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Development of Alumni and Employer Opinion Survey Instruments for Athletic Training Education Programs

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Context: Measurements of the opinions of alumni and employers are utilized by many athletic training education programs (ATEPs). Information obtained from such measurements can be useful in determining the strengths and weaknesses of a program.

Objective: To describe the development of two instruments designed to elicit the opinions of recent athletic training (AT) graduates and employers of AT graduates. The Athletic Training Alumni Opinion Survey (ATAOS) and Athletic Training Employer Opinion Survey (ATEOS).

Design and Setting: A critical review of the instruments by groups of recent AT graduates, employers of recent AT graduates, and ATEP directors established validity. To determine reliability, we used a test-retest method in which participants completed the assessment twice.

Participants: We solicited recent graduates (n = 121 first completion and n = 52 for second completion) from a random sample of accredited ATEPs across the nation. Participants gave us permission to contact their employers (n = 47 first completion and n = 23 second completion).

Data Collection and Analysis: We collected data via Qualtics (Qualtrics, Inc., Provo, UT). For our analysis, we entered test-retest data into SPSS 17 (SPSS Inc., Chicago, IL). For both alumni and employers, we calculated Cronbach's alpha scores for each variable on the first completion set of data and Pearson product correlations between the first completion and second completion data set for each variable.

Results: Cronbach's alpha scores for both the ATAOS (α = .820) and ATEOS (α = .971) instruments were high. Correlation values for each variable were moderate to high except for one variable within the ATAOS instrument (Importance of Advising) and one variable within the ATEOS instrument (Foundation Professional Behavior of Legal Practice).

Conclusions: We have developed a valid and reliable set of instruments that we hope all accredited ATEPs use as part of their overall assessment system.

Key Words: graduate opinions, program outcomes, program assessment

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INTRODUCTION

Program assessment is an ongoing process for all accredited athletic training education programs (ATEPs). The Commission on Accreditation of Athletic Training Education (CAATE) has prescribed various outcome measures to determine the effectiveness of a program. Section B of the CAATE accreditation standards revised in 2012 outline several measures that include, but are not limited to, employer and/or alumni surveys.1 We are not aware of any standardized athletic training alumni and/or employer assessment instruments as most programs create or borrow instruments based upon their own needs. While we acknowledge the cornerstone of CAATE accreditation is institutional autonomy, we believe it is important that programs have a benchmark of comparison data for making informed decisions about their effectiveness. Our goal was to create a set of valid and reliable outcome measures that could be used by programs across the nation.

Previous research has established that student satisfaction with an academic program can be utilized to improve classroom and clinical instruction.^{2,3} Minimal research has been performed on the preparedness of athletic training graduates and the characteristics that determine this preparedness. Massie et al⁴ measured employer perceptions of the academic preparation of entry-level athletic trainers (ATs) and reported that interpersonal communication was lacking in new graduates. The study by Massie et al⁴ was limited to a very small sample size, and the authors described only the internal consistency of the instrument. Kahanov and Andrews⁵ studied the importance of employers' hiring criteria and identified several factors that included, but were not limited to, personal characteristics such as communication skills, initiative, and self-confidence. The instrument used by Kahanov and Andrews⁵ was based upon a previously developed valid and reliable instrument. With the prevailing need for standardized assessments that allow for benchmarking data and a conscientious effort to address common variables, we created the alumni and employer instruments. The purpose of this article is to describe the creation, validation, and reliability assessment of two survey instruments that measure alumni and employer opinions.

METHODS

Participants

To establish validity, we determined that we required three groups of stakeholders (ie, those who would use or complete the instrument) to review each instrument. We solicited a sample of convenience from the local community to review the instruments for clarity and content. Our sample consisted of ATEP directors (n = 4), AT employers (n = 4), and recent graduates/employees (n = 4). ATEP directors reviewed both instruments while the other two groups reviewed their respective instrument. Each reviewer inspected the instruments online as they were intended to be viewed. We also provided them with an electronic/hard copy of the instruments. We asked reviewers to comment on the clarity of wording, ease of use, and the appropriateness of each question. These reviewers identified only minor formatting errors. We used the feedback to make modifications to wording and the overall flow of the instruments.

