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Professional Baseball Athletic Trainers' Perceptions of Preparation for Job-Specific Duties

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Context: The extent to which individuals are prepared completely for work in a particular athletic training setting (eg, professional sports, college, high school) is unknown. This issue is critical today, and findings in this area have implications for athletic training education policy and employers.

Objective: To determine the perceptions of preparation for work-specific tasks by professional baseball athletic trainers (PBATs). We also wanted to determine whether various preparation experiences interact with perceived skills.

Design: Cross-sectional study.

Setting: Online survey administered via SurveyMonkey.

Patients or Other Participants: Two hundred seventy-five PBATs.

Intervention(s): The PBATs reported their levels of preparation before employment in their positions and their current skills in each of the 8 work task domains: evaluation of elbow injuries; evaluation of shoulder injuries; evaluation of general injuries; acute care; injury prevention; treatment, rehabilitation, and reconditioning; organization and administration; and non–athletic-training tasks.

Main Outcome Measure(s): Nine repeated-measures analyses of covariance were performed with each perception of preparation (retrospective, current) as a within-subject factor. Preparation experiences were included as between-subjects factors, and number of years working in baseball was the covariate.

Results: Subscale reliabilities were calculated and found to be between 0.79 and 0.97. A total of 180 PBATs (65%) completed the survey. The backgrounds and routes by which PBATs gained employment in the professional baseball setting varied. Individuals who completed professional baseball internships, had previous work experience, and immediately entered the professional baseball setting after graduation had noted differences in their perceptions of preparation for work tasks. The PBATs indicated they were substantially underprepared for tasks in the organization and administration and non–athletic-training task domains.

Conclusions: The organizational socialization process is complex, and no 1 experience appears to completely prepare an individual for work in the professional baseball setting.

Key Words: organizational socialization, work tasks, career preparation

Key Points

- Professional baseball internships and previous experience in another employment setting before employment in professional baseball contributed to an individual's overall socialization into the professional baseball work setting.
- Participants perceived that they were overwhelmingly underprepared for the organization and administration and non–athletic-training tasks that are unique to professional baseball.
- Students, interns, and new employees need better exposure to areas of practice that involve administrative and other tasks that are specific to a particular work setting.
- Participants rated their current skills as having improved substantially from the time of preparation and perceived that they were much more prepared for their jobs than when they entered the professional baseball setting.

The professional preparation process for athletic trainers (ATs) includes a rigorous set of standards and experiences. After graduates enter the industry, they are considered to be professionals and must meet an expected standard of performance and service that is held by the general public and those expectations of the hiring organization.[1] These performance norms drive athletic training education programs (ATEPs) to deliver standardized and general information that is transferable, allowing organizations to hire entry-level professionals who are prepared academically to work in various settings in the industry (ie, high school, college, professional sports).[1] Whereas formal education might provide individuals with the technical information necessary for job competence in various settings, it might fall short of completely preparing a person for work in any 1 of those particular settings. This is one of the more critical issues facing human resource development managers and researchers today.[2]

The multistage occupational socialization process has been used to study entry into the athletic training profession,[3–5] ways in which ATEPs are preparing future ATs,[6,7] struggles individuals must overcome after they enter the workforce,[8–10] and factors surrounding whether individuals remain in a particular setting.[11,12] Specifically,

we know that the transition from the professional to the organizational phase is complex.[9,11,13–15]

Whereas the global view of occupational socialization provides a sound theoretical model, a more focused model can assist in homing in on particular portions of the organizational socialization process. Holton[16] provided the schematic needed to both understand and study the transition from school to work and ongoing organizational socialization process in a more focused manner. Included in the taxonomy are 4 domains: the individual, people, organization, and work task. Previous findings in athletic training socialization research provide much insight into the interrelationships among the individual, people, and organizational domains; identification of the bureaucratic and quality-of-life issues; and the role strain and uncertainty experienced in the National Collegiate Athletic Association (NCAA) Division I[9,10] and high school[8,12] settings.

Unexplored to date, the focus of our study is the work task domain.[16] This particular aspect of organizational socialization includes components such as "understanding the basic tasks required in the job and how to perform them successfully" (task knowledge), "acquiring generic professional skills in communication (and) time management. . . necessary to function in the job" (work savvy), and "identifying knowledge, skills, and abilities needed to perform tasks successfully, both now and in the future" (knowledge, skills, and abilities).[16(p244)] Findings in this area can inform athletic training education policy and can assist hiring organizations that desire to increase job performance and satisfaction and limit employee turnover.[17]

