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Thomas M. Dodge  
*Boston University*

Murray F. Mitchell  
*University of South Carolina - Columbia, mmitchel@mailbox.sc.edu*

James M. Mensch  
*University of South Carolina - Columbia, Jmensch@mailbox.sc.edu*

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# Student Retention in Athletic Training Education Programs

Thomas M. Dodge, PhD, ATC, CSCS\*; Murray F. Mitchell, PhD†;  
James M. Mensch, PhD, ATC†

\*Boston University, Boston, MA; †University of South Carolina, Columbia, SC

**Context:** The success of any academic program, including athletic training, depends upon attracting and keeping quality students. The nature of persistent students versus students who prematurely leave the athletic training major is not known. Understanding the profiles of athletic training students who persist or leave is important.

**Objective:** To (1) explore the relationships among the following variables: anticipatory factors, academic integration, clinical integration, social integration, and motivation; (2) determine which of the aforementioned variables discriminate between senior athletic training students and major changers; and (3) identify which variable is the strongest predictor of persistence in athletic training education programs.

**Design:** Descriptive study using a qualitative and quantitative mixed-methods approach.

**Setting:** Thirteen athletic training education programs located in District 3 of the National Athletic Trainers' Association.

**Patients or Other Participants:** Ninety-four senior-level athletic training students and 31 college students who changed majors from athletic training to another degree option.

**Data Collection:** Data were collected with the Athletic Training Education Program Student Retention Questionnaire (ATEPSRQ).

**Analysis:** Data from the ATEPSRQ were analyzed via Pearson correlations, multivariate analysis of variance, univariate analysis of variance, and a stepwise discriminant analysis. Open-ended questions were transcribed and analyzed using open,

axial, and selective coding procedures. Member checks and peer debriefing techniques ensured trustworthiness of the study.

**Results:** Pearson correlations identified moderate relationships among motivation and clinical integration ( $r = 0.515$ ,  $P < .01$ ) and motivation and academic integration ( $r = 0.509$ ,  $P < .01$ ). Univariate analyses of variance showed that academic integration ( $F_{1,122} = 8.483$ ,  $P < .004$ ), clinical integration ( $F_{1,119} = 30.214$ ,  $P < .001$ ), and motivation ( $F_{1,121} = 68.887$ ,  $P < .001$ ) discriminated between seniors and major changers. Discriminant analysis indicated that motivation was the strongest predictor of persistence in athletic training education, accounting for 37.2% of the variance between groups. The theoretic model accurately classified 95.7% of the seniors and 53.8% of the major changers. A common theme emerging from the qualitative data was the presence of a strong peer-support group that surrounded many of the senior-level students.

**Conclusions:** Understanding student retention in athletic training is important for our profession. Results from this study suggest 3 key factors associated with student persistence in athletic training education programs: (1) student motivation, (2) clinical and academic integration, and (3) the presence of a peer-support system. Educators and program directors must create comprehensive recruitment and retention strategies that address factors influencing students' decisions to stay in the athletic training profession.

**Key Words:** socialization, persistence, career choice, retention, drop-out

## Key Points

- Athletic training education programs function well as gatekeepers to professional practice in athletic training.
- Unmotivated students and those who do not put forth a strong effort are unlikely to complete their degrees and achieve certification.
- Athletic training educators who keep students motivated and interested in athletic training are more likely to retain larger numbers of students with the potential to succeed in the field.
- To stay motivated, students must gain confidence in their abilities and recognize progress as they work toward becoming skilled professionals.

Employment settings for certified athletic trainers (ATs) have expanded a great deal over the past 10 years. The expanding job market has been met with an increase in the number of Commission on Accreditation of Athletic Training Education (CAATE)-accredited athletic training programs nationwide. As of November 2007, 343 undergraduate entry-level athletic training education programs (ATEPs) accredited by CAATE were seeking quality students.<sup>1</sup> The increase in accredited ATEPs and growth of many health care programs has resulted in the need for education programs to seek out and retain quality students.

Student retention rates in higher education have been studied for many years.<sup>2–4</sup> Colleges and universities strive to retain their students. The relationships among student retention and quality assurance, program development, and financial gain are important for administrators and directors of education programs.<sup>5</sup> In 1975, Tinto<sup>2</sup> developed the Student Integration Model for examining student attrition and persistence in institutions of higher learning. Persistence occurs on a personal level, meaning that students either remain in educational programs or at universities until graduation or they do not. The Tinto<sup>2</sup> model suggests that a student must have a commitment to

his or her respective institution and the goal of completing a college degree in order to persist as a college student. Initial commitments to the institution and completion of personal goals are shaped by precollege experiences, family background, and personal attributes. (In our study, these factors were labeled *anticipatory factors*.) Upon matriculation at a particular institution, commitments are then shaped by levels of academic integration and social integration. Academic integration is associated with student grades, relationships with teachers, and overall performance in the classroom. Social integration is associated with peer networks, social outlets, and basic support from friends. Based on the Tinto<sup>2</sup> model, students are also more likely to persist when they are both academically and socially integrated.<sup>6</sup>

Research on students who leave athletic training education programs is scarce. Previous authors<sup>2–13</sup> of studies on student retention in higher education and allied health education programs have provided a framework for research on student retention in athletic training education. For athletic training education, the commitments outlined by Tinto<sup>1</sup> become *program* and *professional* and are less concerned with overall institutional commitment. An important component of athletic training education is the clinical experiences required by students as part of the CAATE-accredited curriculum.<sup>14</sup> Similar to the theorized need for students to achieve academic and social integration,<sup>2,6</sup> persistent students in athletic training may also require some type of *clinical integration*, which provides justification for adding that variable to the Tinto<sup>2</sup> model. The purpose of our study was to better understand why some students stay and others leave athletic training education programs. The following questions guided data collection:

1. What are the relationships among the following variables: anticipatory factors, academic integration, clinical integration, social integration, and motivation?
2. Which of the variables discriminate between students who become seniors and those who change majors?
3. Which variable is the strongest predictor of persistence in athletic training education programs?

