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Increasing Freshman Applications in the Secondary Admissions Process

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Objective: To identify those factors that influence freshmen application to Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited undergraduate ATEPs having a secondary admissions process. (All undergraduate ATEPs are now accredited by the Commission on Accreditation of Athletic Training Education (CAATE)).

Design and Setting: The *Athletic Training Student Persistence Survey* was used to measure freshmen athletic training student level of satisfaction with various aspects of their program in CAAHEP-accredited ATEPs in the United States to determine factors that influence the decision to apply.

Subjects: Three hundred and forty-seven freshmen athletic training students (113 males and 234 females) enrolled in CAAHEP-accredited ATEPs.

Measurements: Students' level of satisfaction with the ATEP as defined by the constructs, demographic information, and the decision to apply to the ATEP.

Results: All of the constructs except Clinical Education were found to be significantly different between the two groups ($P < .05$). None of the demographic variables were related to a student's decision to apply. Cumulative college grade point average and the grades received in athletic training and science courses did influence a student's decision to apply. ($P < .05$).

Conclusions: Freshman student satisfaction with the ATEP is predictive of a student's decision to apply to the program. Factors affecting the decision to apply included social integration, intellectual integration, commitment, and the clinical education experience.

Key Words: secondary application, student satisfaction, attrition

Universities, academic institutions, and programs have used selective admissions processes for many years as a method to increase the academic quality of entering students. One way to increase the selectivity of the admissions process is to increase the number of applicants. Many colleges and universities, as well as individual academic programs, have found that increasing the number of applicants results in a freshman class with higher grades and test scores.[1-7] Research has demonstrated that a student's grade point average (GPA) is an indicator of success. The high school GPA and Qualitative SAT scores of Athletic Training students (ATS) were found to be highly predictive of their college GPA.[8] This was also true for other allied health care professions including nursing, occupational therapy, and physical therapy.[1,8,9]

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A different study showed a positive correlation between ATS college GPA and their success on each of the three portions of the Board of Certification (BOC) examination.[10]

By increasing the number of applications, athletic training education programs (ATEPs) can be more selective, thus hopefully improving the academic quality of admitted students and the students' ability to succeed in school and on the BOC examination. As educators and recruiters of new athletic training students, our goal should be to identify, motivate, and inspire the best and the brightest for a career in athletic training.[7] For programs using a secondary admissions process, a method to increase the number of applicants may be to improve student satisfaction with the program during the pre-application freshman year.

Primary admissions is the process of being admitted into the institution. The secondary admissions process is program-specific and is based on collegiate academic progress to date. Many allied health education programs, including most (80.8%) athletic training education programs (ATEPs), use a secondary admissions process.[11] Prior research indicated that the majority (52.4%) of ATEPs begin their secondary admission during the spring of the freshman year.[11]

The purpose of this study was to identify those factors which influence freshmen application to Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited undergraduate ATEP having a secondary admissions process. (All

undergraduate ATEPs are now accredited by the Commission on Accreditation of Athletic Training Education (CAATE)).

Methods

Subjects

The population for this study consisted of freshmen athletic training students enrolled in both public and private CAAHEP accredited undergraduate ATEPs having a secondary admission process during the spring term of the freshman year (N = 1416 students, N = 83 programs). Using a table of random numbers we selected a sample of 41 (49%) programs that represented a total of 603 (43%) students. All eligible freshmen were surveyed at the programs sampled. Students in 34 (83%) of the 41 schools contacted completed the survey. Of the 603 surveys distributed, 347 were returned, yielding a response rate of 58%. There were no unusable surveys. Each student who participated in this study was at least 18 years old (M = 19.01, SD = 1.06), with the oldest reported age of 43 years. Return demographics revealed that 113 (32.6%) subjects were males and 234 (67.4%) were females, 300 (86.5%) subjects were Caucasian and 43 (12.4%) reported belonging to a minority group. The students came from a variety of schools with 139 (40.1%) of the participants reporting being at a school in which most sports competed at the NCAA Division I level and 208 (59.9%) reporting being at a school in which most sports competed at the NCAA Division II, III, or at the NAIA level. Approval from the University's Institutional Review Board was obtained before the surveys were mailed to the program directors.