Therefore, the overall purpose of our study was to determine the perceptions of preparation for work-specific tasks by a specific population: ATs in the professional baseball setting. Professional baseball ATs (PBATs) were chosen for various reasons. First, PBATs make up the largest group of professional sport ATs, including more than 300 ATs in Major League Baseball (MLB) and Minor League Baseball (MiLB) affiliates.[18] The PBATs have well-defined and obtainable work task descriptions, making the examination of such task knowledge a reasonable feat. In addition, the jobs of a substantial portion of PBATs require effective communication skills (work savvy) with people such as patients, non–English-speaking individuals, front office and human resource personnel, physicians, managers, and coaches. Further, PBATs have been and still are required to perform non–athletic-training tasks (ie, meal money distribution, petty cash reimbursement, and travel planning), contributing to the notion that despite formal education, we may fall short in preparing individuals for any one particular setting. Lastly, researchers studying sport management[19–22] have indicated that internships can have an important role in the socialization and overall preparation of individuals for specific work settings. For ATs, the same opportunities exist for individuals to gain exposure to the professional baseball setting through internships, but we have only anecdotal evidence related to the outcomes of such experiences.[23]

Specifically, the research questions guiding our study included the following: (1) What are the previous perceptions of preparation for work task duties held by ATs in professional baseball? (2) How do ATs in professional baseball perceive their current skills in work tasks? (3) How do perceptions of skill in work tasks held by ATs in professional baseball interact with the following factors: professional baseball internship experience, graduate assistantship experience, previous work experience, whether the participant was hired as a head PBAT immediately after graduation from an educational program, whether the participant became eligible for the Board of Certification (BOC) examination through a formal curriculum program or other route, and MLB or MiLB status?

METHODS

We used a retrospective pretest-posttest design, a technique common in evaluation and athletic training socialization research, to ascertain how participants perceived themselves before an intervention.[3,24] A retrospective pretest-posttest instructs participants to rate items, such as their skills and abilities, before an intervention and rate how they currently perceive themselves on the same dimensions. In our study, this design allowed us to investigate whether the changes in scores were conditional on the between-subjects factors of interest described in the research questions.

Participants

The population for our study included all head and assistant MLB ATs, medical/rehabilitation coordinators, and MiLB team head ATs (N = 275). We excluded content experts, pilot study participants, and dual-credentialed individuals employed in the professional baseball setting whose primary job title did not reflect athletic training (ie, massage therapist/AT, physical therapist/AT, strength coach/AT).

Instrument Design

No questionnaire exists that exclusively examines work tasks of PBATs. Therefore, we constructed an original questionnaire for this study. The primary goal of the instrument was to examine PBATs' perceptions of their previous and current skills in the following 8 areas: evaluation of elbow injuries; evaluation of shoulder injuries; evaluation of general injuries; acute care; injury prevention; treatment, rehabilitation, and reconditioning; organization and administration; and non–athletic-training tasks. The survey design included several steps: creation of the work task items, expert review, and a pilot study.

Creation of the Work Task Items. To create the work task items in the 8 areas, several sources were reviewed. We examined existing job descriptions of PBATs.[25] From this, a general list of PBAT work tasks was developed. Each of the general work task statements was assigned to 1 of the 6 domains of athletic training, as defined by the BOC.[26] Items that did not align with 1 of the domains of athletic training were placed into the non–athletic-training scale.

Next, the general work task statements were further divided into specific work task statements (69 items). The primary source for the development of specific work task statements was the *Role Delineation Study* of the BOC[26] because it is a valid, reliable measure for outlining the vital tasks and competencies that ATs possess. To ensure that job

tasks in the professional baseball setting were reflected accurately, we also completed an exhaustive review of Andrews et al.[27]

Expert Review of the Content. The next step in the instrument design included expert review of the content. Two experts with more than 50 combined years of experience as ATs in the professional baseball setting reviewed the work task items to ensure the items accurately and completely reflected the role of a PBAT. Furthermore, the content experts ensured that the items were appropriate for the intended population.

Pilot Study. After the study was approved by The University of New Mexico Institutional Review Board, the final step in the instrument design was the completion of a pilot study that included 5 current and 2 former male PBATs with between 1 and 15 years of experience in various professional baseball organizations. These individuals were purposefully selected because routes to employment in professional baseball can vary greatly; thus, ensuring that the demographic questions were appropriate for all types of PBATs was important. Furthermore, these 7 individuals were selected to ensure that the work task items fully and accurately represented the role of ATs in the professional baseball setting. Specifically, they included 1 former PBAT and 1 current PBAT who gained immediate employment in professional baseball upon completing their educations, 2 current PBATs who worked in another athletic training setting before employment in baseball, 1 former PBAT who completed a formal professional baseball internship before gaining employment in baseball, 1 AT who was first hired as an assistant AT/strength coach in professional baseball before becoming a head PBAT, and 1 current PBAT who had both a professional baseball internship and previous work experience before becoming a head AT in baseball.