## METHODS

### Participants

Participants ( $n = 125$ ) for this study were drawn from 2 subpopulations associated with ATEPs located in the National Athletic Trainers' Association District 3. All participants were current college or university students who had entered the athletic training education program and completed at least some clinical athletic training education hours (students who completed only observation hours were included in the study). Participants had clinical experiences across 22 different settings. Clinical experiences took place at the high school level and at all 3 levels of National Collegiate Athletic Association competition and included working with sports such as football, basketball, ice hockey, baseball, softball, track and field, lacrosse, field hockey, swimming and diving, volleyball, and many others. 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 informed consent from each participant.

**Seniors.** A total of 94 senior-level athletic training students completed a retention survey. Each student met the criterion of being either eligible to sit for the Board of Certification examination or being 1 semester away from eligibility to take the examination. The return rate for this group of students was 90.30%. This percentage is based on an estimated 104 available seniors at the 13 institutions that participated in the study.

**Major Changers.** The major changers each met the criterion of having completed at least some clinical education hours as an athletic training student but left their respective programs before earning their degree in athletic training. A somewhat generic definition was used because of differences across programs with regard to admission criteria (ie, *direct entry* versus *secondary admission*). We were most concerned with the socializing experiences of the students and their subsequent integration into their respective programs, which allowed for the use of such a definition.

We directly contacted 54 major changers, and 31 of these participants completed the survey, for a return rate of 57.41%. The 57.41% return rate, however, did not represent all programs. Two of the program directors chose to personally distribute the surveys to their major changers via e-mail. We did not receive any major changers' surveys from these 2 institutions, and the actual number of surveys distributed by those program directors was never disclosed to us. For this reason, an estimated overall return rate of 47.69% is more appropriate. This percentage is based on an estimated 65 available major changers at the 13 institutions that participated in the study. Due to the difficulties associated with tracking numbers of students who prematurely left athletic training education programs, the estimated number of 65 available major changers was based on data from the *Health Professions Education Data Book 2004–2005*,<sup>15</sup> published by the American Medical Association. According to the publication, each athletic training program sampled was estimated to have 5 or 6 students leaving the program prematurely in the 2 years before the start of data collection.

### Instrumentation

Data were gathered using the Athletic Training Education Program Student Retention Questionnaire (ATEPSRQ). The purpose of the questionnaire was to assess levels of integration achieved by both seniors and major changers and to quantify the motivation and anticipatory socialization experiences of each participant. Based on the theoretic model<sup>2</sup> guiding the study, we created the questionnaire with the help of 2 ATs who provided suggestions for specific topics that needed to be covered. Two bodies of research, one concerning athletic training education<sup>14,16–19</sup> and the other concerning student retention in nursing education programs,<sup>9–11,20–21</sup> provided additional insight into potential variables related to student retention in athletic training education.

The first of the 5 scales was the anticipatory factors scale. In this scale, participants provided a self-assessment

of their knowledge of athletic training education upon entering the major. This knowledge was highly influenced by their anticipatory socializing experiences in the field.<sup>22</sup> Participants were also given an opportunity to identify specific socializing experiences they had before entering undergraduate education (eg, “Were you an athletic training student in high school?”).

The relevance of the scale stems from the nursing literature, which indicated that many students leave the profession because of flawed perceptions of the educational process.<sup>9,11</sup> The second scale was the academic integration scale. Items in this scale were based on the academic integration scale created by Berger and Milem<sup>6</sup> and modified according to pilot data. This scale specifically addressed student learning and faculty interaction (eg, “The faculty members in the athletic training education program are concerned with my learning”). The third scale was the clinical integration scale, which measured assimilation into the clinical aspect of athletic training education.

The scale had some basis in the academic and social integration scales created by Berger and Milem,<sup>6</sup> but items were modified to be more relevant to athletic training education (eg, “I got along well with my supervisors in this clinical site”; “I was able to learn a great deal in this clinical site”). Other items were added based on the qualitative pilot study (eg, “I feel that I spent too many hours in this clinical site just wasting time”; “I feel that I was responsible for too much grunt work in this clinical site”). The fourth scale was the social integration scale. Items in this scale were based on the social integration scale created by Berger and Milem.<sup>6</sup> This scale concerned interactions with not only athletic training students and faculty (eg, “I got along well with other athletic training students”) but also assessed personal time (eg, “I have enough time to socialize with others”). The fifth scale was the motivation scale, which was based on a student motivation scale created by Allen,<sup>4</sup> research on self-efficacy and its links to motivation,<sup>23,24</sup> and data from a qualitative pilot study. Items in this scale addressed the student’s motivation to finish the athletic training degree and become an AT (eg, “I am dedicated to finishing my program of study regardless of what obstacles I need to face”). The topic of self-efficacy is also touched upon (eg, “I am good at what I do as an athletic training student”).

Comparisons between seniors and major changers were made using the 5 scales. The Cronbach  $\alpha$  for each scale was as follows: anticipatory factors, 0.772; academic integration, 0.921; clinical integration, 0.836; social integration, 0.739; and motivation, 0.866. All scales were evaluated with a 6-point Likert scale coded as follows: 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Disagree somewhat*, 4 = *Agree somewhat*, 5 = *Agree*, 6 = *Strongly agree*. The responses for each scale were summed and used as the dependent variables.

Each of the 5 scales also included open-ended items that allowed participants to elaborate on their responses. For example, the clinical integration scale included the following question: “In what way were your clinical experiences a factor in you [sic] staying in the athletic training major? Please elaborate on your response.” The other 4 scales included similar items. The purpose of such questions was to gather any additional information from the participants that could not be obtained from the closed-ended scale items.

The ATEPSRQ was pilot tested on 2 occasions. The first pilot involved distributing the questionnaire to 10 first-year graduate students who had recently finished their athletic training degrees. From this initial pilot, we obtained additional feedback regarding the reliability of the instrument. Specifically, participants identified questions that were confusing or needed to be reworded. We were also concerned with the types of answers participants provided, and we determined the amount of time required to complete the survey.

