

# Variability in Clinical Integration Achieved by Athletic Training Students Across Different Clinical Sport Assignments

Thomas M. Dodge, PhD, ATC, CSCS\*; Stephanie M. Mazerolle, PhD, ATC†; Thomas G. Bowman, PhD, ATC‡

\*Springfield College, MA; †University of Connecticut, Storrs; ‡Lynchburg College, VA

**Context:** Clinical integration impacts athletic training students' (ATs) motivation and persistence. Research has yet to elucidate the manner in which different clinical placements can influence clinical integration.

**Objective:** To examine differences in the levels of clinical integration achieved by ATs across various clinical sport assignments.

**Design:** Cross-sectional survey.

**Setting:** Thirteen undergraduate athletic training programs.

**Patients or Other Participants:** Questionnaires were administered to 169 ATs previously engaged in clinical education experiences. One hundred twenty-nine participants completed the questionnaire, for a response rate of 76.33%. Participants completed an average of  $4 \pm 2$  clinical rotations.

**Intervention(s):** The 11-item clinical integration scale was administered either in-person or online methods. Responses were scored on a 6-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*).

**Main Outcome Measure(s):** Mean clinical integration scores (potential minimum score of 11, maximum score of 66), were calculated for each clinical placement. One-way analysis of variance was used to identify differences in clinical integration achieved across clinical placements.

**Results:** We found differences in clinical integration achieved across various clinical assignments ( $F_{19,415} = 3.486$ ,  $P < .001$ ). Students completing a rotation with college football achieved the lowest levels of clinical integration ( $46.9 \pm 9.1$ ). Other sports rated higher, ranging from  $51.6 \pm 10.1$  (baseball) to  $57.8 \pm 4.5$  (lacrosse), with all reporting less anxiety and time wasting than were associated with football. The high school rotation was also rated highly ( $54.7 \pm 6.4$ ), with higher levels of learning reported and fewer concerns about anxiety, excessive hours, and wasting time.

**Conclusions:** There were clear differences in clinical integration achieved between sites. In particular, ATs completing clinical rotations with college football reported the lowest levels of clinical integration. These low levels of integration stemmed from feelings of wasting time, completing menial tasks, excessive hours, and anxiety associated with the educational experience.

**Key Words:** Athletic training student integration, preceptors, clinical placements

*Dr Dodge is currently an Assistant Professor and Staff Athletic Trainer at Springfield College. Please address all correspondence to Thomas M. Dodge, PhD, ATC, CSCS, Exercise Science and Sport Studies, Springfield College, 263 Alden Street, Springfield, MA 01109. tdodge@springfieldcollege.edu.*

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# Variability in Clinical Integration Achieved by Athletic Training Students Across Different Clinical Sport Assignments

Thomas M. Dodge, PhD, ATC, CSCS; Stephanie M. Mazerolle, PhD, ATC; Thomas G. Bowman, PhD, ATC

## INTRODUCTION

Much attention has been given to understanding how athletic training students (ATs) integrate into their roles as students and as athletic training professionals.<sup>1-3</sup> Academic and clinical integration is necessary, but as a result of the impact clinical education can have on the professional development of ATs,<sup>4</sup> researchers have begun to shift their attention to student experiences while they are engaged in clinical education. Clinical integration, as defined by Dodge et al,<sup>5</sup> is the student's assimilation into the clinical portion of entry-level education. They suggested that clinical integration is necessary to facilitate persistence within an athletic training program (ATP),<sup>5</sup> and while ATs motivation is also necessary, opportunities to be engaged<sup>6,7</sup> and to receive legitimization<sup>8</sup> are also essential to promoting learning and facilitating ATs involvement and a belief that they are a valued member of the sports medicine team.

Athletic training students can be socialized into their roles as health care providers through both informal and formal processes.<sup>9</sup> Formally, coursework, orientation workshops, and peer mentoring programs introduce the ATs to their role as an athletic trainer, whereas informal mentorship and social gatherings can enhance role understanding.<sup>9</sup> Socialization processes speak more globally to the ATs experience, in contrast to the narrow focus on clinical education experience. Mentorship, on the other hand, is one process that appears to transcend both academic and clinical education experiences and to influence professional development<sup>1,3,8,10</sup> and commitment.<sup>10,11</sup> Young et al<sup>12</sup> found that support from preceptors, mentors, and other students can greatly impact ATP retention. Encouragement given by preceptors in clinical education experiences also appears to help ATs gain confidence and achieve clinical integration.<sup>8,12</sup> Authentic learning experiences, which have been described as those that are relevant to student learning and educational goals,<sup>13</sup> can be also be facilitated by a preceptor who is engaged in the teaching and learning process. Time engaged in authentic learning can also help the ATs gain an identity within the profession.<sup>12,14</sup>

