Student-Retention and Career-Placement Rates Between Bachelor's and Master's Degree Professional Athletic Training Programs

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Context: The debate over what the entry-level degree should be for athletic training has heightened. A comparison of retention and career-placement rates between bachelor's and master's degree professional athletic training programs may inform the debate.

Objective: To compare the retention rates and career-placement rates of students in bachelor's and master's degree professional programs.

Design: Cross-sectional study.

Setting: Web-based survey.

Patients or Other Participants: A total of 192 program directors (PDs) from bachelor's degree ($n = 177$) and master's degree ($n = 15$) professional programs.

Intervention(s): The PDs completed a Web-based survey.

Main Outcome Measure(s): We instructed the PDs to provide a retention rate and career-placement rate for the students in the programs they lead for each of the past 5 years. We also asked the PDs if they thought retention of students was a problem currently facing athletic training education. We used independent t tests to compare the responses between bachelor's and master's degree professional programs.

Results: We found a higher retention rate for professional master's degree students ($88.70\% \pm 9.02\%$, 95% confidence interval [CI] = 83.71, 93.69) than bachelor's degree students ($80.98\% \pm 17.86\%$, 95% CI = 78.30, 83.66) ($t_{25} = -2.86$, $P = .008$, $d = 0.55$). Similarly, PDs from professional master's degree programs reported higher career-placement percentages ($88.50\% \pm 10.68\%$, 95% CI = 82.33, 94.67) than bachelor's degree professional PDs ($71.32\% \pm 18.47\%$, 95% CI = 68.54, 74.10) ($t_{20} = -5.40$, $P < .001$, $d = 1.14$). Finally, we observed no difference between groups regarding whether retention is a problem facing athletic training ($\chi^2_1 = 0.720$, $P = .40$, $\Phi = .061$).

Conclusions: Professional master's degree education appears to facilitate higher retention rates and greater career-placement rates in athletic training than bachelor's degree education. Professional socialization, program selectivity, and student commitment and motivation levels may help to explain the differences noted.

Key Words: professional education, attrition, persistence

Key Points

- Program directors (PDs) from master's degree professional athletic training programs (ATPs) reported higher student retention rates and athletic training career-placement rates than PDs from bachelor's degree ATPs.
- Many PDs identified retention of athletic training students as a concern.
- Career commitment appeared to be of great importance to the PDs, as they believed it was directly tied to the strength of the profession.
- Important educational outcome differences existed between master's and bachelor's degree professional ATPs.

Currently, the Commission on Accreditation of Athletic Training Education sets accreditation standards for the professional preparation of athletic trainers.¹ Students must complete a professional athletic training program (ATP) at the bachelor's or master's degree level for eligibility to sit for the Board of Certification (BOC) examination required to enter professional practice and gain licensure. The accreditation standards for the 2 programs and the educational competencies remain consistent¹; however, the programs have distinct differences. A bachelor's degree from an ATP has

been the traditional route to professional practice, but professional master's degree programs play a unique role in the education and development of athletic trainers. The master's degree programs differ from bachelor's degree programs at the professional level because they attract people who already have completed a college degree and have decided to pursue athletic training after completing formal education in a different area of study. Conversely, people pursuing a bachelor's degree are not always drawn to obtain the athletic training credential and full-time employment in the profession, but, rather, they use their

education as a bridge to further professional training in the medical or health care system.²

Mensch and Mitchell³ indicated that the perceptions of first-year professional bachelor's degree athletic training students about the demands of the athletic training profession are often limited and possibly unrealistic. Researchers in the nursing field have indicated that students who enter entry-level education with incomplete perceptions of the professional field are more prone to dropping out of educational programs.⁴ Several investigators^{2,5,6} examining student retention and career planning in athletic training have shown that students learn about the rigors, time demands, and at times undesirable compensation of athletic trainers, especially in entry-level positions, only after prolonged engagement in the professional program. These factors singularly or in combination facilitate departure from the professional bachelor's degree program or pursuit of a graduate degree outside of athletic training.^{3,6,7} Perhaps students entering an ATP at the master's degree level are initiating their professional preparation with a better understanding of the athletic training field than their counterparts at the bachelor's degree level^{3,8} because of more focused academic goals and more well-rounded socialization experiences. Age also seems to be a factor in retention at the professional master's degree level, as older nursing students tend to persist more often than younger students.⁹ From a retention standpoint, professional master's degree programs may benefit from the maturity of their students because of their older age and extended time frame for anticipatory socialization.