After we modified the instrument based on feedback from the first pilot, the instrument was tested on 3 junior-level athletic training students. We spoke with these students individually after they completed the questionnaire. The students provided additional feedback on the readability of the instrument and the ordering of questions.

**Data Collection.** An explanatory e-mail was sent to 18 ATEP 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 or subsequent e-mails were sent (or both) to the program director to solicit participation. 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 immediately collected by the researcher. The researcher also requested directory information for major changers from the program director. The ATEPSRQ 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, collect the surveys, and 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 ATEPSRQ following the procedure outlined above. Two program directors preferred to have the ATEPSRQ e-mailed to them personally, so that they could forward it to their current and former students. In those cases, electronic versions of the ATEPSRQ were e-mailed to the program directors for distribution.

**Pilot Research.** We performed a qualitative pilot study before creating the data collection instrument. Semistructured interviews were used in the pilot study for data collection. The interview questions were based on a review of literature covering 3 topics: student attrition and persistence in higher education, student attrition and persistence in allied health education, and athletic training education. To eliminate any questions that could be perceived as leading or overly intrusive, 3 university researchers evaluated the interview format. The group of researchers also provided feedback on the appropriateness and ordering of questions.

Participants were classified as either major changers or seniors. Major changers had at one time been enrolled in the athletic training education program at a large



southeastern university but had left the program prematurely. Seniors had all achieved senior status as athletic training students at the large southeastern university. The semistructured interviews differed slightly between groups. Interviews with the major changers were aimed at learning why students had left the program prematurely. Interviews with the seniors were aimed at learning why students had persisted as athletic training students. All participants were asked about precollege experiences with athletic training and about their clinical and classroom experiences as athletic training students.

Results of the pilot study showed that many of the participants (both major changers and seniors) frequently struggled with the large time commitment associated with being an athletic training student. Many of the major changers indicated that negative experiences in their clinical experiences factored into their decisions to leave the athletic training major. Seniors often indicated that they stayed in the major because of a motivation to become ATs.

Through the pilot study, we identified a number of variables contributing to attrition and persistence in athletic training education. Construction of the instrument used for data collection in the present study was based on the results of the pilot study. The importance of anticipatory factors, academic integration, clinical integration, social integration, and motivation to student retention in athletic training education was apparent from the pilot study.

**Data Analysis.** Data were analyzed through a combination of quantitative and qualitative methods. We used SPSS (version 12.0; SPSS Inc, Chicago, IL) for quantitative data analysis. The  $\alpha$  level was set at .05. Pearson correlations were calculated to determine whether relationships existed among the 5 dependent variables (anticipatory factors, academic integration, clinical integration, social integration, and motivation). In attempting to identify which of the aforementioned dependent variables discriminated between seniors and major changers, we used descriptive statistics, a multivariate analysis of variance (MANOVA), and univariate analyses of variance (ANOVAs). The 5 constructs contained in the ATEPSRQ (anticipatory experiences, academic integration, clinical integration, social integration, and motivation) served as the dependent variables in both the MANOVA and the univariate ANOVAs. Student status (senior or major changer) served as the independent variable. We also used discriminant analysis to identify which of the aforementioned variables was the primary predictor of student persistence in athletic training education programs and to test the ability of the theoretic model to properly classify seniors and major changers.

Qualitative data were collected from 6 questions. The responses for seniors and major changers were separated and then grouped according to the 6 questions. After we organized responses according to questionnaire item, we coded the responses to each item and identified the major themes. The themes were then regrouped according to research questions.

Data from the open-ended items were analyzed with a constant comparative approach based on the process set forth by Strauss and Corbin.<sup>25</sup> In this approach, data are coded and analyzed in order to look for patterns and

categories. The first step in the process is open coding. During the process of open coding, “the data are broken down into discrete parts, closely examined, compared for similarities and differences and questions are asked about the phenomena as reflected in the data.”<sup>25(p62)</sup> Axial coding followed open coding. In this method, data from the open coding process were reconnected according to major categories and subcategories. Central categories were identified through selective coding, a process that involves relating categories to one another and validating the relationships among those categories.<sup>25</sup>

Trustworthiness of the data was established via peer debriefing and member checking. Two university researchers with experience in qualitative research verified that the coding scheme itself was reasonable. One researcher was an AT. The other researcher was not an AT and was not involved with the research project in any other way. Member checks were performed with a small number of seniors ( $n = 11$ ) and major changers ( $n = 5$ ). All participants involved in the member checks felt that the conclusions drawn from the data were appropriate.

## RESULTS

### Quantitative Results

**Relationships Among Dependent Variables.** We calculated Pearson correlations in order to determine the relationships among anticipatory factors, academic integration, clinical integration, social integration, and motivation (Table 1). All correlations were positive. Nearly all of the variables were correlated with each other at the .01 level. The lone exception was the correlation between clinical integration and anticipatory factors at .145 ( $P = .111$ ,  $r^2 = 0.021$ ), indicating very little relationship between those variables. The most highly correlated variables were motivation and clinical integration. These variables achieved a moderate level of correlation with a coefficient of 0.515 ( $P < .001$ ).

**Discriminating Between Seniors and Major Changers.** A MANOVA was used to determine whether the linear composite of scales (anticipatory factors, academic integration, clinical integration, social integration, or motivation) discriminated between seniors and major changers. In the MANOVA, student status (senior or major changer) was the independent variable, and the scores from each of the 5 scales were dependent variables. A total of 6 respondents (1 senior, 5 major changers) had incomplete data, and their results were not included in the MANOVA. The MANOVA was significant, with the Wilks  $\lambda = 0.568$  ( $F_{5,113} = 17.169$ ,  $P < .001$ ). The linear composite of scales (anticipatory factors, academic integration, clinical integration, social integration, and motivation) discriminated between the groups. The canonical correlation value for the linear composite of scales was 0.657. The standardized canonical discriminant function coefficients for each variable, as well as their effect sizes (expressed as partial  $\eta$  squared,  $\eta_p^2$ ) are listed in Table 2.