Clinical integration helps students develop confidence in their knowledge and skills through engagement in real-time learning.<sup>12</sup> This confidence helps them establish a professional identity through exposure to the complex role of the athletic trainer. Benes et al<sup>14</sup> found that diverse clinical placements help the ATs become more aware of the profession, expectations placed on athletic trainers, and his own future role. In order to develop professionally, students must be engaged in learning activities while in clinical education. Previous research<sup>15,16</sup> has suggested that students spend up to 59% of their clinical experience time unengaged and wasting time on menial tasks, which can significantly impact their clinical integration. Furthermore, ATs assigned to upper body-dominant sports often have more unengaged clinical-placement time than do students assigned to lower or mixed

extremity sports.<sup>15,16</sup> Despite our rich knowledge on the connection between clinical integration and persistence and motivation, limited understanding exists with regard to the role that specific site or sport placement can have on clinical integration. Therefore, the purpose of this study was to expand upon the work of Young et al<sup>12</sup> and Benes et al<sup>14</sup> to specifically examine differences in the levels of clinical integration achieved by ATs across various clinical settings.

## METHODS

### Participants

Questionnaires were administered to 169 ATs engaged in clinical education experiences. Of those, 129 ATs (89 females, 40 males) completed the questionnaire, for a response rate of 76.33%. Participants included 93 senior-level ATs and 33 students who had prematurely left their ATPs before their senior year and who were classified as *major changers*. We included the sample of major changers because of our purpose to gain an understanding of the effect of clinical education placement on integration and because our inclusionary criteria were students who had completed a clinical education experience. Participants completed an average of  $4 \pm 2$  clinical education rotations, for a total of 545 clinical rotations. Not all questions were completed for 110 of the 545 clinical rotations, yielding 435 completed cases distributed over 20 different clinical education settings for analysis. Clinical experience sites included clinics, high schools, and collegiate programs at all 3 divisions of the National Collegiate Athletic Association; sport exposure included football, basketball, ice hockey, baseball, softball, track and field, lacrosse, field hockey, swimming and diving, volleyball, and many others. Athletic training students who were only engaged in observational learning and who were not formally admitted into the ATP were excluded from analysis. Otherwise, all participants who had completed official clinical learning experiences within their ATP were analyzed. In all, 13 institutions participated in the study, representing Maryland, North Carolina, South Carolina, Virginia, and Washington, DC. Before data collection, we obtained institutional review board approval for this study and obtained informed consent from each participant.

### Instrument

The clinical integration scale was developed as part of the larger Athletic Training Program Student Retention Questionnaire (ATPSRQ) that has been previously used.<sup>5,12</sup> The ATPSRQ has been shown to be useful to identify students who are likely to persist in ATPs.<sup>5</sup> The scale was developed after an exhaustive literature search on student persistence and attrition and athletic training clinical education. Specifically, previously validated scales that measured academic and social integration<sup>16</sup> were modified in order to fit the model for clinical integration to incorporate aspects of both academic

**Table 1. Specific Items in the Clinical Integration Scale**

1.	I got along well with my preceptor in this clinical education setting.
2.	I got along well with other athletic training students in this clinical education setting.
3.	I got along well with athletes/patients/clients in this clinical education setting.
4.	I was able to learn a great deal in this clinical experience.
5.	I feel that I had to do more “grunt work” in this clinical education setting than I should have had to.
6.	I feel that I was responsible for too much in this clinical education setting. (Reverse coded)
7.	There were times when I experienced a feeling of “too many hours” in this clinical education setting.
8.	I feel that completing hours in this clinical setting was anxiety inducing. (Reverse coded)
9.	I feel that I spent too many hours in this clinical setting just wasting time. (Reverse coded)
10.	At the end of this rotation, I felt that I was able to meet the demands of professional practice in this setting.
11.	Overall, I was satisfied with my clinical experience in this clinical setting.

and social integration. The Cronbach  $\alpha$  level for the clinical integration scale has been reported as 0.836.<sup>5</sup>

The specific purpose of the clinical integration scale was to evaluate the level of integration that students achieved at each of their respective clinical rotations. The scale uses 11 items that assess individual aspects of the clinical experience that are perceived to contribute to overall integration into clinical education. The individual items are listed in Table 1. Items were scored on a 6-point Likert scale (1 = *strongly disagree*; 2 = *disagree*; 3 = *slightly disagree*; 4 = *slightly agree*; 5 = *agree*; 6 = *strongly agree*). Participants completed scales for each of their current and previous clinical education assignments.