Pilot study participants completed the survey via the Web-based tool SurveyMonkey[28] and were asked to provide suggestions for improving the clarity of instructions and questions. They also were instructed to identify whether they had difficulty answering any of the questions and whether the work task statements accurately reflected the role of a PBAT. Pilot study participants indicated the need for an operational definition of the term *professional baseball internship* because internships in the professional baseball setting can be formal via the Professional Baseball Athletic Trainers' Society or informal whereby an individual seeks a volunteer or paid experience with 1 or more MLB or MiLB teams. Thus, we operationally defined *professional baseball internship* for this study as a volunteer or paid experience in the professional baseball setting whereby the individual is exposed to but does not assume a formal role in athletic training in that setting. Furthermore, pilot study participants helped to clarify the various routes an individual can take to gain employment in professional baseball. For the purposes of our study, the various routes to employment in professional baseball included 1 or more of the following: (1) "I completed a professional baseball internship outside of my educational program requirements before becoming a head PBAT;" (2) "I completed an athletic training graduate assistantship before becoming a head PBAT;" (3) "After completing my educational program requirements, I worked before becoming a head PBAT;" and (4) "I did not engage in any of the previously mentioned items; after completing my educational program requirements, I immediately became a head PBAT."

Final PBAT Survey. The final PBAT survey included 2 parts: (1) demographic and background information and (2) work task statements (69 items). Demographic and background information included sex, race, age, number of years employed in professional baseball, educational level, BOC eligibility, current level of employment in professional baseball, and the previously mentioned route to employment in professional baseball. The work task statements included evaluation of elbow injuries (7 items); evaluation of shoulder injuries (9 items); evaluation of general injuries (6 items); acute care (8 items); injury prevention (7 items); treatment, rehabilitation, and reconditioning (11 items); organization and administration (16 items); and non–athletic-training tasks (5 items; Table 1). Participants were instructed to indicate whether they believed they were prepared to complete the work tasks presented in the statements (1) when they entered the professional baseball setting and (2) at this point in their careers. Skill items within each scale for which participants answered yes were assigned a 1. The 1′s were then summed and divided by the number of items within the scale for a percentage of skills participants believed they initially were prepared for and presently were capable of performing.

Procedures

We visited the Web site of each MLB and MiLB affiliate and created a database of all current head and assistant MLB ATs, medical/rehabilitation coordinators, and MiLB team head ATs. The resulting e-mail addresses of the PBATs (N = 275) were purchased from the National Athletic Trainers' Association (NATA) professional baseball mailing list. The survey then was administered via SurveyMonkey from February to April 2008. In accordance with Dillman,[29] follow-up e-mail reminders were sent 3 times to nonrespondents.

DATA ANALYSIS

To investigate the research questions, 9 repeated-measures analyses of covariance were performed with each perception of preparation (dependent variable) as a within-subject factor (retrospective, present perception); internship, graduate assistantship, previous work experience, hired as head AT immediately after completing school, BOC eligibility, and MLB or MiLB employment status (all independent variables) as 2-level between-subjects factors; and years employed in the baseball setting as a covariate factor. Of specific interest were the interactions of the between-subjects factors with the within-subject factor, with an interaction indicating differences between retrospective and present perceptions of work task skills.

The residuals from each analysis were examined to determine whether distributional assumptions of homogeneity of variance and normality were met.[30] Statistical theory (ie, the central limit theorem) and simulation studies indicate that analyses-of-variance–based techniques are robust to violations of normality when sample sizes are sufficiently large and that, when the tests are in error, they tend to be more conservative.[30–32]

Table 1. Work Task Items

Domain	Items in Survey
Evaluation of elbow injuries	Evaluate bone spurs and loose bodies of the elbow
	Evaluate ulnar nerve neuropathy
	Evaluate medial epicondylitis
	Evaluate triceps brachii tendinitis
	Evaluate Little League elbow
	Evaluate ulnar collateral ligament injuries
	Evaluate lateral epicondylitis
Evaluation of shoulder injuries	Evaluate long thoracic nerve neuropathy
	Evaluate thoracic outlet syndrome
	Evaluate acromioclavicular joint pathology
	Evaluate rotator cuff tendinopathies and tears
	Evaluate biceps brachii tendinopathies (long head)
	Evaluate Little League shoulder
	Evaluate impingement and bursitis (shoulder)
	Evaluate glenohumeral joint instability
	Evaluate superior labrum anterior-posterior lesions
Evaluation of general injuries	Evaluate concussions
	Evaluate ankle sprains
	Evaluate anterior cruciate ligament sprains
	Evaluate abdominal sprains
	Evaluate thigh strains
	Evaluate meniscal tears
Acute care	Administer epinephrine autoinjector (Epi-Pen [Dey Pharma, LP, Basking Ridge, NJ])
	Administer lifesaving techniques
	Applying wound care
	Implement emergency action plan
	Manage common life-threatening emergency situations or conditions
	Manage heat-related conditions
	Measure vital signs
	Use of emergency equipment
Injury prevention	Develop an emergency action plan
	Educate player regarding nutritional concerns
	Educate players about travel concerns (altitude, sleep habits, hydration)
	Identify safety hazards (sprinkler heads, wall composition, dugout risks)
	Knowledge of baseball rules and regulations (protective equipment, pitcher's hands)
	Oversee healthy pitcher's exercise programs
	Oversee player's in-season conditioning programs
Treatment, rehabilitation, and reconditioning	Administer cryotherapy
	Administer joint mobilizations
	Administer medications
	Administer therapeutic ultrasound
	Administer thermotherapy
	Administer traction
	Administer electrical stimulation
	Oversee injured pitcher's exercise programs
	Oversee injured position player's exercise programs
	Oversee postoperative rehabilitation
	Oversee return-to-activity criteria
Organization and administration	Communicate with English-as-second-language speakers
	Communicate with front office personnel
	Communicate with human resource department regarding insurance issues
	Communicate with manager and coaches
	Communicate with my supervisor
	Communicate with team physician or physicians
	Coordinate employee assistance program services
	Coordinate entrance and exit physicals
	Coordinate off-season rehabilitation programs
	Generate daily status reports of treatments, injuries, and rehabilitations
	Maintain athletic training room inventory and budget
	Maintain Occupation Safety and Health Administration standards
	Manage Worker's Compensation cases
	Oversee repair, maintenance, and calibration of modalities
	Schedule appointments of injured players with physicians
	Use injury tracking software
Non–athletic-training tasks	Coordinate transportation (flight, bus, van)
	Coordinate travel accommodations (hotel)
	Generate travel itineraries
	Manage meal money
	Manage petty cash