We performed a Box M test to check for homogeneity of covariance between the group of seniors and the group of major changers. The Box M value was 56.353, with  $F_{15,8432} = 3.467$  and  $P < .001$ . This significant value indicated that the assumption of homogeneity of covariance between groups was violated. Under such conditions, the Pillai trace

**Table 1. Relationships Among Variables Affecting Student Retention in Athletic Training Education Programs (Pearson Correlation)**

	Anticipatory Factors	Academic Integration	Clinical Integration	Social Integration	Motivation
Anticipatory factors	1	0.293	0.145	0.298	0.294
<i>P</i> <sup>a</sup>	N/A	.001	.111	.001	.001
<i>n</i> <sup>b</sup>	125	124	121	125	123
Academic integration	0.293	1	0.283	0.299	0.509
<i>P</i>	.001	N/A	.002	.001	<.001
<i>n</i>	124	124	120	124	122
Clinical integration	0.145	0.283	1	0.246	0.515
<i>P</i>	.111	.002	N/A	.006	<.001
<i>n</i>	121	120	121	121	120
Social integration	0.298	0.299	0.246	1	0.293
<i>P</i>	.001	.001	.006	N/A	.001
<i>n</i>	125	124	121	125	123
Motivation	0.294	0.509	0.515	0.293	1
<i>P</i>	.001	<.001	<.001	.001	N/A
<i>n</i>	123	122	120	123	123

Abbreviation: NA, not applicable.

<sup>a</sup> All *P* values were 1 tailed.

<sup>b</sup> The *n* values varied because of incomplete data.

was a better indicator of MANOVA significance. The value for the Pillai trace was significant at 0.432, with  $F_{5,113} = 17.169$  and  $P < .001$ .

Univariate ANOVAs were conducted to follow up on the significant MANOVA. The groups differed on the academic integration scale ( $F_{1,122} = 8.483$ ,  $P < .004$ ), clinical integration scale ( $F_{1,119} = 30.214$ ,  $P < .001$ ), and motivation scale ( $F_{1,121} = 68.887$ ,  $P < .001$ ). Complete results of the univariate ANOVAs are shown in Tables 3 through 7.

**Predicting Student Persistence and Attrition.** We conducted a stepwise discriminant analysis to determine which of the aforementioned variables (anticipatory factors, academic integration, clinical integration, social integration, or motivation) maximally discriminated between the groups. In the first step, motivation was entered into the analysis, ( $F_{1,117} = 69.253$ ,  $P < .001$ ) and found to account for 37.2% of the variance between groups. The anticipatory factors variable was included in the second step ( $F_{1,117} = 37.985$ ,  $P = .034$ ). The moderate correlations between motivation and both clinical integration ( $r = .515$ ) and academic integration ( $r = .509$ ) explain why those variables were not stepped in the discriminant analysis. The resultant Wilks  $\lambda$  for the model containing motivation and anticipatory factors was .604. This model accounted for 39.6% of the variance between groups.

**Table 2. Factors Affecting Student Retention in Athletic Training Education Programs: Standardized Canonical Discriminant Function Coefficients and Effect Sizes**

	Standardized Canonical Discriminant Function Coefficient	Effect Size ( $\eta_p^2$ )
Anticipatory factors	−0.262	0.001
Academic integration	−0.044	0.069
Clinical integration	0.327	0.189
Social integration	−0.273	0.006
Motivation	0.981	0.372

A discriminant analysis was also used to classify group membership. Because of the heterogeneity of covariance between the groups, classification was completed on the basis of separate covariance matrices. A total of 119 participants (93 seniors, 26 major changers) were entered into this analysis. The complete theoretic model, consisting of anticipatory factors, academic integration, clinical integration, social integration, and motivation, was successful in correctly classifying a total of 86.6% of the participants. Of the seniors, 95.7% ( $n = 89$ ) were correctly classified, as were 53.8% ( $n = 14$ ) of major changers. Mean scores on each scale for correctly and incorrectly classified major changers are shown in Table 8.

## Qualitative Results

**Motivation.** Motivation was linked to passion for the field of athletic training, self-efficacy, and a dedication to complete the athletic training degree. Sixty-three seniors questioned their decision to persist in the athletic training major at some point in their undergraduate careers. Most of these students stated that the large time commitment led to their doubts. Conversely, 53 seniors had a strong passion for the field of athletic training and a desire to enter the profession. For example, participant 25 said, “Despite the long hours and challenging academics, I love AT and really cannot see myself pursuing a different career. I view my setbacks as a rewarding challenge that I can overcome.”

When asked about specific instances that made them feel capable of practicing as ATs, senior-level participants often remarked on positive clinical experiences, helping athletes through their rehabilitation, or specific clinical experiences in which they performed very well. One senior (participant 13) noted, “The summer before my senior year, I had an internship where I got a lot more experience doing things on my own. That gave me more confidence that I was good at athletic training and that I would be successful in my senior year. I could see the light at the end of the tunnel.” This student, in addition to 54 other seniors, gained confidence through hands-on experience and was able to

**Table 3. Anticipatory Factors: Discriminating Between Seniors and Major Changers**

	Seniors (Mean $\pm$ SD)	Major Changers (Mean $\pm$ SD)	<i>F</i>	<i>df</i>	<i>P</i>
Anticipatory factors	12.57 $\pm$ 3.20	12.32 $\pm$ 3.10	0.146	1, 123	.703
1. I feel that I knew what the academic portion of athletic training education would be like when I entered the athletic training major.	4.36 $\pm$ 1.23	4.65 $\pm$ 1.02	1.349	1, 123	.248
2. I feel that I knew what the clinical portion of athletic training education would be like when I entered the athletic training major.	4.11 $\pm$ 1.28	3.94 $\pm$ 1.18	0.430	1, 123	.513
3. When I entered the athletic training major, I was aware of the time demands that would be placed on me.	4.11 $\pm$ 1.32	3.74 $\pm$ 1.55	1.635	1, 123	.203

identify progress toward her goals. Motivation for some participants ( $n = 18$ ) was more inherent in nature. A common theme was a dedication to finish what they started and complete their degree in athletic training.