### Data Collection Procedures

Data collection took place as part of a larger study.<sup>5</sup> An explanatory e-mail was sent to 18 ATP directors in the southeastern region of the United States. The e-mail described the purposes and procedures of the study and requested that the program director contact the researchers directly if he or she was interested in participating. In some cases, phone calls were made, subsequent e-mails were sent, or both occurred to solicit participation. Thirteen of the 18 program directors contacted approved of the study and agreed to participate. Upon program director approval, a researcher set up a time to personally travel to 5 institutions and administer the survey to senior-level students. All surveys at those institutions were completed and immediately collected by the researcher. The researcher also requested directory information for major changers from the program director. The ATPSRQ was e-mailed to the individual major changers with the request that it be completed and e-mailed back to the researcher.

Survey packets were mailed to 6 of the remaining institutions. The packet contained cover letters and surveys for the seniors and specific instructions for the program director to properly administer the survey. The program director was instructed to administer the survey to senior-level students, to collect the surveys, and to promptly mail the surveys back to the researcher in the enclosed self-addressed, postage-paid envelope. Again, program directors were asked to provide the researcher with directory information for major changers so that the researcher could e-mail the ATPSRQ after the procedure outlined above was completed. The remaining 2 program directors preferred to have both versions of the ATPSRQ e-mailed to them personally so that they could forward it to their current and former students. In those cases, electronic versions of the ATPSRQ were e-mailed to the program directors for distribution. Surveys that were com-

pleted in person or that were mailed to the program director were all completed anonymously and placed in a sealed envelope after data collection. Surveys that were e-mailed back to the researcher were promptly printed and placed in an envelope as well. The e-mail was then deleted so that the identity of those individuals would remain anonymous. All participants were asked to complete the survey honestly and accurately.

### Data Analysis

The total clinical integration score was calculated by simply adding the responses to each of the items on the clinical integration scale, making the minimum achievable score an 11 and the maximum score 66. Individual scores from the 435 usable clinical rotations were entered into the data spreadsheet. Each individual rotation was coded with a number that identified the specific setting in which the rotation took place (eg, football, general athletic training room, lacrosse, high school). Mean clinical integration scores were determined by averaging the individual clinical integration scores that were achieved during each rotation that took place in that setting. Mean clinical integration scores for each clinical setting were used for further analysis.

Data were analyzed with a series of 1-way analyses of variance (ANOVAs) to identify a mean difference in clinical integration achieved across various clinical education settings. The Tukey honestly significant difference (HSD) test was used to identify specific differences in clinical integration among all of the individual clinical education settings. One-way ANOVA was also used to determine which specific constructs associated with clinical integration lead to differences across the different clinical education settings. Significance was set a priori at  $\alpha < 0.05$ .

### RESULTS

Descriptive statistics, including mean clinical integration scores (potential minimum score of 11, maximum score of 66), were calculated for each clinical setting. The mean clinical integration scores for each clinical setting are included in Table 2. One-way ANOVA revealed differences in clinical integration levels achieved across various clinical settings ( $F(19,415) = 3.486$ ,  $P < .001$ ). Tukey HSD post hoc tests identified college football as yielding a significantly lower clinical integration average than did many other settings (Table 3). The general athletic training clinic setting also yielded significantly lower clinical integration averages than did multiple other settings. Comparisons between the general

