrates leadership among peers	1.65 (0.758)	48
"C" Category		
C5: Teaches in an interactive way; encourages dialogue	1.33 (0.651)	12

AHPPA consists of 43 behaviors broken down into four categories (Communication, Interpersonal Relations, Professional Skills, and Teaching). When rating the AHPPA, mean importance ranges from one (1) "most important" to four (4) "least important". The students scored 41 of the 43 behaviors as meaningful, with a mean score of less than two. Examining the relationship for DISC quadrants identified significant regression models for the 'D", "S," and "C" quadrants. The "I" model did not produce any significant predictors. For the "D" model (p(D)=0.01, R^2=0.10), behaviors c5 "Teaches in an interactive way; encourages dialogue" (p(c5)=0.04) and t10 "Points out discrepancies in students' performance" (p(t10)=0.03) were significant. For the "S" model (p(S)<0.01, R^2=0.18), behaviors c2" Communicates in a non-threatening manner" (p(c2)=0.01), c10 "Provides feedback in private" (p(c10)=0.03) and ps9 "Demonstrates leadership among peers" (p(ps9)<0.01) were found to be significant. For the "C" model (p(C)<0.05, R^2=0.04), behavior c5, "Teaches in an interactive way; encourages dialogue" (p(c5)=0.05), was significant. (Table 2)

DISCUSSION

This study aimed to evaluate the relationship between AHPS DISC and their perceptions of ideal CI behaviors. The findings of this study suggest a relationship between ideal CI behaviors and AHPS DISC for three of the DISC behavioral quadrants: D, S, and C. These findings are consistent with prior studies which suggest that the DISC behavioral assessment provides educational programs insight into how students engage in the learning environment and how educational programs may leverage resources for student success.[11,12,16] Research examining the role of DISC behaviors in determining fit for surgical training found that although there was no "right or wrong" style for a surgeon, the DISC tool helped determine a good fit for their particular training program and gave insight into how individuals dealt with challenges, pace, and compliance.[11,12] Gaining this insight allowed the program to determine which individuals may need more coaching and direction than self-directed learners.[12] Based on the findings of this study and the studies examining surgical resident placement, clinical education coordinators should consider utilizing DISC as a tool to understand the specific needs of the student better to optimize student success through coaching and mentoring.[11,12]

The clinical education component of allied health profession education is crucial for demonstrating professional competency.[1–3] Providing tools and resources to CIs which guide them to understand better ways to interact with AHPS gives CIs a foundation to build strong relations and enhance learning in the clinical setting. Other professions found a positive relationship between professional competencies such as team building and successful mentorship and the student's understanding of DISC behavioral styles.[16] A CI and AHPS, understanding the student's DISC behavioral quadrant provides insight into mentorship and student workforce interactions.[16,23] Clinical education coordinators should consider training CIs and APHS on ways to incorporate the understanding of DISC behavior quadrants into building mentoring relationships. For example, AHPS should understand behavioral opportunities and challenges based on their primary DISC behavioral quadrants and communicate them to the CI to build on strengths and address areas of challenges. The CI should connect the DISC behavioral quadrants to the most ideal CI behaviors and find ways to incorporate them into positive student interactions. This research provides insight for CIs to align their behaviors with student behaviors in the D, S, and C quadrants. By leveraging these findings, clinical education programs can provide CIs with simple behavioral techniques to best engage students based on the student's primary behavioral quadrant.[16]

This study adds to a growing field of inquiry into the role of DISC behavioral styles in successful healthcare student and workforce interactions. Clinical instruction and mentorship are crucial to the success of healthcare professions. Research examining ways students participate in clinical education, the relationship between CI and students, and how clinicians interact with one another provides support for the use of standardized, reliable, and valid tools such as DISC behavioral assessment in healthcare education and professional development.[11–13]

Limitations

Several limitations exist in this study. First, the study sample was one of convenience, focusing on students from a single institution, and the demographics of study participants were skewed toward white women enrolled in a Doctor of Physical Therapy program. Although this sample represents the field of physical therapy race and gender norms, a larger sample size with demographics that reflect society, in general, would provide more insight into the application of the DISC behavioral assessment in allied health profession educational programs.[4,24] Future research should seek to examine DISC behaviors in more diverse educational programs which represent society in general. The study focused solely on connecting the ideal CI behaviors and AHPS DISC behavioral styles and did not explore ways to incorporate the connections into practice. Additionally, the research focused on the AHPS's primary DISC behavioral style and did not consider the impact of the absence of behavioral styles or the influence of blended styles.[12] Future studies should expand the examination of DISC behaviors beyond the primary quadrant by exploring the blended styles of individuals and their correlation to CI behaviors and employ qualitative methods exploring student and CI perception of the value of the DISC behaviors in the CI and student interactions. Finally, students participating in the study had varying degrees of clinical education and, therefore, varied time working with clinical instructors, which may influence their understanding of ideal CI behaviors. Longitudinal studies examining ideal CI behaviors over time for each AHPS DISC behavioral style will provide a deeper understanding of the DISC behavioral style assessment application in clinical education.

CONCLUSION

Clinical education plays a crucial role in allied health education. Providing tools to CIs to better understand how to engage students in clinical learning is vital to clinical education success. This study's findings provide preliminary statistical evidence that primary student DISC behavioral quadrants respond to different CI behaviors and align with prior research indicating a positive connection between understanding DISC behavioral styles and student and healthcare professional's success.[11–13,16] By leveraging these findings, physical therapy educational programs can implement a cost-effective assessment to provide CIs with strategies to engage students more effectively in the clinical education experience.

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