The future of the profession is arguably influenced not only by retaining quality students in a professional education program but also by placing these students in careers that require the certified athletic trainer (ATC) credential. Attrition of athletic training students from the profession after graduation has been identified as a key concern,² and the reason for this career attrition is a shift of interest away from athletic training or the use of a degree in athletic training as a bridge to another profession.² What is unclear, however, is whether career placement in athletic training differs between bachelor's and master's degree professional programs.

The debate over what the entry-level degree should be for athletic trainers has intensified in recent years as the advantages and disadvantages of both programs have been weighed and considered.¹⁰ (We performed our study before the recent decision to establish the professional degree in athletic training at the master's level.) Professional master's degree programs are thought to provide a learning environment in which students can focus solely on athletic training coursework, improved selectivity, and a closer alignment with peer health care professional programs.¹⁰ Furthermore, researchers¹¹ have observed a high retention rate among students in professional master's degree programs and a desire to work as athletic trainers. However, investigators have not compared these findings with those of students in professional bachelor's degree programs. Therefore, the purpose of our study was to compare student professional-phase retention and career-placement rates between bachelor's and master's degree programs.

METHODS

Instrumentation

As part of 2 separate larger studies, we asked program directors (PDs) in bachelor's¹² and master's¹³ degree programs at the professional level to complete a Web-based survey, the Athletic Training Student Retention Survey for Program Directors. In a background section, the survey instructed participants to provide information about their institutions, the ATPs they led, and the students enrolled in their ATPs. Next, participants completed a series of Likert-scale questions (1 = *strongly disagree*, 5 = *strongly agree*) related to athletic training education. Finally, participants answered several open-ended questions about athletic training student retention (eg, "Ideally, what, if anything, would you like to do to improve athletic training student retention at your institution? Please list the top 3 reasons students typically persist in and depart from your ATP."). We collected data from the PDs because they were responsible for the day-to-day operations of the ATP; thus, we thought they would be privy to the information we were requesting, particularly retention rates and career-placement rates of recent graduates for each of the previous 5 years. The survey was created based on the current literature^{6,14} and was pilot tested through several different processes¹² to reduce measurement error¹⁵ and provide construct validity. We included trials with educators for content and clarity¹⁶; think-aloud interviews to ensure question comprehension¹⁷; and review by an expert panel to further attest to face, content, and construct validity.¹⁸ We defined *retention* as the extent to which students persisted in their programs of study and *career placement* as obtaining employment in which the ATC credential was required.

Participants

We received completed surveys from 177 of 343 PDs at professional bachelor's degree programs for a response rate of 51.6%. At the professional master's degree level, 15 of 25 (60%) PDs participated. Comparisons of institutional demographic information between the professional bachelor's and master's degree programs are provided in Table 1, ATP background information for professional bachelor's degree programs is displayed in Table 2, and ATP background information for professional master's degree programs is provided in Table 3. The professional bachelor's degree PDs had a mean age of 43 ± 8 years and had held their current positions for 8 ± 7 years. Similarly, the age of the professional master's degree directors was 44 ± 7 years, and they had held their current positions for 8 ± 6 years. Participants implied informed consent by completing the questionnaire, and the study was approved by the Institutional Review Board for Human Subject Research of the host institution.

Data-Collection Procedures

We developed our recruitment plan based on the work of Dillman.¹⁹ First, we sent all 343 PDs of professional bachelor's degree and all 25 PDs of professional master's degree programs (as of January 2011) a personalized e-mail explaining the purpose of the study. Approximately 1 week

Table 1. Institution Demographic Information for Bachelor's and Master's Degree Professional Athletic Training Program Survey Participants^a

