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ORIGINAL RESEARCH

Educational Preparation and Experiences in the Industrial-Occupational Setting: A Qualitative Study of Athletic Training Graduates' Perspectives

Jim F. Schilling, PhD, ATC, CSCS

University of Southern Maine, Gorham, ME

Context: The industrial-occupational setting provides a workplace of substantial potential for the athletic training graduate. Acquiring input from entry-level athletic trainers (ATs) pertaining to experiences, knowledge, and skills necessary to be successful in the industrial-occupational setting is critical information for future Athletic Training Education Program (ATEP) curriculums, continuing education, and post-graduate fellowships.

Objective: To gain understanding of the experiences encountered and education needed for successful preparation as an entry-level AT in the industrial-occupational setting.

Design: Qualitative

Setting: Industrial-Occupational

Participants: Seven professional-level industrial ATs

Data Collection and Analysis: Structured interview questions were used with an electronic platform. Participants were questioned relating to their experiences and perceptions pertaining to educational preparation for the industrial-occupational setting. An inductive content analysis was performed for textual data analysis.

Results: The rationale for acquiring positions in the industrial-occupational setting upon graduation was due to fewer hours and higher salaries, but once hired the most positive experience and greatest job satisfaction came from helping people. The area the participants felt ill-prepared was ergonomics, but respondents felt well-prepared in injury evaluation and treatment. They also commented that gaining respect from the company was the most challenging aspect when entering the industrial-occupational setting as an entry-level AT.

Conclusion: Graduates are attracted to the salary and hours associated with the industrial-occupational setting, but helping people provided the greatest job satisfaction. Although most entry-level ATs perceived themselves as well prepared for the industrial-occupational setting, weakness in the area of ergonomics was identified.

Key Words: athletic trainer, professional education, industry

Dr. Schilling is currently an assistant professor and the rehabilitaton coordinator for the University of Southern Maine Athletic Training Education Program. Please address all correspondence to Jim Schilling, PhD, ATC, CSCS, 37 College Ave, Gorham, ME 04038. jschilling@usm.maine.edu

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Educational Preparation and Experiences in the Industrial-Occupational Setting: A Qualitative Study of Athletic Training Graduates' Perspectives

Jim F. Schilling, PhD, ATC, CSCS

Employment settings in athletic training have expanded from university, high school, and professional sport environments to clinics, hospitals, and industry. The industrial-occupational setting is an area of employment which consists of the following subcategories: clinic, ergonomics, health-wellness-fitness, and other industrial-occupational.[1] The industrial-occupational setting currently employs approximately 1.26 % of the total 26,074 National Athletic Trainers' Association (NATA) certified members.[1] Although this setting presently employs a small percentage of the total NATA members, the industrial-occupational setting has great potential for further workforce expansion. The industrial population would certainly benefit from an athletic trainer's (AT) expertise in treating the physically active workers who have sustained a musculoskeletal injury. The benefits ATs can supply industrial – occupational setting companies were recognized in a survey of industrial companies that utilize the services of an AT conducted by the NATA in 2008.[2] The results found that 100% of the companies surveyed reported the AT provides a favorable return on investment.

Past studies[3-4] have investigated the educational preparation of ATs employed in various settings. One study examined whether ATs perceived receiving adequate preparation for their careers.[3] The findings suggested that 90% of the respondents felt they received adequate preparation for ATs at the entry-level. Another study of 183 ATs employed no longer than 18 months in sports medicine centers, colleges, and high schools examined the ATs professional preparation.[4] The findings indicated there was adequate preparation in the task areas of evaluation of athletic injuries and illnesses, prevention of athletic injuries and illnesses, and first aid and emergency care. The authors determined that enhancement should occur in the task areas of rehabilitation of athletic injuries, organization and administration of athletic training programs, and counseling and guidance of athletes. The entry-level participants of this study were educated in programs following the manual for athletic training education programs (ATEPs) entitled (*The Guidelines for Development and Implementation of NATA Approved Undergraduate Athletic Training Education Programs*.) Although not labeled as such, this document was the first edition of educational competencies for the athletic training major. The entry-level participants of this research were also not employed in industrial-occupational settings.

