

Characteristics and Program Decisions of Master's-Level Professional Athletic Training Students

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Context: The number of master's-level professional athletic training programs (MLPATPs) has grown by over 400% in the past 10 years; however, little is known about the characteristics of the students who enroll in these programs or why they select this route to certification.

Objective: To describe, by exploring the characteristics of MLPATP students, the profile of students who enroll in MLPATPs, and to aid in recruitment of students by developing a greater understanding of why students select the MLPATP route to athletic training certification.

Design: Cross-sectional design involving online survey research. MLPATP directors were asked to forward the survey link to students enrolled in their programs.

Participants: Seventy-nine students enrolled in MLPATPs accredited by the Commission on Accreditation of Athletic Training (CAATE).

Data Collection and Analysis: Survey data were collected by Formstack.com. Open-ended questions were categorized based on common themes and then coded. Descriptive statistics and nonparametric correlations were calculated.

Results: MLPATP students were, on average, 24.7 years old; 68% were women, 85% were Caucasian. Forty-two percent earned their bachelor's degree in exercise/sports science. Nearly 80% of students decided they wanted to be an athletic trainer either prior to or during their undergraduate studies, and students enrolled in their MLPATP an average of 1.2 years after completing their bachelor's degree. The geographical area and an institution's reputation were the primary contributing factors in choosing an MLPATP. Following graduation, 93.5% plan to seek employment using their certified athletic trainer credential.

Conclusions: Understanding the characteristics of MLPATP students can help in the recruitment of students for MLPATPs as well as develop a greater understanding of the needs of these students. Additional lines of research would contribute to discussions regarding the future of athletic training education.

Key Words: CAATE, route to certification, athletic training programs, recruitment

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INTRODUCTION

As the profession of athletic training continues to advance, questions regarding the structure of our athletic training programs (ATPs) continue to surface. Since the first ATPs were developed in the 1960s, athletic training education has evolved significantly.¹ Prior to 2004, 3 potential routes to athletic training certification existed: an internship program, an accredited bachelor's-level professional athletic training program (BLPATP), and a master's-level professional athletic training program (MLPATP). In the late 1990s and early 2000s, differences in the performance of curriculum students (BLPATP and MLPATP) and internship candidates on the certification examination raised questions regarding the academic preparation of internship students.²⁻⁴ Research published in 2001² reported that curriculum candidates attained higher scores than internship candidates on all 3 sections of the certification examination (written, written simulation, and practical). These results were consistent with previous research published in 1995³ and 2000.⁴ Following a report from the National Athletic Trainers' Association (NATA) Education Task Force and much professional deliberation, the NATA Board of Directors determined that the internship route to certification should be phased out and completely terminated.⁵

With the elimination of the internship route to athletic training certification in 2004, 2 education routes to certification remained: bachelor's-level professional (BLP) and master's-level professional (MLP) programs. Both routes hold athletic training students to the same accreditation standards, educational competencies, and clinical proficiencies in preparation to take the Board of Certification (BOC) examination. The MLPATP is designed for the individual who would like to become a certified athletic trainer but who has already earned a bachelor's degree in another field. These programs are accredited by the Commission on Accreditation of Athletic Training Education (CAATE) and provide students with the opportunity to develop the knowledge and skills necessary to meet competencies established by the Executive Committee on Education and to pass the BOC examination.

The total number of CAATE-accredited programs has risen dramatically, from 132 programs at the end of 2000 to 362 programs as of August 2013 (BLPATP, $n = 337$; MLPATP, $n = 26$).⁶ Additionally, the number of MLPATPs has increased by over 400% since the elimination of the internship route (2003, $n = 6$; 2012, $n = 25$).⁶ Despite such rapid growth in MLPATPs, little is known about students who enroll in these programs. With many competing health care graduate programs available to those with a bachelor's degree (eg, physical therapy, occupational therapy, physician assistant), an understanding of why students choose MLPATPs can aid in the recruitment and retention of quality students. Therefore, the purpose of this study is to explore the characteristics of MLPATP students in order to describe the profile of students who enroll in MLPATPs, and to aid in the

recruitment of potential students by developing a greater understanding of why students select the MLPATP route to athletic training certification.