We established instrument reliability via a test-retest method with alumni and employers and using two measures or responses from each group. We solicited a sample of convenience of 50 ATEP directors via email. We followed up the e-mails with telephone calls, and we asked the program directors to e-mail the ATAOS instrument to their respective alumni. We did not limit the number of years post-graduation for the alumni as the actual opinions recorded were not important, just the consistency of responses. Alumni had the choice within their response to indicate their employer's name and contact information. We informed alumni that we would contact their employer if they provided contact information. The lead researcher contacted employers via email and sent a URL with the ATEOS instrument and afollow-up reminder for non-responses after one week. We established an a priori goal of at least 50 respondents from each group (ie, alumni and employers) to determine the veracity of the results.

Instruments

This study utilized the ATAOS instrument and ATEOS instrument with both instruments based on a combination of standard alumni and employer survey variables and several subsets of variables particular to athletic training.^{2,4-6} Both instruments captured name and employment settings. We adapted the types of employment settings from those used by the Board of Certification (BOC).⁷ It is our intention that these instruments be used by individuals employed at all 16 employment settings.

We chose the variables for each instrument based on common demographics, the literature concerning alumni and employer survey variables4,5 within athletic training, and those factors identified in our previous work.^{2,6} Basic demographics such as gender, institution, and employment setting are common to most survey instruments. Our previous research with outcome assessments^{2,6} led to the inclusion of satisfaction and importance ratings of several programmatic factors identified in the literature.^{3,8-11} The athletic training profession has defined a series of foundational professional behaviors, which are listed in the Athletic Training Education Competencies.¹² These behaviors are not exhibited by students in many cases, and they can be assessed only later in practice. Therefore, we included them only in the ATEOS instrument. Previous work¹³ led to the inclusion of several thematic deficiencies in both the ATAOS and ATEOS instruments. We conducted focus group interviews of employers and recent graduates to determine what qualities are lacking in new graduates. We identified six variables from these focus group interviews: Communication, Confidence, Independence, Initiative, Learning From Mistakes/Humility, and Work Ethic. We broke down the Communication variable further into six subvariables representing the various constituents who regularly interact with an AT.

Alumni Demographics. In addition to the demographics listed above, the ATAOS instrument captured the following demographics to allow for comparisons between institutions: gender, institution affiliation, entrylevel AT degree type, and institution athletic affiliation. We included other variables (graduation year, email address, current job title/role, and employment institution name) to allow for tracking of the alumni over time by ATEP directors. We used one other variable (institution name where they received their AT education) only for tracking responses during this study. The ATAOS instrument included employment status (employed versus not employed) for those ATs who might not be employed or who are pursuing further education.

Alumni Satisfaction and Importance Subset. The ATAOS instrument captured five sets of variables. We based two subsets of variables (Satisfaction and Importance) on previous work² conducted by the lead investigator that resulted in a survey instrument for graduating students. Other variables that satisfaction may be associated with include instructional procedures, mentorship, and accessibility.^{5,10} Next, we assigned a level of importance to each of these satisfaction variables to determine which factors are of utmost importance.5,8-9 The Satisfaction and Importance subsets asked alumni to rate their "satisfaction with..." and "importance of ... " seven subvariables (Use of Technology, Career Advising, Administration of the Program, Course Instruction, Advising About Requirements, Clinical Education Experiences, and Availability of Instructors) on a visual analog scale of 1 to 5 anchored by "not at all satisfied/important" and "very satisfied/important," respectively.