A previous investigation examining educational needs of ATs employed in a variety of job settings, including the industrial environment, found that ATs in the industrial-occupational group felt the less traditional topics such as OSHA compliance, worksite wellness, ergonomics, legal issues, administration, budgeting, workmen's compensation, promotion and marketing of athletic training, and documentation were not adequately being addressed.[5] Although previous investigations of AT educational preparation specific to the clinical setting as perceived by clinical directors[6] and employers[7] have been conducted, entry-level practitioners who studied under the latest *Athletic Training Educational Competencies* document (4th edition)[8] and work in the industrial setting have not shared their perceptions of educational preparation. This type of research can be used as a measuring tool to indicate the effectiveness of the present curriculum at preparing students as entry-level ATs. As a tool, it can be used to compare results from future investigations on graduates studying under revised editions of competency documents.

The purpose of this study was to provide insight into 2 questions regarding entry-level ATs who studied under the 4th edition competency document and are employed in industrial-occupational settings. The first question is what experiences do entry-level ATs encounter when taking positions in industrial-occupational settings? The second question is how entry-level ATs perceive their educational preparation for careers in industrial-occupational settings?

METHODS

Qualitative methods were used for this study. Data collected from participants of a qualitative study may be accomplished through oral interviews, researcher observation, or in writing.[9] Inductive content analysis has an established position in nursing research[10] and is commonly used in health and social science research.[11]

Participants

The criteria for inclusion in this research consisted of being a Board of Certification-credentialed AT; employed in only industrial-occupational setting and graduated from a Commission on Accreditation of Athletic Training Education (CAATE)-accredited ATEP between May 2007 and May 2009.

There were a total of 353 certified NATA members listed under the industrial-occupational job setting category.[1] Eighteen of the total 353 industrial ATs graduated between May 2007 and May 2009 according to data supplied by the NATA organization member services. Seven of the potential 18 entry-level industrial ATs volunteered to participate in this study. This number represents approximately 39% of the total number of graduates taking employment in industrial-occupational settings between May 2007 and May 2009.

Instrumentation

For this qualitative research study, a web-based questionnaire using SurveyMonkey® was chosen for participant convenience, fast response times, and cost effectiveness. Other advantages of using web-based qualitative research have been documented, such as responders being more likely to reply to open-ended questions,[12] and add more insightful comments.[13] A questionnaire was constructed by the author of this qualitative study which consisted of demographic information, a section asking open-ended questions regarding the participant's experiences within

the industrial-occupational setting, and a section asking open-ended questions pertaining to their perceived educational preparation for the industrial-occupational setting (Appendix 1). Several questions included in the educational preparation section were synonymous in nature to ensure reliability of the data through consistent responses.

The instrument was reviewed by 3 industrial AT experts and 3 qualitative research experts for content validity. Expert status was determined by a minimum of 10 years experience in their respective fields. The industrial AT experts were asked to verify that the questions included in this questionnaire would best gain an understanding of the experiences and educational preparation of an entry-level AT in an industrial-occupational setting. The research experts were asked to verify that the questions included in this questionnaire were constructed and organized to achieve the research purpose. As a result of expert review, 2 questions were eliminated and several were edited to improve clarity.

The instrument was also piloted to 2 ATs listed under the industrial-occupational job setting category (non-participants of the study) to gain input on questionnaire clarity, length, and technical issues. No changes were recommended as a result of the pilot.

Data Collection

Appropriate institutional review board was granted prior to data collection. The email distribution list, customized invitation message, and schedule for delivery of the questionnaire were placed in the email invitation collector option within the web-based software. The volunteers needed to agree to the stipulations stated in the consent form, which was a portion of the invitation message, before being transferred to the questionnaire to begin participation. The initial data collection took place in November of 2009. Two follow-up surveys using identical procedures were sent to the non-respondents at 1 week intervals following the initial survey. All responses to this questionnaire were anonymous.