METHODS

To evaluate the research questions, we sent a research opportunity notification via FormStack.com to the program directors of all 25 MLPATPs that were listed on the CAATE Web site as of February 2012. Survey data collection was used in order to obtain a cross-sectional representation of students in all MLPATPs. The initial notification was sent to MLPATP directors because there is no database of MLPATP athletic training students who are currently enrolled in academic institutions. The notification e-mail informed program directors of the purpose of the study and asked them to forward the survey link to all MLPATP students currently in a program. Program directors were also asked to respond with the number of students to whom the survey invitation was forwarded (in order to calculate student-response rates). Program directors were sent 2 reminder e-mails; the first reminder was sent 2 weeks after the initial survey invitation, and the second reminder was sent after an additional 2 weeks. This study was approved by our University Institutional Review Boards.

Survey Design

The survey instrument was developed based on the research questions and a review of the literature. Prior to data collection, we tested the usability and technical operation of the survey on 2 classes of BLP athletic training students ($n = 22$) and 4 BLPATP directors in order to establish face validity. We made adjustments to the readability of the survey questions based on this feedback (eg, clarification of wording, redundancy of questions). The survey included 20 total questions consisting of the following categories: student demographics (4), characteristics of undergraduate academic career (4), previous experience in ATPs (2), reason for enrolling in MLPATP (5), and graduation requirements and post-graduation plans (5). Sixteen questions were multiple choice, 4 were open ended (see Table 1).

Statistical Analysis

Open-ended questions were categorized based on common themes that emerged (categories were created to allow for the use of statistical analysis). We used deductive and inductive content analyses to interpret the emerging themes from the raw data. Data were organized by coding each individual raw data response with a 1-word or 2-word description, forming a meaning unit. Meaning units were then categorized according to their similarities, and these categories were organized within the research questions under investigation. All responses were independently categorized, and there was 100% agreement on the categories. All data analyses were conducted using SPSS (version 20; SPSS Inc, Chicago, IL). Due to the

Table 1. Survey Questions

Question Category	Question Text
Demographics	1. What is your gender? (MC) ^a 2. What is your race? (MC) 3. What is your age? (#) 4. What year are you in your MLPATP? (MC)
Characteristics of undergraduate academic career	5. At what point did you decide you wanted to become a certified athletic trainer? (MC) 6. What was your undergraduate major? (MC) 7. What was your undergraduate GPA? (MC) 8. What were your plans after completing your Bachelor's degree? (open-ended)
Previous experience in ATPs	9. Were you ever a student in a BLPATP? (yes/no)
Reason for enrolling in MLPATP	10. If yes, why did you not graduate from this program? (open-ended) 11. Did you choose to pursue the MLPATP route INSTEAD OF the BLPATP route to certification? (in other words, did you "wait" to become an athletic trainer until your Master's program?) (yes/no) 12. How many years passed between earning your Bachelor's degree and enrolling in your MLPATP? (#) 13. Why did you choose to enroll in an MLPATP? (open-ended) 14. Did geographic location impact your selection of a program? (yes/no) 15. What was the biggest factor that made you decide to enroll in your institution's MLPATP (as opposed to another MLPATP)? (MC)
Graduation requirements and postgraduation plans	16. Does your MLPATP require you to conduct a thesis/major research project in order to graduate? (yes/no) 17. Does your MLPATP require you to present at a conference in order to graduate? (yes/no) 18. Does your MLPATP require you to publish an article in order to graduate? (yes/no) 19. Does your MLPATP require you to pass a comprehensive examination in order to graduate? (yes/no) 20. What are your plans following graduation? (open-ended)

Abbreviations: ATP, athletic training program; BLPATP, bachelor's-level professional athletic training program; GPA, grade point average; MLPATP, master's-level professional athletic training program.