**Table 2. Mean Clinical Integration Scores for Each Individual Clinical Setting**

Clinical Setting	N	Mean $\pm$ SD	Minimum	Maximum
Athletic training clinic	18	46.1 $\pm$ 10.8	16	61
Baseball	29	51.6 $\pm$ 10.1	23	65
Basketball	39	53.9 $\pm$ 9.5	28	66
Cheerleading	12	57.0 $\pm$ 5.0	47	65
College outreach	11	49.4 $\pm$ 9.4	25	58
Field hockey	3	62.0 $\pm$ 4.6	57	66
Football	68	46.9 $\pm$ 9.1	22	66
General medical	6	56.8 $\pm$ 9.3	45	65
Gymnastics	6	52.5 $\pm$ 3.5	46	56
High school	51	54.7 $\pm$ 6.4	40	66
Lacrosse	11	57.2 $\pm$ 4.6	50	63
Other	2	50.5 $\pm$ 9.2	44	57
Physical therapy clinic	6	55.5 $\pm$ 11.8	39	66
Soccer	48	52.5 $\pm$ 8.0	27	66
Softball	29	52.2 $\pm$ 8.3	31	66
Swimming	14	51.9 $\pm$ 5.4	43	59
Tennis	15	54.3 $\pm$ 7.8	37	66
Track/cross country	41	52.9 $\pm$ 7.5	33	66
Volleyball	24	55.4 $\pm$ 6.6	39	63
Wrestling	2	51.5 $\pm$ 3.5	49	54
Total	435	52.2 $\pm$ 8.6	16	66

athletic training clinic setting and the other settings are displayed in Table 4.

Specific results for each construct associated with clinical integration are included in Table 5.

Additional testing was performed to determine the specific areas that lead to differences in clinical integration achieved at the various clinical education settings. One-way ANOVA revealed significant differences in feelings of anxiety, completing excessive hours, wasting time, and performing menial tasks. Significant differences also existed across clinical education settings in the areas of interactions with supervisors and perceived overall integration into the clinical experience.

## DISCUSSION

The stimulus for this study was the anecdotal premise that clinical placements can impact clinical integration, more specifically that some clinical placements offer more opportunities to become actively socialized into the roles of the athletic trainer as compared with others. Athletic training students have recognized that some clinical placements are more monotonous and unengaging than others,<sup>6,15,16</sup> and at

**Table 3. Comparisons Between College Football and Other Clinical Settings**

Clinical Setting		Mean Difference	P Value	95% Confidence Interval	
				Lower Bound	Upper Bound
Football	Athletic training clinic	0.8	1.000	-6.97	8.55
	Basketball	-6.9*	.005	-12.83	-1.06
	Baseball	-4.7	.524	-11.19	1.80
	Cheerleading	-10.1*	.014	-19.28	-.95
	College outreach	-2.4	1.000	-11.95	7.08
	Field hockey	-15.1	.181	-32.34	2.20
	General medical	-9.9	.337	-22.38	2.56
	Gymnastics	-5.6	.989	-18.04	6.90
	High school	-7.8*	.000	-13.24	-2.39
	Lacrosse	-10.3*	.020	-19.77	-.74
	Other	-3.6	1.000	-24.58	17.43
	Physical therapy clinic	-8.6	.621	-21.04	3.90
	Softball	-5.3	.294	-11.77	1.21
	Swimming	-4.9	.881	-13.52	3.66
	Tennis	-7.3	.172	-15.69	1.01
	Track/cross country	-5.9*	.038	-11.72	-.14
	Volleyball	-8.4*	.003	-15.40	-1.50
	Wrestling	-4.6	1.000	-25.58	16.43

\* The mean difference is significant at the .05 level.



**Table 4. Comparisons Between the Athletic Training Clinic and Other Clinical Settings**

Clinical Setting		Mean Difference	P Value	95% Confidence Interval	
				Lower Bound	Upper Bound
Athletic training clinic	Basketball	−7.7	.109	−16.08	.61
	Baseball	−5.5	.783	−14.27	3.30
	Cheerleading	−10.9	.051	−21.82	.01
	College outreach	−3.2	1.000	−14.43	7.98
	Field hockey	−15.9	.188	−34.12	2.40
	Football	−0.8	1.000	−8.55	6.97
	General medical	−10.7	.385	−24.50	3.11
	Gymnastics	−6.4	.985	−20.16	7.44
	High school	−8.6*	.021	−16.63	−.58
	Lacrosse	−11.0	.059	−22.25	.16
	Other	−4.4	1.000	−26.19	17.46
	Physical therapy clinic	−9.4	.647	−23.16	4.44
	Soccer	−6.4	.357	−14.45	1.73
	Softball	−6.1	.613	−14.85	2.72
	Swimming	−5.7	.918	−16.15	4.72
	Track/cross country	−6.7	.299	−14.99	1.56
	Tennis	−8.1	.338	−18.36	2.11
	Volleyball	−9.2*	.044	−18.37	−.11
	Wrestling	−5.4	1.000	−27.19	16.46