Characteristic	Professional Athletic Training Program Survey Participants	
	Bachelor's Degree	Master's Degree
	No. (%)	No. (%)
Carnegie classification		
Research	52 (29.4)	7 (46.7)
Master's	84 (47.5)	6 (40.0)
Baccalaureate	41 (23.2)	1 (6.7)
Special focus	NR	1 (6.7)
Institutional enrollment		
Up to 1000	11 (6.2)	1 (6.7)
1000–3000	47 (26.6)	3 (20.0)
3000–5000	21 (11.9)	2 (13.3)
5000–10 000	24 (13.6)	2 (13.3)
10 000–20 000	37 (20.9)	NR
20 000–30 000	23 (13.0)	4 (26.7)
≥30 000	13 (7.4)	1 (6.7)
Institutional type		
Public	92 (52.0)	10 (66.7)
Private religious	66 (37.3)	5 (33.3)
Private nonreligious	19 (10.7)	NR
Athletic affiliation		
National Collegiate Athletic Association Division I	75 (42.4)	10 (66.7)
National Collegiate Athletic Association Division II	43 (24.3)	4 (26.7)
National Collegiate Athletic Association Division III	45 (25.4)	1 (6.7)
National Association of Intercollegiate Athletics	14 (7.9)	NR

Abbreviation: NR, no response.

^a Adapted with permission from Bowman TG, Hertel J, Wathington HD. Programmatic factors associated with undergraduate athletic training student retention and attrition decisions. *Athl Train Educ J*. 2015;10(1):5–17; Bowman TG, Pitney WA, Mazerolle SM, Dodge TM. Description of professional master's degree athletic training programs. *Athl Train Educ J*. 2015;10(1):39–46.

Table 2. Descriptive Statistics for Professional Bachelor's Athletic Training Program Background Information^a

Variable	Mean ± SD	Median	Range
Years accredited	10.7 ± 4.0	9.0	2–18
Student applications to ATP, No.	27.8 ± 34.8	17.0	1–300
Student acceptances to ATP, No.	16.0 ± 13.9	12.0	1–100
Observation hours required before application	57.2 ± 49.1	50.0	0–250
No. enrolled in athletic training program	36.3 ± 23.0	30.0	3–145
Academic years of clinical education	2.8 ± 0.6	3.0	0–4
Clinical hours required for graduation	851.3 ± 347.0	900.0	0–1590
Retention rate, %	81.0 ± 17.9	87.5	9–100
Athletic training career-placement rate, %	71.3 ± 18.5	75.0	15–100

Abbreviation: ATP, athletic training program.

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later, we sent another e-mail with the link to the Web-based survey via QuestionPro Survey Software (QuestionPro Inc, Seattle, WA) and asked them to participate. Next, we sent a reminder e-mail 2 weeks later to those who had not responded and asked for participation. After an additional week, we sent a third and final e-mail reminder to those who had not responded to solicit involvement. Seven days later, we called each PD who had not completed the survey to ask for his or her input and contribution. One week after calling the PDs, we terminated data collection because no new responses had been received for 2 consecutive days.

Data Analysis

First, we gathered demographic descriptive statistics, including 95% confidence intervals (CIs). Next, we compared the retention rates and career-placement rates of bachelor's and master's degree programs at the professional level using independent *t* tests. We used the equal-variances-not-assumed values because our data violated homogeneity of variance based on the Levene test ($P < .05$). Finally, we used a χ^2 test to determine if bachelor's and master's degree PDs at the professional level differed in their opinions of whether retention was a problem facing athletic training education. In addition, Cohen *d* effect sizes and accompanying 95% CIs were computed to assess the magnitude and precision of differences between the programs. Effect sizes were interpreted as follows: *large* (>0.80), *moderate* (0.50 – 0.79), *small* (0.20 – 0.49), and *trivial* (<0.20).²⁰ We used SPSS statistical software (version 21; IBM Corporation, Armonk, NY) for our statistical analyses. We set the α level a priori at .05.

RESULTS

We found a difference between the retention rates of the 2 program types ($t_{25} = -2.86$, $P = .008$, $d = 0.55$), with PDs of professional master's degree programs reporting higher retention rates ($88.70\% \pm 9.02\%$, 95% CI = 83.71, 93.69) than PDs of professional bachelor's degree programs ($80.98\% \pm 17.86\%$, 95% CI = 78.30, 83.66). Similarly, PDs from professional master's degree programs reported higher career-placement percentages ($88.50\% \pm 10.68\%$,

Table 3. Descriptive Statistics for Professional Master's Degree Athletic Training Program Background Information^a

Variable	Mean ± SD	Median	Range
Years accredited	4.5 ± 3.9	5.0	0–15
Student applications to ATP, No.	44.1 ± 31.6	26.0	15–120
Student acceptances to ATP, No.	18.9 ± 14.3	15.0	6–65
Observation hours required before application	63.5 ± 88.5	27.5	0–300
No. enrolled in athletic training program	28.1 ± 18.4	24.0	3–75
Academic years of clinical education	2.1 ± 0.3	2.0	2–3
Clinical hours required for graduation	780.8 ± 445.1	900.0	0–1400
Retention rate, %	88.7 ± 9.0	90.0	70–100
Athletic training career-placement rate, %	88.5 ± 10.7	90.0	58–100

Abbreviation: ATP, athletic training program.