Data Analysis

The results of this investigation were derived through an inductive content analysis strategy which consisted of organizing the data toward common themes. For example, responses such as "helping individuals who otherwise have no exposure to athletic training services," "I consider helping ordinary people (not athletes) to be a positive experience," and "helping people reduce pain" were placed under the category of "helping people." The emergent themes were peer reviewed by 3 experts in the Industrial-Occupational setting to ensure credibility and truthfulness of the results. This technique is used to ensure trustworthiness of qualitative data by attempting to establish credibility of the results through agreement by experts.[14]

RESULTS

All volunteers for this study responded to all the questions. Common themes of the participants were grouped into themes and labeled. With 7 participants in this research study, a category was established when a minimum of 3 common data units emerged from a question.

Experiences

Reasons for Selecting the Industrial-Occupational Setting

Under the experiences as an entry-level AT working in the industrial-occupational setting, 3 categories were developed. The first was regarding the question "Why did you choose employment in the industrial setting as opposed to working in a university, high school, or other setting?" The responses suggested the participants preferred the industrial-occupational setting due to fewer hours, and better salary. For example, one participant wrote:

> *I chose to work in the industrial setting because my employer offers great benefits including licence/dues reimbursement and pays for continuing education. My job provides me with the opportunity to work as an athletic trainer while only working 40 hour weeks and getting paid for the hours I work.*

Another participant also commented on the hours and pay when he stated "Semi-consistent hours, higher pay, wanted to be part of an emerging setting" were reasons for choosing the industrial setting.

Job Satisfaction

The second category was developed when considering the responses from the questions regarding positive experiences encountered and what things about the position provide the greatest job satisfaction. The consistent response for both questions was categorized as the feeling of helping people. Some examples of the open ended data were:

> *Helping individuals who otherwise have no exposure to athletic training services.*

> *Working with those people that seriously appreciate what you do for them and how you can help them is the most satisfying.*

Future Graduates Should Feel Confident

The third category evolved from the question regarding recommendations for future graduates considering the industrial-occupational setting. A consistent recommendation was for athletic trainers to be confident in their abilities. Responses included "come in with an open mind. Although it's a completely different setting compared to traditional settings, you will still be able to utilize traditional setting knowledge." Other responses indicated that ATs are prepared for the setting. For example, one participant stated:

> *Strap on your creative helmets and get ready for a battle. The industrial setting is a unique beast, but we are heavily equipped (as ATs) to provide a positive influence for any company looking to provide preventative medicine.*

Educational Preparation

Areas Ill-Prepared

Under the section concerned with the educational preparation for working in the industrial-occupational setting, 3 categories emerged. The first was established from 3 questions that pertained to subject matter in the ATEP curriculum that was not covered or that ill-prepared respondents for the industrial-occupational setting. A competency area that the participants repeatedly felt was not covered in their ATEPs that was needed for employment in industrial-occupational settings was in the area of ergonomics. Some of the comments were "some ergonomic evaluation was covered, but not enough! Job assessment was not covered. Pre-work screens were not covered, however they did go through physical tests for pre-participation in sports." Another participant indicated "…the only shortcoming is lack of ergonomics." Also, "Business practices, insurance issues related to billing, no ergonomic training" were identified by another participant.

Areas Well-Prepared

The second category was derived from answers to the question regarding areas which their ATEP prepared them well. The areas the participants felt most prepared were injury evaluation and treatment skills. Comments made were "the basic knowledge that all athletic trainers must have: prevention, evaluation, treatment, and rehabilitation of injuries." Another participant stated "Modalities and rehab" again indicated good preparation in the treatment skills.

Most Challenging Aspects

The third category was derived from the results of the question referring to aspects of the job that were most challenging. Several participants commented that gaining respect from the company for which they were employed was most challenging. Open ended data included: "gaining the trust of workers."

> *Continuing to prove myself to individuals that I work with in regards to my worth for the company.*

DISCUSSION

There were 2 specific aims of this study. One was to provide an understanding of the experiences of entry-level ATs initially employed in industrial-occupational settings.The other was to gain a perspective on how well the ATEPs have prepared students for the industrial-occupational setting as perceived by entry-level industrial ATs who studied under the 4th edition *Athletic Training Educational Competencies* document.[8]