\* The mean difference is significant at the .05 level.

times, these experiences can negatively impact their assessment of an athletic trainer's professional role and can lead to departure from their ATP.<sup>17</sup> Furthermore, as highlighted by Young et al,<sup>12</sup> a more authentic clinical education experience that promotes clinical integration can facilitate persistence and promote professional self-efficacy. To our knowledge, our study is the first to specifically examine clinical placement from an individual sport and clinical setting perspective. That is, we found that ATSS assigned to the sport of football were less clinically integrated than those assigned to other collegiate sports or the high school clinical setting. Our findings support the premise that clinical education experience quality is paramount to achieve integration.<sup>12,15,16</sup> While clinical experiences that differ in focus (ie, upper/lower extremity, equipment intensive, performing arts) are essential to developing a well-rounded athletic trainer, not all clinical settings allow students an appropriate opportunity to become clinically integrated. This type of variability may also be paralleled by interpersonal differences expressed by preceptors supervising students during clinical experiences. For example,

preceptors in the secondary school setting have been described as exuding a more humanistic orientation that favors teaching.<sup>18</sup> In many cases, these athletic trainers practice independently and, therefore, may treat students more like peers and include them in as many learning opportunities as possible.

Berry et al<sup>16</sup> suggest that the type of clinical field-experience setting and clinical assignment can affect the amount of time spent in active learning. Since this type of learning is a key component to clinical integration, appropriate levels and types of engagement are vital to building integration. Based upon our analyses, ATSS found collegiate football and general athletic training clinic placements to offer less clinical integration than other assignments, such as college lacrosse, college baseball, college basketball, and the high school setting. Our findings are at odds with those of Berry et al,<sup>16</sup> who found that more active learning occurs in clinical placements that involve mixed extremity sports, such as football, and general athletic training clinic coverage. While

**Table 5. One-Way Analysis of Variance for Each Individual Item in the Clinical Integration Scale**

	Degrees of Freedom	F	P Value
Adequate learning in the setting	20, 519	1.389	.121
Completing menial tasks	20, 514	6.093	.000*
Feeling of completing too many hours	20, 521	4.958	.000*
Anxiety associated with clinical education	20, 522	2.348	.001*
Feeling of wasting time	20, 521	2.025	.006*
Quality of interactions with preceptors	20, 522	1.619	.044*
Quality of interactions with other athletic training students	19, 521	1.257	.208
Quality of interactions with patients	20, 520	1.279	.187
Given appropriate level of responsibility	20, 512	1.070	.378
Able to meet the professional demands of the setting	20, 509	1.471	.086
Overall satisfaction and integration into the clinical setting	20, 517	1.912	.010*

\* Significant at the .05 level.

they did not evaluate clinical integration, active learning time, or opportunities to perform skills as an athletic trainer,<sup>16</sup> these concepts are essential to integration.<sup>12</sup> We believe that our findings of limited integration in the football setting were largely due to the students' perceptions that they were wasting time, completing menial tasks in the clinical assignment, were at their clinical site for too many hours, or had limited quality interactions with their clinical preceptors. Bowman and Dodge<sup>19</sup> reported that ATSs can be frustrated with either poor interactions with their preceptors or when the time is spent occupied by repetitive, meaningless tasks. When students are occupied by menial tasks, it is likely that their frustrations contribute to a disconnected educational experience as they become less interested and invested in their integration into the clinical setting. An important aspect of student professional socialization and retention is clinical integration, which is often facilitated by legitimization through role engagement and feedback.<sup>8</sup> Legitimation also occurs when the ATS is provided a quality learning experience that fosters communication and discourse between the preceptor and ATS; that provides authentic, real-time learning; and that allows them to visualize their future professional role.<sup>7,8,12</sup>

Our results also indicate that the high school setting appears to offer students one of the best opportunities for clinical integration. Athletic training students often find their clinical preceptors at the secondary school setting to be more willing and interested in teaching, demonstrating a more humanistic orientation.<sup>18</sup> Like the high school setting, volleyball, lacrosse, cheerleading, and basketball clinical assignments better stimulate clinical integration when compared with football, suggesting that those assignments are possibly more engaging and offer more meaningful chances for legitimization through interactions and feedback.<sup>8</sup> Clinical integration, as evaluated by the ATS, is stimulated by preceptors who teach and provide hands-on versus observational learning opportunities during the clinical experience.<sup>6</sup> Since an active, engaged clinical education experience is often described as one that has sufficient patient volume,<sup>6</sup> it is possible that there are simply more opportunities for patient interaction in the secondary school setting, which affords more opportunities to apply knowledge and skill and reduces some student focus from completing menial tasks. Moreover, in the secondary school setting there is often only one clinical preceptor providing care for a large patient population.