Alumni Thematic Deficiencies Subset. The ATAOS instrument included a Thematic Deficiencies subset of six variables (Communication, Confidence, Independence, Initiative, Learn from Mistakes/Humility, and Work Ethic) related to the investigators' previous work¹³ We asked a focus group of employers for new graduates what skills and qualities the graduates lacked. They identified multiple themes with the six most commonly agreed areas being communication, confidence, independence, initiative, humility, and work ethic, Employers felt that new graduates lacked the ability to communicate with coworkers, coaches, parents, and administrators while also lacking confidence in their clinical skills. Additionally, employers felt new graduates lacked the ability to work independently, the initiative to take on new roles and responsibilities, and an understanding of the time commitments associated with their new position. Finally, employers felt new graduates who needed confidence were willing to make mistakes, but when mistakes occurred, they were not open to correcting the inappropriate behaviors.

Communication was broken down into six subvariables that represent the various constituents (athletic coach-

es/clinical directors, patients/athletes, parents, administrative personnel, peers/colleagues, and other health professionals) with whom an AT must be able to communicate. The Communication subvariables asked alumni to, "Please rate the following with regards to your ability to communicate with ... " and used a visual analog scale of 1 to 5 anchored by "low" and "high," respectively. The Confidence subvariable asked the alumni to "Rate your confidence to make decisions and stand by them." It used a visual analog scale of 1 to 5 anchored by "not at all confident" and "very confident," respectively. The Independence subvariable asked alumni to, "Rate your independence and ability to work autonomously." This subvariable also used a visual analog scale of 1 to 5 anchored by "not at all independent" and "very independent," respectively. The Initiative subvariable asked alumni to "Rate your initiative and ability to 'think outside of the box' to find solutions." It used a visual analog scale of 1 to 5 anchored by "no initiative" and "a lot of initiative," respectively. The Learn from Mistakes/Humility subvariable asked alumni to, "Rate your ability to learn from mistakes and express humility," and it employed a visual analog scale of 1 to 5 anchored by "low" and "average," respectively. The Work Ethic subvariable asked alumni to, "Rate your work ethic and commitment to get the job done." Its visual analog scale of 1 to 5 was anchored by "low' and "high," respectively. All of the Thematic Deficiency visual rating scales included a "not applicable" option.

Alumni Examination Preparation Subset. The last subset of variables on the ATAOS instrument was related to the BOC exam and preparation for the work force. Our instrument asked alumni if they had taken the BOC exam. If the participant responded yes, we asked alumni if they were successful. Next, we asked subjects to rate, "How well did the education program prepare them for the BOC exam?" The visual analog scale for this item was 1 to 5 and anchored by "not well prepared" and "very well prepared," respectively. If alumni responded that they had passed the exam, we asked, "How many attempts were required to pass the BOC exam?" Alumni responded with five options: 1, 2, 3, 4, or more than 4. Additional guestions we asked the alumni were, "How well did the clinical staff and academic faculty blend within the overall athletic training program?" and "How well prepared were you for your first job/position in the workforce?" Responses for both of these items consisted of a visual analog scale of 1 to 5 anchored by "not at all" and "very well,"

respectively. An additional question we asked the alumni was "Would you recommend the education program to future students?" Participants responded yes or no and could also respond in an open text box with any comments or suggestions they felt might improve the education program.

Employer Demographics. The ATEOS instrument captured two sets of variables: Foundational Professional Behaviors and Thematic Deficiencies. For tracking purposes, the ATEOS instrument also captured an additional demographic (full name of the athletic trainer being supervised) to those demographics found in the ATAOS instrument. We collected supplementary data (length of time the athletic trainer been under one's supervision and years of experience in the supervision role) to help ATEP directors judge the quality of the input.

Employer Foundation Professional Behaviors Subset. The Foundational Professional Behaviors subset had seven sub variables (Primacy of the Patient, Teamed Approach to Practice, Legal Practice, Ethical Practice, Commitment to Advancing Knowledge, Cultural Competence, and Professionalism) that we adapted from the Athletic Training Education Competencies and with permission from the National Athletic Trainers' Association.¹² We provided specific examples for each subvariable to provide context. We asked employers to, "Rate the following foundational professional behaviors for the athletic trainer listed in the solicitation email," and we used a visual analog scale of 1 to 5 anchored by "not acceptable/never" to "outstanding/ always," respectively. We also included a not applicable option.