Reasons for Selecting the Industrial-Occupational Setting

Findings from the current study indicate that participants were drawn to the industrial-occupational setting because of higher salaries and stable hours. Previous studies have explored AT salaries and time commitments specific to job settings.[15,16] According to a survey on entry-level athletic training salaries, the hospital – clinic AT boasted a higher salary and fewer average hours worked per week than university or high school setting ATs.[15] The results of a salary survey conducted by the NATA in 2008 demonstrated that when comparing traditional employment settings (professional sports, college – university, and high school) to nontraditional (industrial – occupational and clinic), the average annual salaries of ATs employed in professional sports were highest, followed by industrial-occupational, then high school, closely followed by clinic, and lastly college – university setting salaries which were significantly lower than the preceding.[16]

As the data indicates,[15, 16] an athletic training graduate could anticipate a life of greater financial comfort with possibly less stress being employed in an industrial-occupational setting rather than a college or university. Students may become wise to the excessive demand of their time with traditional settings during their clinical education. This exposure provides an understandable motive for athletic training graduates to seek nontraditional employment in settings such as industrial-occupational.

Job Satisfaction

The participants of this study discovered early in their career what truly makes employment in health care rewarding. Their comments addressing the questions regarding what provided the most positive experiences and greatest job satisfaction was the satisfaction they received from helping their patients express for their service. I would anticipate this response being universal among job settings; however the degree of appreciation may be specific to the individual.

Recommendations for Future Graduates

Entry-level industrial ATs lack comfort when first exposed to an unfamiliar environment. Although the mechanism of injury may differ from those witnessed in their professional preparation, the types of injuries are similar with comparable treatment protocols. The participants of this study realized it was simply new surroundings and an unfamiliar patient population. Their recommendation to future industrial ATs was not to fear the industrial-occupational work setting and have confidence in their professional abilities.

Educational Preparation

Athletic training student preparation for the industrial-occupational setting has little previous investigation. A survey using an importance scale of 33 hiring criteria explored employee characteristics of most importance as perceived by employers seeking ATs.[17] Six percent of the employers who responded were from industrial settings. The results suggested that regardless of the ATs work setting, personal characteristics such as communication skills, enthusiasm, initiative, interpersonal skills, self-confidence, ambition, and problem-solving skills were rated highly important. Interestingly, from the employer's perspective the soft skills such as communication and self-confidence, as opposed to technical skills such as special evaluation tests and treatment techniques, are of greatest importance to them.

The educational preparation of professional practitioners has been explored in other health care disciplines. Entry-level physiotherapists from Australia and Canada have shared their perceptions using questionnaires and interviews as methodology.[18,19,20] The study of entry-level Australian physiotherapists identified communication skills, coping in the workplace, and workplace management as gaps between education and the workplace.[18] Research using entry-level Canadian physiotherapists employed in private practice settings discovered they felt unprepared in the areas of issues related to insurance and challenging patients, such as those with chronic conditions.[19] The authors of this research commented that students need to feel confident with the broad based competencies that result from their professional training and mentorship. The project investigating entry-level Canadian physiotherapists employed in acute – care hospitals concluded educators need to address communication, collaboration, and time management skills.[20] Another study conducted in Norwich, England provided qualitative findings from entry-level occupational therapists who expressed feeling ill-prepared in the areas of accessing related services, counseling, and dealing with difficult patients.[21] The participants in this English research felt their education primarily supplied theory and did not adequately supply practice. Research providing input from both entry-level physical therapists and occupational therapists in the United States has suggested the need for educators to link theory and practice.[22] A study of entry-level nurse practitioners in the United States indicated they were least prepared in the areas of coding and billing.[23] Entry-level health care practitioners of disciplines similar to athletic training consistently report soft skill areas such as communication and consulting skills along with insurance issues as primary areas of feeling ill-prepared.

In comparison, the subject matter with which the participants in the present study felt ill-prepared was in the area of ergonomics. Ergonomics in the industrial-occupational setting is composed of the science of designing the job, equipment, and work area to fit the employee for optimal safety and production. The participants of this research did not specify, but there are multiple procedures within the domain of physical ergonomics in which an AT could participate. The primary areas would concern the prevention and rehabilitation of musculoskeletal injuries which is familiar territory for the AT in general, however the procedures in the industrial-occupational setting are somewhat unique. When considering injury prevention, as opposed to a pre-participation exam for athletes, industry uses pre-employment screens to ensure the worker is capable of performing the physical demands of a work station. Such screens often consist of activities such as, box lifts consistent with the weight and repetitions required of a work station, and possibly certain flexibility measures. With athletes there is the need to identify the functional demands of a sport and specific position within the sport to properly prepare the athlete for the stresses encountered. In industry, a job demand analysis is conducted to identify the physical demands of a job and attempt to control risk factors such as repetition, forces applied, and employee position to prevent injury.