Instrumentation

The *Athletic Training Student Persistence Survey,* developed by the principal investigator (VWH), was used to collect the data. This instrument was designed to measure freshmen athletic training students' level of satisfaction with various aspects of their program. The reliability of this instrument was determined to be 0.9 using Cronbach's alpha to calculate the average inter-item correlation between the survey items.

The first section of the survey determined the subjects' satisfaction with various aspects of the ATEP (intellectual integration, academic advising, clinical observation experiences, social integration, and commitment) using a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The next section identified if the subject applied to the ATEP and if the subject had met the minimum application requirements. The final section collected demographic data including age, gender, race, division of the athletic program, and self-reported high school GPA, college GPA, SAT scores, ACT scores, and average grades in athletic training and science courses. Demographic data was collected using open-ended and multiple choice questions. The respondents were divided into two groups for data collection: those who indicated that they had applied to the ATEP and those who did not. Statistical analyses were conducted using Statistical Procedures for the Social Sciences (SPSS) for Windows version 11.0.

Classification results and a confirmatory factory analysis was used on all data to support both the prediction model of the survey instrument and the construct validity respectively. The classification results demonstrated that the prediction model confirmed the results (Table 1). Of the 265 participants who applied for admission, the model correctly predicted 240 (90.6%). Of the 80 participants who did not apply for admission, the model correctly predicted 59 (73.8%). Of the total number of cases, 230 (86.7%) were correctly classified.

Table 1. Classification Results Confirm the Prediction Model

*Classification Results**

		Predicted Group Membership		
	Have applied for admission	Yes	No	Total
Original Count	yes	240	25	265
	no	21	59	80
	Ungrouped cases	2	0	2
%	yes	90.6	9.4	100
	no	26.3	73.8	100
	Ungrouped cases	100	.0	100

*86.7% of original grouped cases correctly classified

A confirmatory factor analysis supported the construct validity of the questionnaire by confirming the theorized constructs. The Rotated Factor Matrix supports the existence of four distinct constructs within the questionnaire (Table 2). Any survey item that loaded at .450 or greater was considered significant, and therefore, validates the construct.[12] Two of the initial theorized constructs, goal commitment and program commitment, were shown to load as a single construct termed Commitment. The other constructs supported by the confirmatory factor analysis were Intellectual Integration, Academic Advising, and Social Integration. Intellectual Integration included the student's academic performance, satisfaction with AT courses, and his or her overall academic experience. Academic Advising included both the "availability" and support given "receptive to my needs" by the academic advisor. Social Integration indicated a student's ability to make friends in the AT program and develop close personal relationships with those other students. The survey items related to the clinical education observation experience did not load as a single construct, indicating that students may have been satisfied with one aspect while being dissatisfied with other aspects of these experiences.

Table 2. Rotated Factor Matrix Supporting Existence of Constructs

	Factor			
Rotated Factor Matrix †	Commitment	Intellectual Integration	Social Integration	Academic Advising
Academic performance	.006	.540*	.003	.132
Course of study	.388	.654*	.015	.209
Academic experience	.235	.729*	.084	.191
Academic advisor – needs and concerns	.105	.299	.124	.731*
Academic advisor – availability	.099	.222	.033	.899*
Clinical observation – interesting	.298	.384	.325	-.018
Clinical observation – challenging	.198	.373	.224	.047
Clinical instructor quality	.133	.430	.205	.237
Made friends with ATS	.146	.109	.842*	.062
Easy to meet and make ATS friends	.127	.118	.817*	.098
Chose the right ATEP	.793*	.322	.135	.119
Important to graduate from this ATEP	.823*	.173	.172	.073
Belonging in the ATEP	.801*	.219	.215	.123
Future employment or graduate school	.754*	.184	.116	.112
Close friends rate as quality ATEP	.222	.324	.242	.236
College degree in AT	.920*	.117	.088	.048
Finish ATEP	.923*	.142	.064	.055