Employer Thematic Deficiencies Subset. The ATEOS instrument included the same Thematic Deficiencies used in the ATAOS instrument along with the same stem questions and visual rating scales. We preceded each subvariable with a question that asked the employer if they were capable of rating the subvariable. This was done to screen for supervisors who did not have the type of interaction needed with the alumni to rate the variables.

Additional Employer Variables. We added several additional variables to the ATEOS instrument to solicit more information about the alumni they supervised. We asked employers to rate, "How well prepared were they for the workforce when they first started?" Employers responded using a visual analog scale of 1 to 5 anchored by "not at all" and "very well," respectively. We also included a "not applicable" option. We provider employers three open text blocks for responding to the following items: (1) Please list the strengths of this athletic trainer, (2) Please list the weaknesses of this athletic trainer, and (3) Please provide comments that would help improve the quality of graduates from this athletic trainer's education program.

Data Collection

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We used Qualtrics (Qualtrics Inc., Provo, UT), an internet-based, commercially-available survey product to collect data. We coded and downloaded variables directly into SPSS 17 (SPSS Inc., Chicago, IL) for our analysis. We gave ATEP directors an active URL link

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to forward to their alumni. We also sent employers a similar URL link via email. We asked both alumni and employers to complete the online instruments once and then again one week later.

Data Analysis

We calculated basic descriptive statistics for both participant groups' demographics. We calculated Cronbach's alpha scores for internal consistency for each variable and each subset of variables on each instrument from the first response given by each participant group. We set an acceptable level of internal consistency at $\alpha \ge 0.7$. We also calculated Pearson product correlations for each appropriate variable— excluding those variables with a nominal yes/no or open-text response—between the first and second

Table 1. Alumni Participant Demographics		
Variable	Initial Response (n = 121)	Second response (n = 52)
Gender		
Male	46 (38%)	22 (42%)
Female	75 (62%)	30 (58%)
Institution Affiliation		
State	94 (78%)	41 (78%)
Private	27 (22%)	11 (22%)
Entry-level Athletic Training Degree		
Bachelors	114 (94%)	51 (98%)
Masters	7 (6%)	1 (2%)
Institution Athletic Affiliation		
NCAA D1	81	37
NCAA D2	22	8
NCAA D3	5	2
NAIA	13	4
Other		1
Employment Status		
Employed	108	48
Unemployed	13	4
Work Setting		
Clinic/Hospital – Administration	1	1
Clinic/Hospital – AT	4	2
Health/Fitness Industry	0	0
Industrial/Corporate	1	0
Military/Government/Law Enforcement	0	0
Not Currently Practicing	1	0
Professional Sports/Performing Arts	3	2
Sales/Marketing	3	1
Secondary School – AT	3	12
Secondary School – Administration	0	0
Student	2	2
University/College/JC – Educator	4	2
University/College/JC – Administration	2	0
University/College/JC – AT	46	25
Youth Sports	0	0
Other	8	1

Initial R	esponse (n = 47)	Second response (n = 23)
35		20
12		3
1		1
0		0
0		0
0		0
0		0
0		0
1		0
0		0
12		9
0		0
2		1
2		2
0		0
27		13
0		0
1		1
b. We established $r \ge 0.5$. We made the first response. ables as the com-	tacted to particip cated they would an exact count c information provi	pate in the study. Of the 44 who indi- participate, 31 (70%) responded with of the alumni they solicited. From the ided by this group of ATEP directors,

Table 2. Employer Participant Demographics

Clinic/Hospital - Administration

Military/Government/Law Enforcement

Professional Sports/Performing Arts

Secondary School – Administration

University/College/JC – Educator University/College/JC – Administration

University/College/JC - AT

Clinic/Hospital – AT Health/Fitness Industry Industrial/Corporate

Sales/Marketing Secondary School – AT

Student

Youth Sports Other

Not Currently Practicing

response for each participant group. We established an acceptable level of correlation at $r \ge 0.5$. We made follow-up measures one week after the first response. We did not analyze qualitative variables as the comments about specific graduates were irrelevant to this analysis.