**Clinical Integration.** The seniors often described enjoying their clinical experiences because of learning opportunities or relationships (or both) in the clinical setting. In many cases, these positive experiences factored into their decisions to persist in the athletic training major. For example, participant 6 stated, “I liked the opportunity to interact with athletes and others, it was a great opportunity to develop my skills. This practical part was a major factor in my staying.” Other common themes included applying knowledge, positive interactions with athletes and clinical instructors, helping others, and gaining confidence. In all, 68 seniors (72.3% of the sample) described the favorable effects of positive clinical experiences on their decisions to persist in the athletic training major.

A common theme emerging from the open-ended responses of the major changers was clinical rotations that included large amounts of “grunt work” and “sitting around and wasting time” contributed to their decision to leave the athletic training major. Participant 101 noted, “My clinical experiences were a major factor in my decision to leave. I felt that I was mainly responsible for the grunt work and I really didn’t enjoy that. We were also not given enough hands-on work with the equipment and treating the athletes. I found it rather frustrating and boring.” For 15 other major changers (51.6% of the sample), negative clinical experiences influenced their decisions to leave the athletic training major.

**The Influence of Peer-Support Groups.** Fifty-three seniors (56.4%) indicated that the peer-support group was essential to their persisting in the athletic training major and often “helped them get through it.” For example, when asked how his social interactions factored into his persistence in the athletic training major, participant 87 said, “I have made many friends with the athletes and other athletic training students who can relate to what you are going through.”

**Specified Reasons for Leaving.** A common theme that emerged among some of the major changers was the desire to pursue a different career. The realization that an athletic training career might lead to role strain in the future was a concern for 14 major changers. When asked why she left the athletic training major, participant 100 stated, “I changed my major once I realized exactly how much time was involved in this career even after a certification was received. I recently became engaged and I did not want to spend my life with my team and not my husband.” Nine other major changers wished to pursue a different career than athletic training. For example, when asked why he left the athletic training major prematurely, participant 57 noted, “I liked athletic training but wanted to follow a different career path. I felt a need to focus more on law and politics. I just felt like that was what I wanted to do instead of being a trainer.”

## DISCUSSION

### Motivation

Our results indicated that motivation was the key factor contributing to persistence in ATEPs. A high motivation score indicated that the student was confident in his or her abilities, believed that the decision to pursue and finish the athletic training degree was the right choice, and had a strong desire to finish the athletic training degree and achieve certification by the Board of Certification. Motivated students exhibited 2 qualities: confidence in themselves as athletic training students and a desire to finish the program of study. Consistent with the results of Bandura,<sup>23</sup> Schunk and Pajares,<sup>24</sup> and Harter,<sup>26</sup> confidence and self-efficacy have a strong influence on an individual’s persistence in any task. In the athletic training literature, Mensch and Ennis<sup>27</sup> stressed the importance of enhancing student confidence, as it motivates students to learn. The influence of desire is consistent with the findings of Cabrera et al,<sup>3</sup> who suggested that the intention to persist exerts considerable influence on dropout decisions. Sza-

**Table 4. Academic Integration: Discriminating Between Seniors and Major Changers**

	Seniors (Mean $\pm$ SD)	Major Changers (Mean $\pm$ SD)	<i>F</i>	<i>df</i>	<i>P</i>
Academic integration	20.86 $\pm$ 3.12	18.67 $\pm$ 4.80	8.483	1, 124	.004
1. Overall, I have been satisfied with my learning as an athletic training student.	5.16 $\pm$ 0.92	4.61 $\pm$ 1.09	7.519	1, 123	.007
2. The faculty members in the athletic training education program are good teachers.	5.23 $\pm$ 0.97	4.77 $\pm$ 1.31	4.385	1, 123	.038
3. The faculty members in the athletic training education program are concerned with my learning.	5.33 $\pm$ 0.79	4.74 $\pm$ 1.39	8.490	1, 123	.004
4. Overall, I have enjoyed my academic experiences as an athletic training student.	5.14 $\pm$ 0.90	4.60 $\pm$ 1.33	6.360	1, 122	.013

**Table 5. Clinical Integration: Discriminating Between Seniors and Major Changers<sup>a</sup>**

	Seniors (Mean $\pm$ SD)	Major Changers (Mean $\pm$ SD)	<i>F</i>	<i>df</i>	<i>P</i>
Clinical integration	53.25 $\pm$ 5.02	46.36 $\pm$ 7.96	30.214	1, 119	<.001
1. I got along well with my supervisors in my clinical sites.	5.35 $\pm$ 0.58	5.23 $\pm$ 1.03	0.563	1, 123	.455
2. I got along well with other athletic training students in my clinical sites.	5.56 $\pm$ 0.49	5.39 $\pm$ 0.98	1.713	1, 123	.193
3. I got along well with athletes/patients/clients in my clinical sites.	5.58 $\pm$ 0.53	5.40 $\pm$ 1.00	2.117	1, 123	.148
5. I was able to learn a great deal in my clinical experiences.	4.96 $\pm$ 0.61	4.46 $\pm$ 0.94	11.238	1, 122	.001
6. I feel that I had to do more "grunt work" in my clinical sites than I should have had to.	4.24 $\pm$ 1.00	3.65 $\pm$ 1.60	5.597	1, 121	.020
7. I feel that I was responsible for too much in my clinical sites. (Reverse coded)	5.02 $\pm$ 0.78	4.63 $\pm$ 1.20	4.361	1, 120	.039
8. There were times when I experienced a feeling of "too many hours" at my clinical sites. (Reverse coded)	4.08 $\pm$ 1.02	3.69 $\pm$ 1.36	2.943	1, 123	.089
9. I feel that completing hours in this clinical site was anxiety inducing. (Reverse coded)	4.46 $\pm$ 0.98	3.81 $\pm$ 1.41	7.791	1, 123	.006
10. I feel that I spent too many hours in this clinical site just wasting time. (Reverse coded)	4.22 $\pm$ 0.90	3.16 $\pm$ 1.52	22.001	1, 123	<.001
11. At the end of this rotation, I felt that I was able to meet the demands of professional practice in this setting.	4.78 $\pm$ 0.80	3.33 $\pm$ 1.23	55.561	1, 121	<.001
12. Overall, I was satisfied with my clinical experience at this site.	4.95 $\pm$ 0.67	3.98 $\pm$ 1.11	34.672	1, 123	<.001

<sup>a</sup> Item 4, which concerned interactions with other health care providers, was eliminated from the analyses because it did not apply to many of the participants.

fran<sup>28</sup> also explained the role of motivation in dropout decisions: students who are motivated to succeed in their studies are less likely to be discouraged when faced with obstacles.