The inclusion of an ATS at this type of clinical site offers opportunities for clinical discourse and questions, which can foster reciprocal learning between the student and preceptor and potentially enhance ATS clinical integration. Finally, although the secondary school setting may include completion of menial tasks such as filling coolers, stocking kits, or making heel and lace pads, the ATS may assess these activities to be important or necessary to their role as an athletic trainer in that setting when compared with completing these same tasks in other clinical settings. Although timing of task completion was not assessed, it may also influence clinical integration perceptions. If an ATS is completing menial tasks when learning opportunities are happening, then she may become frustrated. However, if students are completing those tasks as a part of the daily routine and not when injury assessments or treatments are happening, then they may not be viewed as negatively. It is also likely that these timing factors apply to other sport and clinical assignments, in which students assess

their role as being more meaningful when learning occurs and when they have a more active or shared role with their preceptor.

Contrary to existing literature,<sup>15,16</sup> our participants rate the general athletic training clinic clinical placement as providing less clinical integration than other placements. Despite offering diversity in terms of sports and injuries, the general athletic training clinic placement may overwhelm students with menial tasks, a previously noted frustration,<sup>19</sup> as they may feel that there is little time for instruction, participation in directed learning experiences, or adequate quality preceptor interactions. Preceptors may also fail to engage their ATSs as often as is desirable and may potentially rely on them to facilitate completion of daily tasks due to role strain from balancing multiple work roles,<sup>20,21</sup> leading the student to feel less integrated.

## Recommendations

Clinical integration is a necessary facet to students' professional development, as it not only helps them gain role understanding but also allows them to visualize themselves professionally in the future. Our findings illustrate the need to diversify the clinical education experience to allow for more opportunities for ATSs to become integrated and to reduce the chances that they will encounter frustrating, monotonous, or overwhelming experiences. Preceptor interactions are also an important aspect of clinical integration; therefore, ATP administrators are encouraged to communicate performance expectations, provide feedback on ATS skills to enhance learning and outcomes, and mentor young clinical preceptors to help them develop effective educator skills. Previous literature<sup>22</sup> highlights the need for preceptors to be engaging, approachable, and committed to their role as a mentor. Our findings also suggest that football clinical placements as well as the general athletic training clinic rotation can reduce the ATS's ability to become integrated through wasting time, limited preceptor interactions, and completing menial tasks. Therefore, it is important to encourage preceptors at these sites to provide more chances for hands-on learning and less time for tasks or responsibilities that are not conducive to ATS learning.

## Limitations and Future Research

Our findings suggested that clinical integration can be limited when ATSs are assigned to football. Therefore, future research should focus specifically on student engagement at the football clinical placement to improve our understanding regarding clinical integration challenges when ATSs are assigned to this equipment-intensive sport. A limitation of our findings is the lack of differentiation between National Collegiate Athletic Association (NCAA) divisions of athletic competition in the data analyses. It is possible that a student completing a clinical education experience in NCAA Division 1 football might rate their clinical integration differently than a student completing a football rotation at the NCAA Division 2 or 3 level. This discrepancy may likely be due to increased time demands or a lack of patient interaction for students completing hours at the NCAA Division 1 level because of a greater presence of other health care providers. Our findings also only reflect students' perspectives and were based upon those responses generated from a survey

instrument. Future research should incorporate a mixed-methods approach, including individual interviews with ATSS, ATP faculty, and preceptors to obtain a more complete understanding of clinical placements. Previous research<sup>15</sup> has suggested that academic standing can influence time spent engaged in learning. In our study, however, we did not evaluate academic achievement or class level as they relate to the influence of clinical integration. There is a possibility that upper-level ATSSs may become more integrated or expect more opportunities to become clinically integrated in their experiences, thus influencing their evaluation of their clinical education placements. Future research should expand upon our study by investigating other factors, such as academic standing and time of year (in-season versus out-of-season), on clinical integration and clinical field placements.