RESULTS

Variable Gender Male Female Work Setting

Participants

We contacted a convenience sample of 50 program directors from around the nation and who had a personal/professional contact with the researchers. Of the 50 ATEP directors whom we solicited, 44 (88%) indicated they would participate. We asked each ATEP director to report the exact number of alumni they con-

Table 3. Cronbach's Alpha Scores for All Variables, the Satisfaction Subset, the Importance Subset, the Interpersonal Communication Subset, the Thematic Deficiencies Subset, and the Examination Preparation Subset (n = 121)

Variable	α
All variables	0.820
Satisfaction	0.813
Importance	0.742
Interpersonal Communication	0.828
Thematic Deficiencies	0.754
Exam Prep	0.741

tacted to participate in the study. Of the 44 who indicated they would participate, 31 (70%) responded with an exact count of the alumni they solicited. From the information provided by this group of ATEP directors, we determined that 1081 alumni were solicited for participation. We assumed that this number is an estimate of the total number of alumni solicited as some email addresses may have no longer been active and some ATEP directors may have distributed the instrument without responding to the investigators with an exact number of alumni solicited.

Table 1 represents the demographics of the alumni who responded to the solicitation email from their ATEP directors. An initial response was given by 121 (11%) alumni and a second follow-up response was given by 52 (5%) alumni. Of the alumni who provided an initial response, 63 (52%) gave names and contact information for employers.

Table 2 represents the demographics, gender, and employment setting of the employers who responded to our email. We received an initial response by 47, of the 63 contcts provided by alumni, (75%) employers, and a second follow-up response from the initial 47, generated replies from 23 (36%) employers. Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-06-17 via free access

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Table 4. Cronbach's Alpha Scores for All Variables, the Foundational Professional Behaviors Subset, the Interpersonal Communication Subset, and the Thematic Deficiencies Subset

Variable(s)	α
All Variables	0.971
Foundational Professional Behaviors	0.921
Interpersonal Communication	0.955
Thematic Deficiencies	0.847
All Variables	0.971
Foundational Professional Behaviors	0.921
Interpersonal Communication	0.955
Thematic Deficiencies	0.847

Reliability Analysis

Table 3 represents the Cronbach's alpha scores of internal consistency for all variables and the five subsets from the ATAOS instrument. We established a minimum threshold of 0.700 to determine if the overall instrument and each subset of variables was reliable.14 The overall ATAOS instrument alpha score was high (0.820) and the subset scores ranged from a high of 0.828 (Interpersonal Communication) to a low of 0.741 (Examination Preparation).

Table 4 represents the Cronbach's alpha scores of internal consistency for all variables and three subsets from the ATEOS instrument. The overall instrument displayed a very high alpha score (0.971) and the subset scores ranged from a high of 0.955 (Interpersonal Communication) to a low of 0.847 (Thematic Deficiencies).

Table 5 represents the Pearson correlation and statistical significance values for each variable within the first and second responses for the ATAOS instrument. As we expected, correlation values ranged from a high of 1.0 for several of the demographic and exam preparation variables to a low of 0.270 (Advising about Requirements variable from the Importance subset). The Advising about Requirements variable from the Importance subset was the one outlier of non-statistical significance (P = 0.053). All other variables achieved an acceptable level of statistical significance (P < 0.001).

Table 6 represents the Pearson correlation and statistical significance values for each variable in the first and second response for the ATEOS instrument. Also as expected, correlation values ranged from a high of 1.0 for the demographic variables to a low of 0.577 (Legal Practice variable within the Foundation Professional Behaviors subset). The Legal Practice variable was the one outlier for statistical significance (P = 0.006), yet it achieved significance at the 0.05 level with all other variables significant at the P < 0.001 level.

DISCUSSION

The findings of this study support the development of a set of valid and reliable instruments. We address each area of the study separately in the following section.