Extraction Method: Maximum Likelihood

Rotation Method: Varimax with Kaiser Normalization

* $P < .05$

†Rotation converged in 5 iterations

Procedures

The *Athletic Training Student Persistence Surveys* and cover letters were mailed to the program directors during the spring semester. The program director's cover letter explained that these surveys were to be distributed to the freshmen in class following their ATEP's application deadline, but prior to receiving notification of their acceptance. The mailing contained enough surveys for each freshman student in the program. It also contained a cover letter for each student explaining the purpose of the study, the assurance of anonymity, our gratitude for participation, and instructions. Once the students completed the survey, they placed them in the large self-addressed, stamped envelope provided for the professor to return.

Descriptive statistics were used to initially analyze the data. Means, standard deviations, frequencies, and percentages were computed for each of the variables. The next set of data analyses was performed using a Mann-Whitney U to identify predictor variables that highly correlated with the dependent variable, each student's decision to apply or not apply (utilized as the grouping variable). The tests of equality of group means were calculated to determine if there were significant differences between groups for each of the variables. The Mann-Whitney U was computed to determine relationships between race, gender, and the other demographic variables. The significance level for all analyses was set at $P < .05$.

Results

Each of the three variables within the Intellectual Integration construct, two variables within in the Social Integration construct, and the six variables within the Commitment construct were statistically different between those students who applied for admission than those who did not (Table 3). The Mann-Whitney U confirmed that the level of satisfaction with Intellectual Integration ($U = 6532.5$, $P < .01$), Social Integration ($U = 8371.5$, $P < .01$), and Commitment ($U = 3515.0$, $P < .01$) significantly influenced a student's decision to apply for admission. Only one item related to Clinical Education (clinical observation experiences being interesting) was significantly different between the two groups (Table 3).

Two variables, (close friends rate and met minimum requirements), that did not relate to any of the four constructs also differed significantly between the two groups. Students who applied for admission rated "My close friends rate this athletic training program as a quality program" ($U = 7976.5$, $P < .01$) higher ($M = 3.991$, $SD = .788$) than students who chose not to apply ($M = 3.662$, $SD = .784$). In addition, the groups differed ($U = 7020.0$, $P < .01$) on the survey item "I met the minimum requirements to apply to the athletic training education program." Of the 338 students responding to this item, 242 (69.7%) reported that they did meet the minimum requirements while 30 (8.6%) reported that they did not. Sixty six (19.0%) students reported that they were not sure if they met the minimum admission requirements.

The only demographic variables that demonstrated a relationship with a student's decision to apply were the cumulative college GPA ($U = 8535.5$, $P<.01$) and the grades received in athletic training and science courses ($U = 8323.5$, $P<.01$) (Table 3).

Table 3. Factors Influencing the Student's Decision to Apply to the Athletic Training Education Program