^a MC, multiple-choice question; #, enter a value; yes/no, dichotomous value.

nature of the data, statistical analyses included the use of the χ^2 test and a Cramer V coefficient to analyze the relationships between the variables of interest using probability. Correlations were planned to evaluate relationships or trends between variables. Mean and range statistics were used for quantitative data, and cross tabs were used to determine the percentages of each category within nominal data (multiple-choice questions, coded open-ended questions).

RESULTS

Demographics

Of the 25 program directors who received our survey, 9 responded (36% response rate). Based on program director responses, the survey link was forwarded to a total of 136 MLPATP students. Of these 136 students, a total of 79 completed the survey (58% response rate). Just over two-thirds of respondents were women (women, $n = 54$; men, $n = 25$). The average age of respondents was 24.7 years (± 3.0 ; range, 21–42). The majority of respondents identified themselves as Caucasian (84.8%; $n = 76$), with Black/African American accounting for the next-highest percentage (7.6%, $n = 6$). Japanese, Filipino, Korean, Mexican, and African American/Caucasian were also represented ($n = 1$). Fifty-six

percent of respondents were first-year students, while 44% were second-year students.

Characteristics of Undergraduate Academic Career

Respondents were asked at what point in their academic career they decided they wanted to become a certified athletic trainer (multiple choice). The majority (56.9%, $n = 45$) indicated they made this decision during their undergraduate studies, 22.7% ($n = 18$) decided prior to beginning their bachelor's degree, and 17.9% ($n = 16$) decided after graduating with their bachelor's degree. Exercise/sports science was the most commonly reported undergraduate major (41.7%, $n = 33$), followed by kinesiology and exercise physiology (see Table 2). Eighty-one percent of respondents earned a Bachelor of Science degree ($n = 65$), and 14% earned a Bachelor of Arts ($n = 11$; 2 respondents were double majors (BS/BA), 1 didn't respond). The majority of respondents earned above a 3.0/4.0 grade point average (GPA; 81%, $n = 65$), with 21 of those earning above a 3.7/4.0. Only 1 respondent reported having earned below a 2.0/4.0 (Table 3). Respondents were asked about their plans after earning their bachelor's degree. Responses were categorized into 6 general themes: (1) get a master's degree in athletic training, (2) get a master's degree (field not specified), (3) go to medical school, (4) become a

Table 2. Undergraduate Majors of MLPATP Athletic Training Students (n = 79)

Major	Number (%) of Respondents
Exercise/sports science	33 (41.7%)
Kinesiology	13 (16.4%)
Exercise physiology	5 (6.3%)
Biology	5 (6.3%)
Psychology	5 (6.3%)
Pre-physical therapy	2 (2.5%)
Other ^a	16 (20.2%)

Abbreviation: MLPATP, master's-level professional athletic training program.

^a Majors reported under the *Other* category included K-12 physical education, therapeutic recreation, pre-clinical health, general education, English, health & wellness science, nutrition/dietetics, finance/economics, neuroscience, biomedical, criminal justice, and health & health promotions.

personal trainer/strength coach, (5) go to physical therapy school, and (6) seek employment in an unrelated field. Just under 50% indicated that they planned to enroll in an MLPATP after graduation (n = 39), while an additional 18% (n = 14) planned to obtain a graduate degree in another field. The other most-common responses included attend physical therapy school (n = 6), become a personal trainer and/or strength and conditioning specialist (n = 4), or attend medical school (n = 3).