Response Rates

Response rates were at or below the a priori established thresholds (ATAOS and ATEOS instruments, respectively). While we did not achieve our a priori goal of 50 employer respondents; however, we felt that we could continue with the analysis for two reasons. First, we achieved statistical significance in our various analyses. Second, it would be prohibitive to solicit the number of alumni needed for this study based on the percentage of who provided contact information and the percentage of employers who responded.

Gender response rates in comparison to the whole population of ATs are problematic since that group is difficult to define. The second responses from alumni were skewed towards females (58% female versus 42% male), and the second responses from employers were almost exclusively male (87%). This may be anecdotally reflective of the current state of the profession as a whole with more men in employer/leadership positions. These findings would, however, illustrate a trend towards more women inevitably moving into those employer/leadership positions. The traditional college/university and secondary school settings for both participant groups dominated current work settings. We recognize the areas of emerging practice are small, but for a follow-up study, it will be essential that employers and alumni in these settings participate in order to gain valuable knowledge about the preparedness of students to enter these new areas. Alumni reported representation from State versus Private Institution Affiliation at different levels (78% state and 22% private) than the established percentages (54% state and 46% private) reported in the literature. Alumni reported representation from entry-level athletic training degree institutions at similar levels (94% undergraduate and 4% graduate) to established percentages (95% undergraduate and 5% graduate) re-

Table 5.	Correlation	and	Statistical	Significance	Values	for	Each	Variable	and
Subset f	rom the Alur	nni lı	nstrument	(n = 52)					

Variable and Subset Athletic Affiliation (D1,2,3,NAIA) Work Setting (16 options)	Correlation 0.992 0.894	<i>P</i> Value <0.001 <0.001
Satisfaction Use of Technology Career Advising Administration of Program Course Instruction Advising About Requirements Clinical Education Experiences Availability of Instructors	0.759 0.863 0.548 0.786 0.893 0.843 0.637	<0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001
Importance Use of Technology Career Advising Administration of Program Course Instruction Advising about Requirements Clinical Education Experiences Availability of Instructors	0.750 0.684 0.563 0.589 0.270 0.786 0.512	<0.001 <0.001 <0.001 <0.001 0.053 <0.001 <0.001
Communication Coach/Clinical Director Patient/Athlete Parent Administrative Personnel Peer/Colleagues Other Health Care Provider	0.603 0.675 0.635 0.658 0.617 0.637	<0.001 <0.001 <0.001 <0.001 <0.001 <0.001
Thematic Deficiencies Confidence Independence Initiative Learn From Mistakes/Humility Work Ethic	0.929 0.840 0.837 0.511 0.698	<0.001 <0.001 <0.001 <0.001 <0.001
Exam Preparation Exam Preparation Number of Attempts Blend Clinical and Classroom Prepared for Workforce Recommend (Yes/No)	0.858 0.987 0.696 0.695 1.000	<0.001 <0.001 <0.001 <0.001 <0.001

ported in the literature.1415 Alumni reported representation from Institution Athletic Affiliation, National Collegiate Athletic Association (NCAA) or National Association of Intercollegiate Athletics (NAIA) at different levels (71% NCAA D1, 15% NCAA D2, 4% NCAA D3, and 8% NAIA) compared to established percentages (40% NCAA D1, 25% NCAA D2, 28% NCAA D3, and 7% NAIA) reported in the literature.1415 For both the Institution Affiliation and the Athletic Affiliation, the difference in reported percentages could be due to the sample of convenience that we utilized for this study. There are no national standards by which to compare the alumni reported Employment Status.