Employee education in the way of proper lifting techniques and warm-up strategies may also be employed to prevent injury to the industrial athlete. Injury treatment protocols are similar; however time frames may be delayed with the industrial athlete due to patient deconditioning and, at times, a lack of motivation to return to the workplace. As the rehabilitation process proceeds to the later stages, implementation of functional activities simulating the sport and athlete's position begins to take place. With industrial patients, administering job simulation activities and work conditioning strategies begin. With athletes, a return to play criteria may consist of functional activities, running programs, or throwing programs. Industry sometimes utilizes specific functional capacity exams as an objective way of determining return to work status. The areas of musculoskeletal injury prevention and treatment specific to employees of the industrial setting were not addressed by competencies listed in the 4th edition document.[8] Since the data collection of this investigation, an updated educational competency document was created (*Athletic Training Education Competencies*, 5th Edition).[24] However, competencies specific to the prevention, evaluation, and treatment of injuries common to employees of the industrial setting were not addressed to any further capacity in relation to the previous edition. For example, the need for competencies specific to ergonomics. The competency areas would include, injury prevention, evaluation, and treatment. The area of injury prevention may include competencies in designing work stations such as work surface areas and seat dimensions. The area of prevention may also include proper conditioning strategies, lifting techniques, proper handling of materials, and the job demand analysis process. The evaluation and treatment of industrial injuries would stress the arms and low back parts of the body. Areas that traditionally have not been stressed in athletic training education programs. To graduate competent AT practitioners seeking employment in the industrial setting, additions to the curriculum may need to be considered.

Areas Well-Prepared

After extensive coursework covering evaluation and treatment principles and theory, receiving training of skills, and clinical education, the ATs are quite well rehearsed in the evaluation and treatment of musculoskeletal injuries. The injuries sustained by industrial athletes are going to be very familiar to the AT, so participants stating this area as one they were most prepared would be expected.

Most Challenging Aspects

Athletic trainers gaining employment within industrial-occupational settings is somewhat new. Companies and staff are sometimes ignorant to the services and level of competency an AT has. The participants of this research stated gaining respect from the company and its employees as being a challenge for entry-level ATs. A greater attempt to educate the industrial stakeholders on an athletic trainer's scope of practice by the NATA may be beneficial. The ATEP curriculum may need to educate students on strategies for better educating the industrial population on the areas of expertise and potential services that can be provided by ATs to benefit companies and their employees.

Limitations

This qualitative study explored the perceptions of the participants as they presently exist and not past or future perceptions. Although the questionnaire was piloted, misunderstanding of the content could influence the entry-level industrial ATs' perceptions. The somewhat low response rate could leave the potential for non-response bias and possible invalid representation of the population. However, the population for this project was acquired by unbiased sampling and no specific response rate ensures an unbiased representation of a population. One of the participants in this study graduated in May, 2007 which allowed only one year of their program to study under the 4th edition document. All other participants either graduated in May of 2008 or 2009. Using only 3 common statements from participants to constitute a common theme could be challenged. However, with a low number of participants and lack of established number or percentage of common statements from participants defining a common theme, the author argues 3 to be sufficient in justifying accurate data for this study. Due to a limited number of potential participants that fit the criteria of this investigation, conclusions made from the results are difficult arguments. However, the data from this inquiry certainly should encourage further investigation to optimize student knowledge base in preparation for the industrial-occupational setting.

Future Investigation

A continuation of this research to include populations of entry-level ATs in other settings would be advised to provide information specific to practice settings. The present inquiry may be used as a foundation for future quantitative research. Investigation utilizing additional stakeholder populations such as experts and patients associated with each athletic training job setting to obtain a consensus of perceptions regarding educational preparation would be critical for future curriculum development, continuing education, and post-professional programs. Research conducted in the near future could take into consideration the recent update of *Educational Competencies* (5th edition)[24], and assess its contribution to the competency level of entry-level AT practitioners.