Previous Experience in ATPs

Respondents were asked if they had ever been enrolled in an ATP as an undergraduate student, and if so, why they did not graduate from that program. Eighty-two percent had never been enrolled (n = 65), while 16% indicated they had (n = 13; 1 nonresponse). Of those 13 who had been enrolled in a BLPATP, the reasons for not graduating from that program included transferring to another institution (n = 3), program was not accredited (n = 2), falling behind in coursework (n = 4), student could not manage being a collegiate athlete and remaining in the program (n = 2), and personal reasons (n = 2).

Reason for Enrolling in an MLPATP

Respondents were asked if they had chosen to pursue the MLPATP route instead of the BLPATP route to certification

Table 3. Undergraduate GPA of MLPATP Athletic Training Students (n = 79)

GPA Range	Number (%) of Respondents
3.7–4.0	21 (26.6%)
3.4–3.6	22 (27.8%)
3.1–3.3	22 (27.8%)
2.8–3.0	8 (10.1%)
2.4–2.7	4 (5%)
2.0–2.3	1 (1.2%)
<2.0	1 (1.2%)

Abbreviations: GPA, grade point average; MLPATP, master's-level professional athletic training program.

Table 4. Rationale for Enrolling in MLPATP (n = 73)

Reason for Choosing MLPATP Route to Certification (Versus BLPATP Route)	Number (%) of Respondents
Undergraduate institution did not offer AT major or became interested in AT midway through bachelor's degree	43 (58.9%)
Previously enrolled in BLPATP but was unable to continue in program	10 (13.7%)
Student-athlete as an undergraduate	6 (8.2%)
Changed career plans postgraduation	5 (6.8%)
Unable to enroll in graduate program of choice (occupational therapy, physical therapy, medical school)	4 (5.5%)
Other	5 (6.8%)

Abbreviations: AT, athletic training; MLPATP, master's-level professional athletic training program; BLPATP, bachelor's-level professional athletic training program.

(in other words, did they “wait” to become an athletic trainer through the master's degree route). The results were split, with 46 respondents reporting *no* and 31 reporting *yes* (60% and 40%, respectively). Respondents waited an average of 1.2 years (± 2.2 ; range, 0–12 years) after completing their bachelor's degree before enrolling in their MLPATP, with 52% (n = 41) enrolling immediately upon graduation. Respondents were asked why they chose to enroll in an MLPATP. The majority (59%, n = 43) indicated that it was because their undergraduate institution did not offer athletic training or because they changed their career decision midway through their bachelor's degree, while only 5.5% (n = 4) indicated that the MLPATP was a backup plan after they did not get accepted into occupational therapy, physical therapy, or medical school (see Table 4).

Geographic location impacted respondents' selection of MLPATPs in 62% of the cases (n = 49). When respondents were asked about the biggest factor that made them decide to enroll in their institution's MLPATP (as opposed to another MLPATP), location was selected most frequently (34%, n = 27), with program's reputation second (23%, n = 18; Table 5).

Graduation Requirements and Postgraduation Plans

Respondents were asked about the graduation requirements of their MLPATP. Seventy-three percent of respondents indicated that they were required to complete a thesis or research project in order to graduate (n = 58); 9% were required to present at a conference, and 4% were required to publish an article (n = 7 and n = 3, respectively). Thirty-four percent of respondents (n = 27) were required to pass a comprehensive examination prior to sitting for the BOC examination. Respondents were asked to discuss their postgraduation plans. The overwhelming majority (n = 65, 84%) indicated that they planned to practice as an athletic trainer, another 2 respondents planned to pursue an academic appointment within athletic training, and 5 more planned to pursue a terminal degree in athletic training or a related field (Table 6).

Table 5. Primary Factor Influencing the Selection of MLPATPs (n = 78)

Factor	Number (%) of Respondents
Geographic location	27 (34.6%)
Program's reputation	18 (23.1%)
Cost (tuition/room/board)	12 (15.4%)
Athletic training faculty reputation	4 (5.1%)
Size of college/university	3 (3.8%)
Other ^a	4 (5.1%)

Abbreviation: MLPATP, master's-level professional athletic training program.