Reliability for each scale was calculated using KR-20, a measure of internal consistency for dichotomous items that is mathematically similar to the Cronbach α.[33] The KR-20 involves using the proportions of respondents who answered each item with a *yes* or *no* in relation to the total score variance.

RESULTS

The population and, therefore, potential participants for this study included 275 PBATs. Of these, 201 (73%) people began the survey, and 180 (65%) PBATs completed it.

The results are organized in the following sections and include participants' backgrounds and the findings for each of the 8 work task scales: evaluation of elbow injuries; evaluation of shoulder injuries; evaluation of general injuries; acute care; injury prevention; treatment, rehabilitation, and reconditioning; organization and administration; and non–athletic-training tasks.

Participants' Backgrounds

Our findings as they related to perceptions of preparation for work in professional baseball should be interpreted with an understanding of the participants' demographics. Self-reported demographics are reported in Table 2. Four participants chose *other* for race, indicating they were Caucasian/Hispanic (n = 3), or chose not to report their race (n = 1). In addition, 4 participants chose *other* for education, indicating they earned a doctorate in physical

Table 2. Self-Reported Demographic Characteristics of the Participating PBATs (N = 180)

Characteristic	Finding
Sex, no. (%)	
Male	178 (98.9%)
Female	2 (1.1%)
Race, no. (%)	
White	146 (81.1%)
Hispanic	17 (9.4%)
African American	3 (1.7%)
Asian	9 (5%)
Native American	1 (0.6%)
Other	4 (2.2%)
Age, y (Mean ± SD)	34.27 ± 8.12
Time in baseball, y (Mean ± SD)	10.26 ± 8.71
Education, no. (%)	
Baccalaureate	72 (40.0%)
Some graduate	19 (10.6%)
Master's	85 (47.2%)
Other	4 (2.2%)
Board of Certification eligibility, no. (%)	
Internship	80 (44.4%)
Curriculum	100 (55.6%)
Current level of professional baseball employment, no. (%)[b]	
Short season	34 (18.9%)
Low-A	22 (12.2%)
High-A	17 (9.4%)
AA	27 (15.0%)
AAA	20 (11.1%)
Major League Baseball	31 (17.2%)
Medical/rehabilitation coordinator	29 (16.1%)
Route to employment, no. (%)	
Professional baseball internship	81 (45.0%)[a]
Graduate assistantship	65 (36.1%)[a]
Work in another athletic training setting	93 (51.6%)[a]
None of the above, entered the professional baseball setting immediately after completing school	36 (20%)

[a] Indicates participants could choose more than one.
[b] Indicates some values were rounded.

therapy (n = 2), earned 2 master's degrees (n = 1), or were pursuing a doctorate in education (n = 1).

Work Task Items by PBAT Characteristics

Findings related to the interactions of each of the PBAT characteristics (previous work experience, internship, graduate assistantship, hired as head AT immediately after finishing school, BOC eligibility, and MLB or MiLB employment status) with perceptions of preparation for each of the work task domains (evaluation of elbow injuries; evaluation of shoulder injuries; evaluation of general injuries; acute care; injury prevention; treatment, rehabilitation, and reconditioning; organization and administration; and non–athletic-training tasks) are summarized in Table 3. Mean percentages are reported and characteristics by time interactions are indicated.