Construct Variable	Means (SD) Applied for Admission	 Did Not Apply for Admission	Tests of Equality of Group Means F	 Sig.
Intellectual Integration				
Academic Performance	3.834 (±0.972)	3.559 (±0.904)	4.290	0.039*
Course of Study	4.221 (±0.743)	3.676 (±0.888)	25.239	0.000*
Academic Experience	4.166 (±0.758)	3.765 (±0.813)	14.016	0.000*
Academic Advising				
Academic advisor addresses needs and concerns	4.290 (±0.841)	4.235 (±0.900)	0.214	0.644
Availability of Academic Advisor(s)	4.392 (±0.798)	4.294 (±0.774)	0.785	0.376
Clinical Education†				
Clinical Observation - interesting	4.198 (±0.715)	3.735 (±1.002)	17.664	0.000*
Clinical Observation - challenging	3.470 (±0.962)	3.265 (±0.956)	2.364	0.125
Clinical Instructor quality	4.267 (±0.722)	4.088 (±0.685)	3.263	0.072
Social Integration				
Made friends with athletic training students	4.184 (±0.894)	3.691 (±1.096)	14.077	0.000*
Easy to meet and make athletic training student friends	4.203 (±0.797)	3.912 (±0.973)	6.187	0.013*
Commitment				
Chose the right ATEP	4.300 (±0.838)	3.088 (±1.075)	93.881	0.000*
Important to graduate from this ATEP	4.276 (±0.864)	2.971 (±1.293)	91.415	0.000*
Belonging in the ATEP	4.300 (±0.774)	2.868 (±1.208)	132.147	0.000*
Future employment or graduate school	4.401 (±0.701)	3.353 (±1.169)	81.418	0.000*
College degree in athletic training	4.387 (±0.725)	3.015 (±1.287)	122.945	0.000*
Finish ATEP	4.502 (±0.681)	3.074 (±1.375)	131.838	0.000*
Other survey items – not linked to constructs				
Close friends rate as quality ATEP	3.991 (±0.788)	3.662 (±0.784)	9.053	0.003*
Likely to continue next fall	4.502 (±0.812)	2.676 (±1.540)	162.210	0.000*
Met minimum requirements	1.336 (±0.722)	1.853 (±0.885)	23.697	0.000*
Satisfaction with academic experience	3.908 (±0.834)	2.882 (±1.015)	70.290	0.000*
Satisfaction with Academic Advising	3.654 (±1.012)	2.853 (±0.902)	34.147	0.000*
Satisfaction with clinical education	4.009 (±0.833)	2.897 (±1.067)	80.100	0.000*
Satisfaction with ATS relationships	3.843 (±0.925)	2.824 (±0.929)	62.823	0.000*
Demographic variables				
College cumulative GPA	3.097 (±0.517)	2.902 (±0.728)	5.953	0.015*
High School GPA	3.476 (±0.434)	3.385 (±0.455)	2.207	0.139
AT and science course grades	1.654 (±0.691)	1.868 (±0.710)	4.869	0.028*

* $P < .05$

†The construct Clinical Education was supported by the literature, but not by the Confirmatory Factor Analysis.

The construct means were calculated by dividing the sum of the overall means for each question related to the construct by the number of questions related to that construct so that constructs could be compared with each other. Comparisons of the overall means for each construct can be seen in Table 4.

Overall, students were most satisfied with their Academic Advising (4.325) and least satisfied with their Intellectual Integration (3.963) (Table 4). However, the lowest mean reported was the students' overall satisfaction with their clinical education observation experiences being challenging (3.302 ± .960) (Table 3).

Pearson's r demonstrated that the survey item "My friends rate this athletic training program as a quality program" was shown to significantly correlate ($P < .01$) with all four of the supported constructs: Social Integration (r = .307), Intellectual Integration (r = .366), Academic Advising (r = .363), and Commitment (r = .348). This indicated that students whose friends rated the program highly,

Table 4. Comparable Means for Each Construct

Construct	Mean
Intellectual Integration	3.963
Academic Advising	4.325
Social Integration	4.068
Commitment	4.064

rated the program highly themselves.

The Mann-Whitney U Test indicated that the gender and race of the student were significantly related with other demographic variables, although not with the decision to apply. Gender was related to college cumulative GPA (U = 8618.5, $P < .01$), high school GPA (U = 6592.5, $P < .01$), and athletic training and science course grades (U = 9617.5, $P < .01$) indicating that females earned higher overall GPAs in both college and high school and also received higher grades in their athletic training and science courses. The race of the student was found to be indicative of college cumulative GPA (U = 2693.5, $P < .01$), high school GPA (U = 2422.0, $P < .01$), SAT/ACT z-scores (U = 2155.5, $P < .01$), and athletic training and science course grades (U = 3862.0, $P < .01$). Minority students had lower high school (3.04 $\pm$ .47 vs. 3.$\pm$ .407)50 41 and college GPAs (2.64 $\pm$ .45 vs. 3.10 $\pm$ .56), as well as lower SAT (1004.7 $\pm$ 117.1 vs. 1082.9 $\pm$ 107.2) and ACT scores (20.1 $\pm$ 2.3 vs. 22.8 $\pm$ 3.1). Minority students also received lower average grades (2.9 $\pm$ .63 vs. 3.$\pm$ .675)35 68 (A=4, B=3, C=2, D=1, F=0) in athletic training and science courses.