^a Adapted with permission from Bowman TG, Pitney WA, Mazerolle SM, Dodge TM. Description of professional master's degree athletic training programs. *Athl Train Educ J*. 2015;10(1):39–46.

95% CI = 82.33, 94.67) than did professional bachelor's degree ATP PDs (71.32% $\pm$ 18.47%, 95% CI = 68.54, 74.10; $t_{20} = -5.40$, $P < .001$, $d = 1.14$). Finally, the comparison between groups for whether retention was or was not a problem facing athletic training education showed no difference ($\chi^2_1 = .720$, $P = .40$, $\Phi = .061$). We observed that 51.4% (91 of 177) of professional bachelor's degree PDs and 40% (6 of 15) of professional master's degree PDs described retention as a problem facing athletic training education.

DISCUSSION

Athletic training education has undergone several reforms since the inception of the profession.²¹ The current debate centers on the level at which offering the entry-level degree is most appropriate. As with previous reform changes, evidence is necessary to support the final outcome. In the recent white paper created by the National Athletic Trainers' Association Executive Committee for Education about the professional degree level, graduate-level professional education was suggested as the likely next step for the profession.²² A transition to professional education at the master's degree level was recommended for several reasons, including retention of students, particularly those who are committed to careers as athletic training professionals. Our findings support this recommendation. We observed higher retention and athletic training career-placement rates for master's degree programs than for bachelor's degree programs at the professional level. However, the previously published retention rate for professional master's degree programs (81%)¹¹ was lower than our rate for the same group (88.70%) and closer to the professional bachelor's degree rate we observed (80.98%).

First-time BOC pass rates were higher for master's degree students (94%) than bachelor's degree students (81%) at the professional level during the 2011 through 2013 examination periods.²³ Our results, in combination with the work of Ostrowski¹¹ that illustrated students in professional master's degree ATPs have greater success on the BOC examination, link empirical data to the perceptions of PDs managing professional master's degree programs.

The use of a secondary admissions process whereby students are accepted into an ATP after completing gateway coursework and often shadowing practicing athletic trainers at the host institution is widespread among professional bachelor's degree programs (approximately 92%).²⁴ Professional bachelor's degree ATP directors have identified the observation period before formal admittance as a way to control quality by selecting only candidates whom they perceive to be able to complete the ATP²⁴ and as a socializing tactic,^{24,25} because faculty and staff are able to get to know students. When considered as a way to develop a professional identity, the observation period has been suggested as a key to student retention.⁷ The practice appears to be successful at the professional bachelor's degree level, because student retention rates are higher when students are formally accepted into the ATP later in the college career.¹² An observation period typically does not happen on campus before enrollment in a professional master's degree ATP, making personal connections between students and PDs difficult; however, shadowing an

athletic trainer is often part of the admissions criteria,¹³ allowing students to learn about the profession. The length of time required for the observation period varies widely in both program types, but this process may increase awareness for professional students, helping them make an informed decision about pursuing the degree program. In addition, PDs of professional master's degree programs use orientation sessions, introductory courses, social gatherings, program outings, and peer mentoring as socializing agents.²⁶ Although similar to the tactics used by bachelor's degree PDs,²⁵ these strategies help students understand the program requirements and gain a fuller appreciation for the athletic training profession in addition to the observation-hour requirement and course prerequisites. Perhaps the additional time and higher age before selecting athletic training allows professional master's students time for reflection prior to entering professional preparation leading to increased commitment levels and retention. Many possible explanations exist, and proper socialization offers some context to the findings that master's degree programs provided higher career-placement rates, retention rates, and success on the BOC examination than the bachelor's degree route at the professional level.