Evaluation of Elbow Injuries. We found an interaction of previous work experience with perceptions of preparation to evaluate elbow injuries ($F_{1,172} = 4.48$, $P = .03$). Participants who had no work experience before entering professional baseball reported a retrospective perception of skill in treating elbow injuries of 69.2% and a present level of skill of 98.4%, whereas participants with work experience had a retrospective perception of skill in caring for elbow injuries of 81.8% and current level skill of 98.6% (Table 3). We also found an interaction of immediately becoming a professional baseball AT with perceptions of preparation ($F_{1,172} = 8.23$, $P < .001$). The ATs who delayed becoming head PBATs had scores of 62.2% and 97.4% on retrospective and current measures of preparation, respectively. Correspondingly, ATs who immediately entered professional baseball had scores of 88.7% on their retrospective perception and 99.6% on their present perception (Table 3). This finding indicates that the perception of initial level of preparation was higher for PBATs who immediately became ATs in professional baseball than PBATs who did not immediately enter the professional baseball setting. We found no other effects of interest (Table 3).

Evaluation of Shoulder Injuries. We found an interaction of completing a professional baseball internship outside of their educational programs with perception of skill in caring for shoulder injuries ($F_{1,172} = 4.16$, $P = .04$). Examination revealed a greater difference on retrospective skill, with those who had an internship reporting greater early skill (71.2%) than those who did not have an internship (64.8%). Reports of present skill were comparable with 95.9% and 91.2% for ATs who had and had not completed an internship, respectively. Similar to care for elbow injuries, we found an interaction of previous work experience with the perception of skill ($F_{1,172} = 5.69$, $P = .01$), with a comparable pattern of scores observed. The ATs who worked before becoming PBATs scored 73.1% on the pretest and 92.0% on perceptions of present skills. The interaction term is a comparison of this pattern of scores with scores of PBATs who did not have work experience (retrospective perspective of skills = 62.9%, present perception of skills = 95.0%). We found an interaction of immediately becoming a PBAT with perceived skills ($F_{1,172} = 7.51$, $P = .006$). Participants who did not immediately enter professional baseball had lower estimations of their initial skills on the retrospective pretest (56.7%) than those who became PBATs immediately after finishing school (79.3%). Current estimations of skills were comparable; both groups of ATs had scores of 93%. We found no other factors of interest.

Evaluation of General Injuries. A ceiling effect was observed for the posttest perception of skill. Therefore, the analysis of evaluation of general injuries should be interpreted with reservations. We found an interaction of previous work experience with perceptions of skill ($F_{1,172} = 8.05$, $P < .001$). As noted for the previous perceptions of skill in elbow and shoulder evaluation, the retrospective perception of skill was greater for PBATs who had work experience (96.7%) than for PBATs who did not have work experience (74.6%). We found an interaction of immediately becoming a PBAT with perception of skill ($F_{1,172} = 7.37$, $P < .001$). Again, the individuals who immediately became PBATs had a greater retrospective score (96.7%) than those who did not (74.6%). We found no other effects of interest.

Acute Care Skills. The within-subject factor of time of perception was different ($F_{1,172} = 9.07$, $P < .001$). The scores for retrospective and current perceptions of acute

Table 3. Work Task Items Endorsed by Athletic Trainer Characteristics (N = 180), Mean Percentage

	Athletic Trainer Characteristic											
	Previous Work Experience		Completed Baseball Internship		Completed Graduate Assistantship		Immediately Became a Professional Baseball Athletic Trainer		Completed Board of Certification Curriculum Program		Major League Baseball Athletic Trainer	
Work Task Item	Yes (n = 93)	No (n = 87)	Yes (n = 81)	No (n = 99)	Yes (n = 65)	No (n = 115)	Yes (n = 36)	No (n = 144)	Yes (n = 100)	No (n = 80)	Yes (n = 31)	No (n = 149)
Evaluation of elbow injuries[a,b]												
Pretest, %	81.8	69.2	80.0	71.0	79.1	71.8	88.7	62.2	78.5	72.4	78.5	72.4
Posttest, %	98.6	98.4	98.8	98.3	99.8	97.2	99.6	97.4	98.4	98.7	100.0	96.9
Evaluation of shoulder injuries[a–c]												
Pretest, %	73.1	62.9	71.2	64.8	70.4	65.6	79.3	56.7	70.7	65.4	71.0	65.1
Posttest, %	92.0	95.0	95.9	91.2	94.0	93.0	93.8	93.2	93.8	93.3	96.9	90.2
Evaluation of general injuries[a,b]												
Pretest, %	96.7	74.6	86.2	85.1	87.0	84.3	96.7	74.6	86.9	84.5	84.0	87.3
Posttest, %	100.0	99.0	99.4	99.7	100.0	99.0	100.0	98.7	99.5	99.7	99.5	99.6
Acute care												
Pretest, %	81.3	79.5	77.7	83.1	81.0	79.8	85.2	75.6	82.5	78.3	81.3	79.5
Posttest, %	98.5	98.5	98.3	98.8	98.4	98.6	98.8	98.2	98.1	98.9	99.3	97.7
Injury prevention												
Pretest, %	61.6	54.4	62.5	53.6	58.3	57.7	58.9	57.2	60.6	55.4	60.6	55.4
Posttest, %	83.7	83.6	84.1	83.2	84.6	82.7	83.9	83.4	83.6	83.7	84.2	83.1
Treatment, rehabilitation, and reconditioning[a,c]												
Pretest, %	77.8	68.1	80.1	65.8	75.5	70.4	78.7	67.3	75.5	70.4	77.5	68.4
Posttest, %	97.0	96.9	97.9	96.0	97.2	96.7	96.5	97.4	97.0	97.0	98.3	95.6
Organization and administration												
Pretest, %	61.7	56.4	60.6	57.6	61.3	56.9	60.3	57.9	58.7	59.5	63.6	54.6
Posttest, %	94.7	94.1	94.5	94.2	94.7	94.1	93.8	95.0	93.5	95.2	94.1	94.7
Non–athletic-training tasks												
Pretest, %	32.9	24.6	33.8	23.7	31.2	26.3	23.6	33.9	28.1	29.4	34.4	23.1
Posttest, %	96.3	96.3	96.3	96.3	99.2	93.5	96.0	96.6	96.5	96.1	94.5	98.1