CONCLUSIONS

Athletic trainers can be of tremendous benefit to the injured industrial employee and company by providing injury prevention and injury management programs. Demonstrating the ability to service the industrial employee population would encourage present and future stakeholders to acknowledge the athletic training profession with improved status.

Limited data presents challenges in drawing conclusions, but the data does suggest some general experiences that may be encountered and an exposed area of subject matter that may need emphasis to prepare students for employment in the industrial-occupational setting. Initial interest from novice ATs in the industrial-occupational setting seems to stem from the competitive salaries and attractive work schedules. The participants of this study quickly discovered the true benefits of working in health care which are the positive feeling and satisfaction experienced when helping someone regardless of their athletic status.

This study indicated that to prepare students to an improved extent for the industrial – occupational setting, a greater emphasis is needed in the area of ergonomics. As students continue to filter into this job setting the need to supply a more competent product for this environment will increase. Consequently, stressing knowledge and skills in the area of basic ergonomics and its contribution to injury prevention and treatment will need strong consideration in future ATEP curriculums.

To improve the quality of AT education, higher education programs must rise to meet the demands of our changing society.[25] The expansion of employment into settings once considered nontraditional, such as industrial – occupational and clinical forces ATEP curriculums to adjust their areas of subject matter concentration or rely on continuing education, post-graduate fellowships, internships, or possibly residencies to fulfill these needs allowing the profession to grow and prosper.

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APPENDIX 1. Study Questionnaire

DEMOGRAPHIC INFORMATION

Gender:	**Age:**	**Highest Degree:**	**Years as Athletic Trainer:**
Male	21-25	Bachelor's	0-1
Female	26-30	Master's	2-3
	31-35	Doctorate	4-5
	36+		6+

Length of time employed in an industrial/ occupational setting:

0-6 months

7-12 months

13-18 months

19-24 months

25-30 months

31-36 months

37+ months

Indicate your current industiral/occupational practice setting:

Clinic

Ergonomics

Health/Wellness/Fitness

Other Industrial/Occupational Setting

OPEN-ENDED QUESTIONS

Please express your thoughts to the following questions:

The following addresses your experiences as a novice athletic trainer working in an industrial setting:

1. Why did you choose employment in a industrial setting as opposed to working in a university, high school, or other setting?
2. What have you done in instances whereby you needed some assistance or support to fulfill an obligation at work?
3. What positive experiences have you encountered so far working in the industrial setting?
4. What did your orientation to your present position involve? Was adequate information supplied to you? If not, what was lacking?
5. Is there a role model for you in athletic training? If there is, what is the relationship and what did you learn from him or her?
6. What things about your position provide the most job satisfaction? What things provide the least satisfaction?
7. What recommendations would you share with current athletic training graduates beginning their first job in an industrial setting?
8. When you began your job, how did you envision yourself as an industrial practitioner compared to other more experienced industrial practitioners?

The following asks how prepared you felt you were for working in the industrial setting:

9. As you know, beginning in the year 2006, the athletic training education programs were required to be accredited by the Commission on Accreditation of Athletic Training Education (CAATE). Do you feel the competencies required by CAATE in your athletic training education program covered what was needed at your job? What competencies were covered? What competencies were not covered?
10. When you first began working in an industrial setting, did you feel prepared in regards to the knowledge needed for your position?
11. When you first began working in an industrial setting, did you feel prepared in regards to the skills needed for your position?
12. Have you noticed differences between your educational experience and your present “real world” experience in the industrial setting? Are there specific skills you have had to learn on the job that could not be taught in the education program?
13. What aspects of your job do you find to be most challenging?
14. What areas did your athletic training education program prepare you well for in your role in the industrial setting?
15. What areas did your athletic training education program not prepare you well for in your role in the industrial setting?
16. The purpose of this questionnaire was to gain an understanding of what novice athletic trainers experience working in an industrial setting. Is there anything you would like to add about your experience that was not covered in this set of questions?