### Clinical Integration

We added clinical integration to the original Tinto<sup>2</sup> model of student integration in order to account for the influence of clinical experiences on decisions to drop out of ATEPs. Clinical integration refers to the assimilation of athletic training students into the clinical portion of athletic training education. The seniors achieved considerably higher levels of clinical integration than the major changers, and the importance of clinical integration to student retention was supported. According to Kotecha,<sup>10</sup> students who can function within the discourses of their clinical settings are more likely to persist in preprofessional nursing programs. Those students achieve higher levels of clinical integration because they are more willing to work within the confines of the clinical experience and more willing to become assimilated. In the present study, clinical integration was achieved through positive experiences, interactions, and learning in the clinical setting. Students who achieved high levels of clinical integration learned from their supervisors and peers and were able to "fit in" at their clinical sites.

According to Weidner and Pipkin,<sup>16</sup> clinical learning can suffer from a lack of adequate supervision or because athletic training students are performing tasks that are above and beyond the appropriate level. In those cases, interactions with clinical supervisors are limited, very little clinical learning takes place, and clinical integration is

compromised. In the present study, both seniors and major changers indicated that their interactions in clinical settings were generally positive. This was evidenced by the nonsignificant differences between groups when asked to rate how well they got along with supervisors, peers, clients, patients, and other health care professionals at their clinical sites. Therefore, the differences in clinical integration between groups can be attributed to discrepancies in clinical learning, responsibility level, confidence, and overall satisfaction with the clinical experience. The survey data support this statement, because differences emerged between groups on the questionnaire items that specifically covered those topics (eg, "I was able to learn a great deal in this clinical site"; "I feel that I was responsible for too much in this clinical site"; "I feel that completing hours in this clinical site was anxiety inducing"; "At the end of this rotation, I felt that I was able to meet the demands of professional practice in this setting"; "Overall, I was satisfied with my clinical experiences at this site").

According to Miller and Berry,<sup>14</sup> many students spend large numbers of hours in clinical settings unengaged or performing menial tasks. We found that many seniors indicated they "wasted time" at some of their clinical sites but not all of them. On average, seniors disagreed with the statement "I felt that I spent too many hours in this clinical site just wasting time." These data suggest that the students spent most of the time in their clinical sites engaged in meaningful activities. The major changers, however, generally agreed that they wasted a large amount of time. This was also evidenced in some of the open-ended responses, in which the major changers often focused on the hours spent wasting time and performing menial tasks during their clinical experiences. It appears that all athletic training students

**Table 6. Social Integration: Discriminating Between Seniors and Major Changers**

	Seniors (Mean $\pm$ SD)	Major Changers (Mean $\pm$ SD)	<i>F</i>	<i>df</i>	<i>P</i>
Social integration	17.88 $\pm$ 3.28	17.52 $\pm$ 3.99	0.261	1, 123	.610
1. I get along well with my athletic training classmates.	5.46 $\pm$ 0.89	5.23 $\pm$ 0.96	1.527	1, 123	.219
2. I interact with athletic training faculty positively.	5.26 $\pm$ 0.85	4.87 $\pm$ 1.26	3.672	1, 123	.058
3. I have enough time to myself.	3.50 $\pm$ 1.30	3.55 $\pm$ 1.52	0.030	1, 123	.864
4. I have enough time to socialize with others.	3.67 $\pm$ 1.29	3.87 $\pm$ 1.38	0.544	1, 123	.462



**Table 7. Motivation: Discriminating Between Seniors and Major Changers<sup>a</sup>**

	Seniors (Mean ± SD)	Major Changers (Mean ± SD)	F	df	P
Motivation	31.61 ± 4.11	23.55 ± 5.83	68.887	1, 121	<.001
1. I am dedicated to finishing my program of study regardless of what obstacles I need to face.	5.71 ± 0.52	3.67 ± 1.60	116.259	1, 122	<.001
2. I have a desire to get certified as an athletic trainer.	5.55 ± 0.88	4.40 ± 1.40	28.728	1, 122	<.001
3. I am good at what I do as an athletic training student.	5.15 ± 0.70	4.58 ± 0.85	13.726	1, 123	<.001
4. I enjoy what I do as an athletic training student.	5.17 ± 0.85	4.48 ± 0.89	14.840	1, 123	<.001
5. I wonder if the athletic training major is worth finishing. (Reverse coded)	5.05 ± 1.38	2.90 ± 1.56	53.134	1, 123	<.001
6. I am confident that my initial decision to pursue athletic training was the right choice.	4.97 ± 1.16	3.77 ± 1.63	19.799	1, 122	<.001

<sup>a</sup> Some items were worded more retrospectively (eg, “I was good at what I did as an athletic training student,” “As an athletic training student, I had a strong desire to get certified as an athletic trainer”) in the major changers’ questionnaires because they were no longer enrolled in athletic training education.

experience periods of time at their clinical sites when they are unengaged or performing “grunt work” (the term used by many participants to refer to menial tasks), but these results help to stress the importance of keeping students meaningfully engaged as much as possible in clinical settings.

Clinical integration was also related to motivation. In the clinical setting, integrated students completed a reasonable number of clinical hours and responsibilities, were able to interact well with others, learned the required skills, and gained confidence in their ability to function as ATs. According to Mensch and Ennis,<sup>27</sup> positive learning environments that foster confidence in one’s own abilities can increase student motivation. High levels of clinical integration emerge from these positive learning experiences. This result is congruent with the work of Bandura<sup>23</sup> and Schunk and Pajares,<sup>24</sup> who indicated that individuals are more likely to persist when they feel capable of achieving their goals.