## CONCLUSIONS

There were clear differences in clinical integration achieved among ATSSs at different clinical sites. In particular, ATSSs completing clinical rotations in the athletic training clinic and with college football reported the lowest levels of clinical integration. These low levels of integration stemmed from feelings of wasting time during clinical education, completing menial tasks, excessive hours, and anxiety associated with the educational experience. Since clinical integration is related to student motivation and eventual persistence, matching students to appropriate clinical sites seems as important as matching student and preceptor characteristics. Future research should continue to focus on identifying clinical site-specific characteristics that both hinder and facilitate integration.

## REFERENCES

- Mazerolle SM, Dodge TM. Role of clinical education experiences on athletic training students' development of professional commitment. *Athl Train Educ J*. In press.
- Mazerolle SM, Dodge TM. Considerations for the use of the observation experience to aid in early socialization and retention of athletic training students. *Athl Train Educ J*. 2014;9(2):54–58.
- Pitney WA, Ehlers GG. A grounded theory study of the mentoring process involved with undergraduate athletic training students. *J Athl Train*. 2004;39(4):344–351.
- Weidner TG, Henning JM. Historical perspective of athletic training clinical education. *J Athl Train*. 2002;37(suppl 4):S222–S228.
- Dodge TM, Mitchell MF, Mensch JM. Student retention in athletic training education programs. *J Athl Train*. 2009;44(2):197–207.
- Mazerolle SM, Bowman TG, Benes SS. Defining the engaging learning experience from the athletic training student perspective. *Athl Train Educ J*. 2014;9(4):182–189.
- Bowman TG, Dodge TM. Factors of persistence among graduates of athletic training education programs. *J Athl Train*. 2011;46(2):665–671.
- Klossner J. The role of legitimization in the professional socialization of second-year undergraduate athletic training students. *J Athl Train*. 2008;43(4):379–385.
- Mazerolle SM, Bowman TG, Dodge TM. Athletic training student socialization part I: socializing students in undergraduate athletic training education programs. *Athl Train Educ J*. 2014;9(2):72–79.
- Neibert P, Huot C, Sexton P. Career decisions of senior athletic training students and recent graduates of accredited athletic training education programs. *Athl Train Educ J*. 2010;5(3):101–108.
- Gavin KE, Mazerolle SM, Pitney WA, Casa DJ, Burton L. Undergraduate athletic training students' influences on career decisions after graduation? *J Athl Train*. 2012;47(6):679–693.
- Young A, Klossner J, Docherty CL, Dodge TM, Mensch JM. Clinical integration and how it affects student retention in undergraduate athletic training programs. *J Athl Train*. 2013;48(1):68–78.
- Stein SJ, Isaacs G, Andrews T. Incorporating authentic learning experiences during a university course. *Stud Higher Educ*. 2004;29(2):239–258.
- Benes SS, Mazerolle SM, Bowman TG. The role of clinical placement in the professional development of athletic training students. *Athl Train Educ J*. In press.
- Miller MG, Berry DC. An assessment of athletic training students' clinical-placement hours. *J Athl Train*. 2002;37(suppl 4):S229–S235.
- Berry DC, Miller MG, Berry LM. Effects of clinical field-experience setting on athletic training students' perceived percentage of time spent on active learning. *J Athl Train*. 2004;39(2):176–184.
- Berger JB, Milem JF. The role of student involvement and perceptions of integration in a causal model of student persistence. *Res Higher Educ*. 1999;40(6):641–664.
- Mulholland C, Martin M. Athletic training students' perception of significant clinical instructor demographic characteristics. *Athl Train Educ J*. 2010;5(2):71–76.
- Bowman TG, Dodge TM. Frustrations among graduates of athletic training education programs. *J Athl Train*. 2013;48(1):79–86.
- Dodge TM, Mazerolle SM, Bowman TG. Challenges faced by preceptors serving in dual roles as health care providers and clinical educators. *Athl Train Educ J*. 2014;9(1):29–35.
- Henning JM, Weidner TG. Role strain in collegiate athletic training approved clinical instructors. *J Athl Train*. 2008;43(3):275–283.
- Mazerolle SM, Bowman TG, Dodge TM. Clinical instructional methods employed by approved clinical instructors in the clinical setting. *Athl Train Educ J*. 2012;7(4):157–165.