^a Factors reported under the *Other* category included interest in working with NCAA Division I athletes, desire to attend a particular college/university, program's first-time board of certification exam pass rate, helpfulness of faculty in answering questions of prospective students, and only program respondent was accepted into.

Correlations

Cramer V coefficients were calculated to evaluate potential associations between 2 variable sets. Specifically, we were interested in whether there was an association between when respondents decided to pursue a career as an athletic trainer (prior, during, or after beginning undergraduate studies) and the number of years until they enrolled in their MLPATP. We found a significant association ($\chi^2 = 11.4$, $P = .033$), specifically, that 87% of respondents who had enrolled in the MLPATP within 1 year of earning their bachelor's degree had decided to pursue a career as an athletic trainer either prior to (24.6%) or during (62.3%) their undergraduate education.

DISCUSSION

To our knowledge, this was the first study to look at the characteristics of students who choose to pursue the MLPATP route to athletic training certification. Information collected has yielded a profile of MLPATP students, data about how and why students selected their chosen program, and statistics regarding plans following graduation. Based on this information, suggestions for recruitment of students as well as additional lines of research inquiry are presented.

Profile of the Entry-Level Master's Student

Based on respondent feedback, the majority of these students are in their mid-20s and have graduated with a bachelor's degree within the past 1 to 2 years. Similar to the overall makeup of certified athletic trainers, the majority of MLPATP students are Caucasian; however, the overall student population is slightly more diverse than the certified athletic trainer population as reported in 2008.⁷ The majority of students (59%) decided to pursue a career as an athletic trainer while enrolled in a related bachelor's degree program or major (eg, exercise science, kinesiology). Rather than changing majors and extending a student's time to earn a bachelor's degree, the MLPATP provides a viable alternate route to certification for these students. The MLPATP route also provides an opportunity for more student-athletes to

Table 6. Postgraduation Plans (n = 77)

Postgraduation Plans	Number (%) of Respondents
Practice as an athletic trainer	65 (84.4%)
Pursue a terminal degree in athletic training/related field	5 (6.5%)
Pursue an academic appointment in athletic training	2 (2.6%)
Additional graduate schooling in a related field	3 (3.9%)
Other	2 (2.6%)

pursue a career in the field. Over half of respondents reported an undergraduate GPA of 3.4/4.0 or higher, which would have made them eligible for many other competitive graduate education programs in related fields (eg, physical therapy, physician assistant, medicine); however, very few respondents ($n = 4$) indicated that they enrolled in an MLPATP only after they did not get into their graduate program of choice.

Reasons for Enrolling in an MLPATP Program

Previous research has examined attractors to postprofessional ATPs; however, to our knowledge this is the first study to explore attractors to MLPATPs. The primary reasons reported for selecting a postprofessional master's program are the reputation of the program and/or faculty, career intentions, professional socialization (formalized, hands-on training related to professional practice), and mentorship from undergraduate faculty and/or preceptors.⁸ The results of our study with MLPATP students were fairly similar, with program and faculty reputation being 2 of the top 4 factors influencing student selection. This is not surprising, as academic reputation as been identified as an important selection criterion for US colleges for over 30 years.^{9,10} However, the differences in program attractors between postprofessional master's programs and MLPATPs may be due to the fact that postprofessional ATPs are building on entry-level knowledge that has already been gained through the student's accredited undergraduate education program. Students looking to enter MLPATPs likely do not have the same level of awareness of research interests or specific areas of study and may not have any professional mentors aiding them in selecting an MLPATP. Our data indicates that the majority of MLPATP students are coming from institutions that did not offer an athletic training major. Also, geographic location and cost were reported as 2 of the top 3 reasons for selecting an MLPATP, which may be related to the fact that MLPATPs generally don't offer specialized educational emphasis, research focus, or graduate assistantships (because students don't possess the BOC credential).