An adaptation of the Harter<sup>26</sup> model of self-efficacy also helps to explain the relationship of clinical integration to motivation. Specifically, students who know where they “fit” in their clinical sites and who feel capable as practitioners in the clinical setting are likely to achieve higher levels of self-efficacy. Because self-efficacy is related to motivation,<sup>24</sup> it appears that clinical integration was a critical component for enhancing student motivation, which explains the relationship between the variables.

## Academic Integration

Academic integration refers to students’ assimilation into the academic portion of the ATEP. High levels of academic integration arise from the combination of satisfactory grade performance and strong intellectual development. Consistent with the Tinto<sup>2</sup> model of student integration and the work of Thomas,<sup>13</sup> academic integration was shown to discriminate between seniors and major changers. However, it is notable that both seniors and major changers generally had positive perceptions of their academic integration, which suggests that both groups

were sufficiently integrated into the academic portion of athletic training education. The discrepancy in academic integration between seniors and major changers emerged from differences in perceived learning, interactions with faculty, and overall satisfaction with the academic portion of athletic training education. The survey data support this statement, because differences were present between groups on the questionnaire items that specifically covered those topics (eg, “I have been satisfied with my learning as an athletic training student”; “The faculty members in the athletic training program are good teachers”; “The faculty members in the athletic training education program are concerned with my learning”; “Overall, I have enjoyed my academic experiences as an athletic training student”).

These results support efforts to completely integrate students into the academic portion of athletic training education. Faculty members who focus on positive interactions with their students and improving student learning help students achieve maximal levels of academic integration. This finding is consistent with the work of Tinto,<sup>7</sup> who indicated that classroom communities allow students to better engage in the academic life of the institution, thereby increasing academic integration.

Similar to clinical integration, academic integration was also related to motivation. The Harter<sup>26</sup> model of self-efficacy provides some explanation for the relationship between academic integration and motivation. In the Harter<sup>26</sup> model, cognitive competence is one of 4 factors that contribute to self-efficacy. Cognitive competence leads to satisfactory grades in the academic setting. Deci et al<sup>29</sup> provided a different explanation for the relationship between motivation and academic integration. According to Deci et al,<sup>29</sup> students who are intrinsically motivated to succeed are often more likely to succeed than are those who lack intrinsic motivation. Students who are generally motivated to succeed will strive for satisfactory grades and take an active role in their learning, thereby increasing their academic integration.

**Table 8. Scores of Correctly and Incorrectly Classified Major Changers on Each Scale**

	Seniors (Original group, n = 94)	Major Changers (Original group, n = 31)	Major Changers (Incorrectly classified, n = 12)	Major Changers (Correctly classified, n = 14)
Anticipatory factors	12.57 ± 3.20	12.32 ± 3.10	12.38 ± 3.38	12.19 ± 3.08
Academic integration	20.86 ± 3.12	18.67 ± 4.80	19.54 ± 5.25	17.73 ± 4.71
Clinical integration	53.25 ± 5.02	46.36 ± 7.96	49.05 ± 6.00	44.61 ± 9.02
Social integration	17.88 ± 3.28	17.52 ± 3.99	17.15 ± 5.41	17.81 ± 2.81
Motivation	31.61 ± 4.11	23.55 ± 5.83	28.69 ± 3.07	19.38 ± 3.79

The relationship we noted between academic integration and motivation was not completely supported by previous empirical studies. For example, Allen<sup>4</sup> reported a nonsignificant correlation between the desire to finish college and freshman grade point average. A possible explanation for this discrepancy is that academic integration requires the student to achieve more than a simple A average. Grade point average reflects learning, which is one portion of academic integration. However, academic integration includes the student's interactions with faculty and the subject matter itself. Those interactions cannot be quantified simply by grade point average. Students who achieve satisfactory grades, enjoy learning, and interact well with faculty can achieve higher levels of academic integration than students who have a high grade point average but do not enjoy learning the material or interacting with faculty. If we consider academic factors other than grade point average, it is reasonable that our results contradict those of Allen.<sup>4</sup>

### Peer-Support Groups and Learning Communities

One factor that emerged in the qualitative data as influencing the persistence of many of the seniors was the presence of a peer-support group. More than half (56.38%) of the seniors indicated that the support of their classmates factored into their decision to persist as athletic training students. This result is supported in the literature by the work of Elkins et al,<sup>12</sup> who determined that support was a factor in dropout decisions. Barnett and Muse<sup>30</sup> advocated the creation of supportive learning environments. According to Tinto,<sup>7</sup> a support group allows students to engage more fully in the academic life of an institution. Therefore, forming peer-support groups can improve learning among students by facilitating learning and interaction in the classroom and at the clinical sites.

### Predicting Persistence and Attrition

Of the 5 dependent variables (anticipatory factors, academic integration, clinical integration, social integration or motivation), motivation was the strongest predictor of student persistence. This result is consistent with the work of Cabrera et al,<sup>3</sup> who indicated that among a number of variables influencing student retention in higher education, intent to persist was the strongest predictor of persistence.

Using the discriminant analysis, we also assessed the ability of the entire theoretic model to classify seniors and major changers. We found it to be very accurate in classifying student persistence. Both clinical integration and academic integration were related to motivation, which accounted for the most variance between groups. The anticipatory socialization experiences of the students also contributed to the prediction model, consistent with the work of Harvey and McMurray,<sup>11</sup> who noted that flawed perceptions were a factor in the decision to leave nursing education. Based on the model, it appears that students who persist in athletic training education also demonstrate high levels of clinical and academic integration, which are in turn related to motivation. In addition, the model depicts the relationship between motivation and student integration. Intrinsically motivated students might strive to achieve integration into the ATEP. Regardless of the direction of the relationships between motivation and

academic integration and motivation and clinical integration, the importance of student motivation cannot be overlooked. When students are motivated to persist, they are more likely to complete their formal education as athletic training students. Anticipatory socializing experiences can also help students to become integrated into the athletic training program, but our results suggest that those experiences do not factor into the decision to leave as strongly as motivation, clinical integration, and academic integration. All athletic training students have difficulty finding time to socialize, but forming peer-support groups can help students to become fully integrated into the ATEP.<sup>7</sup>

The theoretic model was less accurate in classifying major changers. Two classes of major changers emerged from the results: (1) students who lacked integration and/or motivation, and (2) students who achieved adequate levels of integration and were at least somewhat motivated to persist as athletic training students. Students in this second group left for a variety of reasons; however, the predominant theme was career or life goals (or both). Students in this group expressed desires to pursue other careers, such as law, physical therapy, or physician assistant. Other participants expressed concerns over the lifestyle of athletic trainers. One final theme dealt with the substantial time commitment athletic training education requires. For example, when asked how his clinical experiences factored into his decision to leave the ATEP, participant 107 stated, "The clinical experiences were very time consuming. I did not feel like I had time for school-related work."