[a] Indicates characteristic x time interaction for previous work experience.
[b] Indicates characteristic x time interaction for immediately becoming a professional baseball athletic trainer.
[c] Indicates characteristic x time interaction for baseball internship.

care skills were 80% and 98%, respectively (Cohen d = 0.99). We found no other within-subject effects of interest.

Prevention Skills. We noted a within-subject factor of time of perception ($F_{1,171} = 36.93$, $P < .001$). The scores for retrospective and current perceptions of prevention skills were 54% and 83%, respectively (Cohen d = 1.13). We found no other effects.

Treatment, Rehabilitation, and Reconditioning Skills. We demonstrated an interaction of completing an internship with perception of rehabilitation skills ($F_{1,172} = 6.15$, $P = .01$). Athletic trainers who completed internships outside of their educational programs reported higher retrospective scores for rehabilitation skills (80.1%) than those who had not completed internships (65.8%). As observed in previous measures, the between-groups difference was reduced, and reported current perceptions were comparable between those who had completed internships in professional baseball (97.9%) and those who had not completed internships (96.0%). Furthermore, we observed an interaction of previous work experience with time of perception ($F_{1,172} = 4.18$, $P = .04$). The retrospective rating of their early skills was greater for PBATs who had previous work experience (77.8%) than those without previous work experiences (68.1%), whereas the assessments of current skills were comparable for PBATs who had work experience (97.0%) and PBATs who had no previous work experience (96.9%). We found no other effects of interest.

Organization and Administration Skills. The within-subject factor of time of perception was different ($F_{1,172} = 134.44$, $P < .001$). The scores for retrospective and current perceptions of organization and administration skills were 56% and 93%, respectively (Cohen d = 2.17). We found no other effects.

Non–Athletic-Training Skills. The within-subject factor of time of perception was different ($F_{1,172} = 146.96$, $P < .001$). The scores for retrospective and current perceptions of non–athletic-training related skills were 27% and 97%, respectively (Cohen d = 2.50). We found no other effects.

In summary, for acute care, prevention, organization and administration, and non–athletic-training skills scales, only the within-subject factor of time of perception was different ($P < .05$). Evaluation of elbow injuries; evaluation of shoulder injuries; evaluation of general injuries; and treatment, rehabilitation, and reconditioning had additional effects of interest that were different ($P < .05$; Table 3).

The assumption of homogeneity of variance was met for all outcomes. The assumption of normally distributed residuals was violated on the posttest measures of general injuries and acute care. Examination of these variables revealed restricted ranges, with PBATs indicating they had mastered tasks associated with general injuries (93.5%) and acute care (90.5%) at very high levels.

All pretest and posttest scales had reliability scores between 0.79 and 0.97 and are reported in Table 4.

DISCUSSION

The purpose of our study was to determine PBATs' perceptions of work-specific tasks. In addition, we assessed how PBATs' perceptions of skill interacted with factors such as professional baseball internship experience, graduate assistantship experience, whether the participant had previous work experience or was hired as a head PBAT immediately after graduating from an educational program, BOC eligibility, and MLB or MiLB status. The importance of the results and their relation to the existing socialization and other pertinent literature will be discussed in the following section.

Demographic Characteristics

As stated, the findings related to perceptions of preparation for work in professional baseball should be interpreted with an understanding of the demographics of the participants. All demographic characteristics that we collected are reported in Table 2. Noteworthy are the findings related to sex, race, and route to employment. The remaining findings can contribute to the general socialization literature and future studies of ATs in the professional baseball setting.