Master's degree students have been described as being mature, which helps them handle the rigor of the ATP while forming a commitment to the athletic training profession.¹⁰ Moreover, students in professional master's degree programs may be more motivated to complete their degrees because they completed the reflection about pursuing a career in athletic training before entering the program.^{8,10} Thus, we might expect higher retention rates in master's degree programs given that purposeful selection of these master's degree students has been identified as influencing persistence.¹⁰

Changing majors is common among bachelor's degree students as they try to find an area of interest that can provide them with enjoyable careers. Approximately 75% of all bachelor's degree students change their majors at least once,²⁷ illustrating the struggle in committing to an academic program. Program directors of professional master's degree programs have suggested that students persist in the programs they led because of their commitment to the profession of athletic training.⁸ More specifically, PDs mentioned that switching majors is common among bachelor's degree students, whereas master's degree students have made a considerable investment of time and money to pursue degrees, leading to better focus.⁸ Arguably, bachelor's degree students are also investing time and money into an academic program; however, many can switch majors and potentially still graduate on time. Program directors also proposed that professional master's degree students have a better understanding of the profession, leading to higher retention rates.⁸ Meanwhile, prospective bachelor's degree students have an incomplete understanding of the athletic training profession, which may lead to departure.³ In the future, researchers should investigate the professional perceptions of prospective and current professional master's degree students.

Similar to previous researchers,²² we found a higher career-placement rate among master's than bachelor's degree students at the professional level. Ostrowski¹¹ also observed that more than 93% of professional master's

degree students planned to use the ATC credential when seeking employment, which is a higher rate than we observed (88.50%). By nature, students who complete a professional master's degree in athletic training would be more likely to directly seek employment than their professional bachelor's degree counterparts. Some professional bachelor's degree students seek graduate assistantships or other positions before seeking full-time employment,² which might explain some of the discrepancy in our study. Perhaps the higher career-placement rate in athletic training among the master's degree students is because many students use the bachelor's degree in athletic training to prepare for other health care professions in which a graduate degree is required, such as physical therapy, physician assistant, chiropractor, or physician. Other authors^{2,7,28} have found similar results, as students see the hands-on skills they learn in athletic training as helpful to their future endeavors. Part of the decision to leave the profession for another is because of low perceived compensation and heavy time commitment required for a career in athletic training.^{2,29} These concerns may become apparent during professional socialization, particularly if students have preceptors who struggle with work-life balance or are unhappy with their careers.²⁸ Unfortunately, preceptors may have these feelings because of role strain, which often occurs because they must provide health care while also teaching and mentoring students.³⁰ However, leaving the profession for a career in another health care field happens more frequently at professional bachelor's degree ATPs. Perhaps this difference occurs because professional master's degree students have chosen athletic training over other postbaccalaureate health care professions, whereas professional bachelor's degree students have specific intentions of using the skills they learn to prepare them for other health care professional programs, most of which are at the graduate level. In addition, the anticipatory socialization process and maturity level are likely different between college students considering entering a professional master's degree program and high school students searching for a major as they enter their bachelor's degree studies.

Limitations and Future Directions

We gathered our data from PDs retrospectively by asking them to estimate the retention rate and career-placement rate for each of the previous 5 years to the best of their abilities. Such data are often tracked by programs, and accurate responses can be expected. However, the responses were possibly based on perceptions rather than program records, and we do not believe this possibility was different between the 2 groups. We received responses from more than half of each population (bachelor's and master's degree professional ATP directors). Despite this response rate, the chance exists for sample error such that the responses do not represent the true population. Perhaps directors of programs with higher retention and career-placement rates were more willing to complete the survey, although all information was kept confidential.

In the future, researchers should consider collecting perspectives from students to determine if commitment levels differ between those in professional bachelor's and master's degree programs. In addition, comparing the

knowledge of the profession and career goals between bachelor's and master's degree students at the professional level may provide insight into the differences between retention and career-placement rates. Investigators should continue to explore the concerns that have materialized from the professional discourse on the best educational degree to offer the athletic training recruit, which includes patient outcomes, current strengths of professional master's degree programs, and employer satisfaction with those who have graduated from the professional master's degree programs.

CONCLUSIONS

The PDs from professional master's degree programs reported higher student-retention rates and athletic training career-placement rates than professional bachelor's degree ATP directors. Retention of athletic training students is a concern identified by many PDs, and career commitment appears to be of great importance to the profession as efforts to improve work-life balance continue. Although based on data self-reported by PDs, these results provide empirical evidence of differences in important educational outcomes between master's and bachelor's degree programs at the professional level in athletic training.

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