Discussion

The purpose of this study was to analyze the effect of student satisfaction upon an athletic training student's decision to apply to a CAAHEP (CAATE)-accredited undergraduate ATEP during the spring semester of the freshman year.

Student Satisfaction and the Decision to Apply to the ATEP

Our results are consistent with Bean's study which indicated that socialization variables had the largest impact on freshman and sophomore satisfaction. He emphasized that student relationships within the school improved retention.[13] Similarly, Zhang and RiCharde[14] found that a lack of peer support significantly impacted the students' satisfaction with their educational experience and their resultant withdrawal from the university. In addition, Gerdes and Mallinckrodt[15] demonstrated that Social Integration was an important predictor of satisfaction.

Students' satisfaction with their overall academic experience negatively impacted their decision to apply (Table 3). Several studies have demonstrated that academic difficulties and Intellectual Integration have a significant impact on satisfaction rates.[13,16-19] Laudicina[20] found that more attrition occurred during the early didactic portion of the student's education than during the later clinical portion. This is similar to the typical athletic training program in which the freshman year tends to have a minimal clinical education component. As the student progresses through the program, the amount and rigor of clinical education increases dramatically.[21,22] Previous research corroborates the findings that poor academic performance and overall academic satisfaction are predictors of both satisfaction with students' college experience as well as their subsequent retention.[23,24]

Freshmen ATS expressed dissatisfaction with how interesting and how challenging their clinical education observation experiences were. This finding is supported by Miller and Berry's study that found students spend the majority of their clinical experience unengaged and that novice students spend significantly less time engaged in learning and/or interactions with clinical instructors than upperclassmen.[21] This is also consistent with Weidner and Henning's review of the medical and allied health professions literature related to clinical education.[22] The students reported feeling like "indentured servants" rather than receiving focused clinical instruction.

Commitment, to the program and to the students' education, was the overall strongest predictor of the decision to apply. (Table 3) Students who applied for admission were more confident that they chose the right athletic training education program, reported that it was important to get a degree in AT from this ATEP, and felt more strongly that they belonged in the ATEP. Further, they believed that their education would help them to secure future employment and/or admission to graduate school than those who chose not to apply. These findings are consistent with Laudicina's study which found that the following three reasons for program incompletion were ranked fairly high: uncertainty about career goals, lack of sufficient knowledge of the profession, and unrealistic expectations of the profession.[20] Other research also noted that a lack of personal commitment to their college education significantly affected satisfaction and retention in freshmen students.[13,14]

Demographics and the Decision to Apply to the ATEP

Previous research with undergraduate allied health students[25] and with a variety of freshmen majors[25] also found that satisfaction was not impacted by race, sex, age, or any of the other demographic variables. However, a meta-analysis by Campbell and Dickson of nursing education found that ACT scores and high school GPA were significant predictors of satisfaction.[27] This is consistent with the findings of this study in which academic performance in high school and in the freshman year were predictive of the decision to apply. Other studies also found that collegiate GPA is a strong indicator of satisfaction and resultant retention.[24-26,28] Students who had poor grades in high school often have poor grades in college.[1,8,9] These students may have chosen not to apply because they felt that they could not be successful in the program and/or successful in being admitted.