Plans Postgraduation

Of the 77 respondents who answered the question regarding plans following graduation, 65 (84%) reported that they plan to practice as an athletic trainer, 5 planned to pursue a terminal degree in a related field, and 2 planned to pursue an academic appointment within athletic training. Assuming these students follow through with their plans, 93.5% of these graduates will be seeking employment using their credential from the BOC.

This is a larger percentage than has been reported previously. A 2010 study indicated that 17.6% of students who graduated from BLPATPs or MLPATPs were not employed and were not seeking employment using their athletic training credentials.¹¹ However, because BLPATP and MLPATP students were pooled into a single statistic in this study, it is unknown how the percentage of MLPATP graduates seeking employment as a certified athletic trainer compares to graduates of undergraduate programs. Recent expert commentary suggested that students entering BLPATPs may be using the curriculum as a stepping stone toward other health care professions.¹² Conversely, the percentage of MLPATP students in our study who reported that they will pursue employment using their athletic training credential is at least equivalent to graduates of postprofessional master's programs (based on qualitative interviews with postprofessional ATP students and anecdotal expert commentary).^{8,13,14} Additional data regarding the percentage of students graduating from BLPATPs versus MLPATPs who remain in the athletic training profession will be important in continued discussions regarding the future of athletic training education.

Suggestions for Recruitment of Potential Students

Factors contributing to the recruitment of MLPATP students are different than those that have been identified for BLPATP students. Previous research with BLPATP students has identified an association with sports and athletes (eg, student was a high school athlete) and initial exposure to athletic training at the high school level as factors contributing to students' attraction to a career in athletic training.¹⁵ While BLPATPs can target high school counseling centers (both guidance and career) with recruitment materials, MLPATPs must cast a broader net in order to expose potential students to the athletic training profession. Based on the results from our study, MLPATPs should focus recruiting efforts on exercise science, kinesiology, and exercise physiology undergraduate programs in their geographical area. Programs may consider sending program information to advising departments within these programs or attending career fairs at other undergraduate institutions. MLPATPs should also ensure that other programs/departments within their own institution are aware of their MLPATP offering. With the program's reputation being the second most-reported selection factor, MLPATP faculty should strategize how to promote the program within the geographical area. Potential promotional areas could include highlighting faculty research (publications and presentations), program involvement with local athletic events (eg, marathons, winter sports tours, Olympic development programs), and successful graduates (eg, those in professional sports or creating roles in unique, growing fields).

Limitations and Future Research

Though our response rate was higher than typically gained through survey data (58%), respondents represented only 9 of the 25 MLPATPs that were accredited as of February 2012. This may diminish the ability to generalize our results across the remaining 16 MLPATPs. In attempting to evaluate the degree to which students elected to enter an MLPATP in their current geographic area, we realized during data analysis that this question was perhaps too broad. Students were asked, "Did geographic location impact your selection of a program?" and "What was the biggest factor that made you

decide to enroll in your institution's MLPATP (as opposed to another MLPATP)?" We assumed the results from these questions supported our hypothesis; however, we did not specifically ask why the geographic location influenced their decision. Respondents could have been referencing an area with a warmer (or colder) climate or an area of the country where they had family.

Another limitation of this study is that we did not ask respondents to report the name of the MLPATP in which they were enrolled. This was done to promote honesty in answers and to ensure anonymity of programs; however, it made some analyses impossible. For example, the results noted in the section Graduation Requirements and Postgraduation Plans were based on individual responses, so we do not know what percentage of MLPATPs have which graduation requirements (only what percent of individual respondents had those requirements for their programs). Future research is being conducted with MLPATP directors in order to evaluate the consistency of graduation requirements across MLPATPs. Additional lines of research that would contribute toward discussions regarding the future of athletic training education include comparisons of BOC pass rates between BLPATP and MLPATP applicants and of postgraduation trends between the 2 curriculum routes (BLPATP and MLPATP).

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