Most of our participants were male (98.9%) and white (81.1%). Although the sex and race demographics of our study do not align with the overall NATA membership (50% male, 90% white),[18] our findings are consistent with the findings of Lapchick et al.[34] That is, professional baseball has been largely unsuccessful in recent years, despite initiatives, in substantially increasing the number of women in leadership and administrative positions.[34] In fact, our findings and those reported by Lapchick et al[34] show that no women were currently in head AT positions at the MLB level. The 2 women who participated in our study were employed at the MiLB level. However, with respect to race, our findings are positive and consistent with the continuing initiatives of MLB[34] to increase the diversity of all individuals.

In our study, identifying the various paths to employment in the professional baseball setting allowed us to better examine the extent to which these routes did or did not influence an individual's perception of preparation for specific work tasks. We found that 65 participants (36.1%) completed graduate assistantships, 93 (51.6%) worked in another athletic training setting before entering professional baseball, 81 individuals (45.0%) completed a professional baseball internship before entering full-time employment as a PBAT, and 36 individuals (20.0%) entered the professional baseball setting immediately after completing school, so they had no previous experiences.

Findings Related to Specific Work Tasks

As stated in the Results section, whether an individual became eligible for the BOC examination through a formal curriculum program or other route and whether an individual was employed in MLB or MiLB did not affect perceptions of preparation for work tasks. The remaining variables related to the various routes to employment in professional baseball did not affect perceptions of preparation for specific work tasks. Specifically, 5 key relationships were found.

First, the perception of ability to evaluate conditions of the shoulder and complete treatment, rehabilitation, and reconditioning tasks was greater at both pretest and posttest in PBATs who completed professional baseball internships than in PBATs who had not completed internships. Internships can provide individuals with the opportunity to better understand and develop an appreciation for the

Table 4. Pretest and Posttest Reliability Scores

Scale	Pretest α	Posttest α
Evaluation of elbow injuries	0.84	0.88
Evaluation of shoulder injuries	0.86	0.88
Evaluation of general injuries	0.89	0.97
Acute care	0.88	0.95
Injury prevention	0.79	0.94
Treatment, rehabilitation, and reconditioning	0.87	0.95
Organization and administration	0.84	0.95
Non–athletic-training tasks	0.92	0.95

work savvy; task knowledge; and knowledge, skills, and abilities[16] needed to perform the job successfully, and an extensive amount of literature in the sports management and business industries substantiates the importance of engaging in internships.[19–22,35,36] We suspect that our specific findings are in part due to ATs in the professional baseball setting spending a substantial amount of their time managing injuries to the shoulder and in the large practice domain of treatment, rehabilitation, and reconditioning. Thus, the exposure to these areas contributed to an increased understanding and perception of preparation in these areas. We are the first to note in an empirical fashion the importance of engaging in internships. Before our study, only anecdotal evidence existed.[23]

Second, individuals who gained experience in another employment setting before entering the professional baseball setting had higher initial perceptions of their skills related to evaluation of elbow, shoulder, and general conditions and to treatment, rehabilitation, and reconditioning tasks. These findings are in contrast to those of Adkins,[37] who found in a longitudinal study that previous work experience had little to no effect on socialization outcomes of health care workers. We do not know where the PBATs in our study worked before entering the professional baseball setting. Therefore, we cannot comment specifically about the experiences they had during previous employment that contributed to their increased perceptions of preparation in these areas. However, our findings do contribute to the notion that the occupational socialization process in general, and organizational socialization phase in particular, is complex and defined by "subtle changes and adjustments, rather than... marked changes between defined times."[37(p859)]

Third, individuals who had no experience outside of their formal educational preparation program had better perceptions of their skills in 3 areas: evaluation of elbow and shoulder and general conditions. Thus far, we have seen that the role of previous experience, both in professional baseball internships and work, yielded an improvement in perceptions of preparation for work tasks. Therefore, these findings at first glance appear to be contradictory. We possibly needed to include more individuals who fit the criterion of this group (no experiences outside of their formal education program) in this study. In addition, a confounding variable, which we did not study, possibly exists. No evidence is available to explain how individuals without outside experiences would be better prepared for work in some areas than individuals with specific professional baseball internship and work experience. We can offer anecdotal support, but clearly more research is needed in this area. We believe that these findings possibly are the result of the types of jobs that entry-level ATs obtain in the professional baseball setting. Typically, as viewed in various current and former job postings, entry-level positions in professional baseball are not with full-season affiliates. Instead, entry-level positions in professional baseball are typically in settings where several ATs work together in a combined team setting, such as extended spring training. Therefore, entry-level practitioners are not assuming sole responsibility for the health care of a particular team. Rather, they are placed in environments where substantial support and mentorship exists, potentially creating a false sense of preparedness. Individuals might perceive themselves to be better prepared for their roles than their non–entry-level counterparts who are at higher levels and work by themselves without direct athletic training support.