Clearly, the profiles of students who choose to leave the athletic training major differ markedly. Tinto<sup>31</sup> noted that student departure from a program of study is a complex process that can be influenced by a number of factors. Undoubtedly, some students leave the athletic training major for reasons that are beyond institutional control.<sup>5</sup> Yet despite the potential influence of those factors, we still advocate the fostering of appropriate integration into the major. By helping students achieve integration and become motivated, athletic training educators can take steps toward retaining students who possess a passion for the field of athletic training but might not see how they fit into the profession.

### LIMITATIONS

The primary limitation associated with this study and many other studies that rely on questionnaires to collect data is the anonymity of the data. When responses are anonymous, researchers cannot follow up with participants. Major changers were more distant from athletic training education than were seniors and, perhaps, less willing to complete a questionnaire dealing with their experiences as athletic training students. Major changers might also have used the opportunity to express strong negative feelings about their experiences as athletic training students.

In addition, we examined persistence and attrition across athletic training programs with different admission requirements and policies. Those different policies were not well accounted for in our study.

The self-reporting aspect of the study was another limitation. We could only assume that the participants

provided honest, complete responses to survey items. Without reviewing academic records, we cannot determine which major changers were forced out of athletic training education and which major changers voluntarily left the athletic training major. The generalizability of the study is limited to the ATEPs in the National Athletic Trainers' Association District 3.

## RECOMMENDATIONS

To keep students motivated and thereby increase retention, educators must provide students with strong positive learning experiences. Clinical placements, numbers of clinical hours, and specific tasks assigned during clinical education should be among the items considered during program planning. Because of the effect clinical instructors can have on clinical integration, athletic training students should be paired with compatible clinical instructors. Such practices might not always be possible, but taking into account the personalities of both the clinical instructor and student before placement might help reduce conflicts.

The number of clinical hours completed must also be considered. Theoretically, more clinical hours would lead to more exposure to athletes, more clinical experience, and better skill development. However, large amounts of time when the student is unengaged do not contribute to appropriate levels of clinical integration. Students should be assigned a quantity of clinical hours that will allow them to learn and fully experience athletic training but still provide sufficient time for academic study, reflection on new knowledge, and experiencing other college activities. At clinical sites, structured learning experiences must be stressed so that students feel that they are actively learning new skills, not simply waiting for things to happen. Development of structured learning experiences can be facilitated through appropriate goal setting before the clinical rotation starts.

Under the most recent Commission on Accreditation of Athletic Training Education standards, students are not afforded many opportunities to practice autonomously at their clinical sites. However, it is possible to allow "supervised autonomy," in which students make decisions and carry out treatment plans under appropriate supervision. All clinical instructors should provide these experiences, because they help students gain required skills and contribute to the well-being of their patients. Our qualitative results support these experiences as a method to help students achieve better integration into the clinical aspect of athletic training education. Another clinical instructor responsibility is to help athletic training students feel comfortable as practitioners and reduce their anxiety. When students are allowed to make their own decisions but still have their clinical instructor's help available, they may be less worried about making mistakes. Clinical instructors must also give appropriate credit and positive reinforcement to their students when warranted. Positive feedback can increase student confidence and motivation to persist.

Future authors may wish to investigate larger populations that are more representative of ATEPs nationwide. We examined persistence and attrition across ATEPs with different admission requirements and policies. Additional researchers might examine the issue of student retention

across programs with different admission requirements and clinical education. Examining clinical integration across different clinical settings also appears warranted.

This study served as a first-level analysis of the differences between students who persist in ATEPs and those who do not. We did not address all the variables that can influence persistence in ATEPs. Second-level analyses will be aimed at developing an understanding of the different profiles that exist within the group that persists and within the group of major changers. Specifically, intrinsic and extrinsic motivation factors among those who persist should be investigated. When future authors target major changers, students who willingly leave must be better differentiated from those who are forced out of their programs.

## CONCLUSIONS

Our findings provide an initial examination of persistence and attrition in athletic training education. With an ever-expanding job market in the field of athletic training, athletic training educators are responsible for preparing adequate numbers of qualified individuals for professional practice. A discussion of methods to retain practicing ATs in the field is beyond the scope of this study, but we have offered an initial assessment of factors contributing to student retention in ATEPs.

The ATEPs appear to serve as fine gatekeepers to professional practice in the field of athletic training. Athletic training students who are not motivated or simply do not put forth a strong effort are not likely to complete the degree and achieve certification. Some student attrition is necessary and inevitable. Athletic training educators who focus on keeping their students motivated and interested in the field of athletic training are likely to retain larger numbers of students who have the potential to succeed as professionals. In order to stay motivated, students need to gain confidence in their abilities and feel that they are making progress toward becoming skilled professionals. Through positive interactions with faculty, clinical instructors, and their peers, athletic training students can develop their skills, become integrated into the athletic training program, and remain motivated to complete the athletic training degree.

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Address correspondence to Thomas M. Dodge, PhD, ATC, CSCS, Boston University, Sargent College of Health and Rehabilitation Sciences, Department of Physical Therapy and Athletic Training, 635 Commonwealth Avenue, Boston, MA 02215. Address e-mail to [tdodge@bu.edu](mailto:tdodge@bu.edu).