Significant relationships were noted between gender and race with certain other demographic variables. Males and minority students had lower academic achievement than other students, although neither gender nor race were predictors of the decision to apply. While this study did not find race and gender to be predictors

of the decision to apply, other studies have found that attrition was higher for men than for women and higher for minorities than for Caucasian students in allied health education programs.[30]

Ancillary Findings

Several relationships were found between the supported constructs. Students who were socially integrated also tended to be committed. Students in both groups were most satisfied with their Academic Advising. Those students who were satisfied with their Academic Advising were also more satisfied with their Intellectual Integration. This finding is supported by existing research that indicates an important facet of Intellectual Integration is faculty-student interactions. Adequate advising is a strong positive first step in the initiation of these interactions.[24] Students who were intellectually integrated and/or satisfied with their Academic Advising also tended to be more committed, consistent with the findings of Thurber, et al or and colleagues who noted that advisors who are committed to their students positively influence retention rates.[31] Other researchers also noted that positive student-faculty interactions were cited by students as contributing to their success and persistence.[16]

Students who applied for admission appeared to be influenced by their friends' opinion regarding the quality of the ATEP. If the student's friends approved of the program, the student tended to be more satisfied with his/her Social Integration, Intellectual Integration, Academic Advising, and Commitment, indicating that students whose friends rated the program highly, rated the program highly themselves. Athletic training education program directors could impact program application by improving the visibility of the program on campus by such means as displaying student research, formally announcing award winners, and highlighting the achievements and community involvements of the program.

Several other relationships emerged through data analysis. The more interesting and challenging students found their clinical observation experiences to be, the higher they rated their clinical instructors. This indicates that even freshman level students want to learn and be challenged in their clinical rotations. Students who were satisfied with their clinical education experience also felt socially integrated. The clinical education experience is often a relaxed, informal setting where students have the opportunity to become better acquainted with their peers, upperclass students, and clinical faculty.[21]

Implications

This study provides data for ATEP directors and other administrators which can be used to increase the number of secondary admission applicants by increasing student satisfaction. The results suggest the need for higher education administrators to focus on those variables that are highly predictive of students' decision to apply in order to develop intervention strategies. Intervention strategies need to address those variables that can be manipulated and have been found to be the strongest predictors of satisfaction, such as social integration and quality clinical education.[19,32] These programs should have a significant focus on the freshman year, during the time when students are first being exposed to the major and deciding whether or not to apply.[24,26,28]

One intervention strategy should address Social Integration. While administrators cannot force students to befriend one another, they can certainly create additional opportunities for bonds to form. Program directors of ATEPs should consider expanding their freshmen orientation to include more activities that allow students to become acquainted with each other outside of the formal classroom setting.[15,19,24,26,33,34] Creative situations such as team building activities and group work could also be interspersed throughout the year to foster these relationships.[15,34] Pairing freshmen with upperclassmen as mentors could facilitate students becoming socially connected to other students within the program.[19,33]

Program directors also need to evaluate their clinical education component; especially the freshman experience. Clinical education should be both interesting and challenging, even to freshman level students.[22] Students should be engaged by their clinical instructors for as much time as possible during the clinical observations.[21] While freshmen AT students cannot apply many skills, they can be engaged as active observers.

By developing strategies to increase the satisfaction of freshmen students, ATEP directors may be able to increase the overall academic quality of its students and graduates. Programs with larger application pools of students will eventually be able to increase admission requirements. Through increased admissions standards, the ATEP has the potential to improve the quality of athletic trainers practicing in the field by attracting and retaining the best and brightest students. Research has demonstrated that students who enter ATEPs with higher high school GPAs earn higher college GPAs.[8] Students with higher college GPAs are more likely to be successful on the Board of Certification (BOC) examination.[10]

Future research should focus on longitudinal studies that follow athletic training students throughout their freshman year and should include schools which admit during other semesters as well. Because students showed the lowest levels of satisfaction with their Social Integration and clinical education, future research should examine these variables in more detail. The freshman experience can be a stimulating and fulfilling transition into college life as an athletic training student.

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