Fourth, PBATs in our study indicated they perceived themselves to be overwhelmingly underprepared for organization and administration and non–athletic-training tasks, which are unique to the professional baseball setting (coordinating transportation and travel accommodations, generating travel itineraries, and managing meal money and petty cash). These findings are in contrast to those of Pitney et al,[10] who found NCAA Division I ATs received formal training for some administrative tasks related to athletic training. Our findings suggest that ATEPs, outside experiences (professional baseball internships, graduate assistantships, work experiences), or employers possibly do not adequately expose individuals to a substantial portion of the work task domain.[16] Although we cannot specifically determine where the gap in preparation exists, Holton[16] suggested insufficient job preparation is problematic and can lead to decreased job performance and increased employee turnover.

Fifth, all of the group-related differences discussed (previous work experience, internship experience, no experience before entering baseball) disappeared when ATs rated their current skills. Furthermore, all skills were rated as having improved from the time of preparation to present (all differences were large, Cohen $d > 1.00$). The PBATs in our study believed that they were substantially more prepared today for their jobs than they believed they were upon entry into the professional baseball setting. This may seem predictable, but the organizational socialization phase is complex and occurs over a long period.[2,13,14] Authors[10,13,38,39] of a vast amount of socialization literature suggest that upon initial entry into work, a period of transition is characterized by uncertainty, substantial adjustment, confusion, and instability. However, after that period of transition, Pitney et al[10] found that, as NCAA Division I ATs "better understood their role and evolved as professionals, [they] attempted to gain stability in their role."[10(p66)] The same pattern appears to exist in the PBATs of our study in relation to their perceptions of preparation for work tasks. Initially, many PBATs indicated they believed they were unprepared for their work tasks, but those differences eventually disappeared.

Limitations

The first limitation of our study is that data collected from the PBATs were self reported. These PBATs reported their perceptions of preparation using a retrospective pretest-

postest design. A common criticism of the retrospective pretest-posttest design is that one's ability to recall events after 1, 5, or even 10 years is difficult. However, the retrospective pretest-postest design has been substantiated in evaluation research[24] and has been used in athletic training socialization research.[3] Furthermore, and more importantly for the context of our study, the differences noted in the pretest and posttest measures indicated that our participants could recall specific information from their pasts.

A second limitation of the study is related to the newly developed measures. Although the measures were developed using best practices in survey design, restrictions in range were apparent in the measurement of PBATs' perceptions of skill in addressing general injuries and acute care. In the cases of these 2 measurements, the precision of the study possibly was affected, and the analyses possibly were not sensitive to group-related differences. However, this limitation reduced the sensitivity of the study in terms of finding differences but not in finding differences that do not exist (ie, the type I error rate is likely less than .05 for each analysis). A potential way to ameliorate this situation in future studies would be to examine measuring these and the other perceptions of preparation with Likert-scale items.

A third limitation is that the results might not be directly transferrable to other highly specific athletic training settings, such as professional football or ice hockey, or to athletic training settings such as college and high school. Therefore, our findings should be interpreted with an understanding of the population examined, and generalizations to other athletic training settings should be made cautiously.

Implications

Whereas we understand that academic programs for professional preparation must provide instruction that is general enough to be useful and relevant across many settings, students, interns, and new employees need better exposure to areas of practice that involve administrative and other tasks that are specific to a particular work setting. Although we might adequately teach students how to manage a budget, track injuries, and communicate with coaches, we might not provide adequate direct clinical exposure to these particular administrative work tasks.

Our findings suggest there is a need to promote internships (formal and informal) to contribute to an individual's overall socialization into a particular work setting. The socialization process is complex, and no one experience, such as an internship, will entirely prepare an individual for work; however, we have seen that, with respect to the work task domain, individuals who complete a professional baseball internship do perceive themselves to be better prepared in some areas. Furthermore, we only examined 1 of the 4 organizational socialization domains[16] but understand that internships also have the potential to expose individuals to the remaining 3 domains.

Future Research

As most studies do, our study raised more questions than it answered. We identified group differences among ATs who immediately entered the professional baseball setting, completed professional baseball internships, or had previous work experience. Whereas no 1 experience fully prepares an AT for work in the professional baseball setting, areas in which ATs perceive themselves to be more or less prepared certainly exist. Further investigation is needed to better understand why these differences exist. Perhaps our findings could lead to the development of a more in-depth instrument (Likert scale instead of the yes or no format) or even the design of a longitudinal study whereby a group of ATs could be followed to better explain differences.

A large number of ATs in our study completed professional baseball internships. A better understanding of what interns are exposed to and do during their experiences would contribute to our findings. Furthermore, the extent to which internships do or do not serve as routes to employment in the professional baseball setting, as is suggested in the sport management field,[19] is important and should be examined. Lastly, whether the same patterns exist in other professional sport and athletic training settings is unknown and should be examined.

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