Table 6. Correlation and Statistical Significance Values for Each Variable and Subset from the Employer Instrument (n = 23)

Variable and Subset	Correlation	<i>P</i> Value
How long under your supervision	1.000	<0.001
Years of experience as a supervisor	1.000	<0.001
Prepared for the Workforce	0.881	<0.001
Foundational Professional Behaviors		
Primacy of Patient	0.866	<0.001
Team Approach	0.876	<0.001
Legal Practice	0.577	<0.006
Ethical Practice	0.916	<0.001
Advance Knowledge	0.948	<0.001
Cultural Competence	0.934	<0.001
Professionalism	0.859	<0.001
Interpersonal Communication		
Coach/Clinical Director	0.903	<0.001
Patient/Athlete	0.749	<0.001
Parent	0.947	<0.001
Administrative Personnel	0.869	<0.001
Peer/Colleagues	0.821	<0.001
Other Health Care Provider	0.870	<0.001
Thematic Deficiencies		
Confidence	0.851	<0.001
Independence	0.896	<0.001
Initiative	0.715	<0.001
Learn From Mistakes/Humility	0.774	<0.001

Reliability Estimates

Internal consistency of the ATAOS and ATEOS instruments revealed high levels of consistency within the first response ($\alpha = 0.820$ and $\alpha = 0.971$, respectively) for the overall instruments. Each subsection had similar levels of consistency. This analysis allows for the generalization that each instrument is measuring a single concept.¹⁵¹⁶ While internal reliability gives an indication as to the correlations among the various items on each scale, we were also interested in stability across time for the total scores. Therefore, we computed test-retest reliabilities.

The test-retest analyses revealed moderate to high correlation levels for both the ATAOS and ATEOS instruments. We noted a few exceptions, however. Within the ATAOS instrument, the Advising about Requirements variable from the Importance subset was the one outlier of non-statistical significance (P = 0.053). Interestingly, the Satisfaction subset correlation for Advising about Requirements within the same instrument was 0.893 with (P < 0.001). Based on the finding that the Satisfaction subset for the same variable was highly correlated and significant, we decided to leave the Advising about Requirements variable from the Importance subset in the final ATAOS instrument. Within the ATEOS instrument, the Legal Practice within the Foundational Professional Behaviors subset had the lowest level of correlation (0.577). The Legal Practice subvariable was the one outlier for statistical significance (P = 0.006). Based on the finding of significance (P < 0.05) and a moderate level of correlation,13 we decided to leave the Legal Practice variable within the Foundational Professional Behaviors subset in the final ATEOS instrument.

Limitations and Suggestions for Further Research

While this study did yield statistically significant findings, the number of participants for each group (alumni and employers) was at, or below, the desired threshold. A larger initial sample of accredited ATEPs might have yielded the desired number of employer participants based upon the obtained response rate. We utilized a sample of convenience due to the somewhat cumbersome nature of the test-retest methodology. We did not consider the interpretation and comprehension of each variable by the participants in this project, and this warrants further study. It is possible that the survey contains some measurement error that would explain the statistical significance measurements for a few of the variables. Further study is warranted to determine benchmark or comparison values by which programs can make judgments about the information obtained from these instruments. A future project will pursue the goal of obtaining benchmark data by utilizing the instruments with a representative sample of ATEPs from around the nation in a longitudinal study.

CONCLUSIONS

We developed a valid and reliable set of instruments for assessing alumni and employer opinions. The variables assessed in each instrument are based on valid constructs that will provide valuable information and feedback to the end user. Our analyses indicated high levels of internal consistency within the ATAOS (α of 0.820 overall and subset range of 0.741 to 0.828) and ATEOS (α of 0.971 overall and subset range of 0.847 to 0.955) instruments. Furthermore, test-retest correlation analyses indicated moderate to high levels of significant (P < 0.05) correlation for the ATAOS instrument and high levels of significant (P < 0.05) correlation for the ATEOS instrument. Taken together, the high levels of consistency and correlation for each instrument suggests that the two instruments are reliable. We have made illustrations of the instruments available to the reader and will place both instruments on a web site that ATEPs may use for future projects. We hope that ATEP directors will adopt these instruments as part of their annual assessment strategy. Benchmarking, or comparison, data will be available to allow for careful analysis and consideration by ATEP directors. Two demographic measures for the ATAOS instrument (Gender and Entry-level Degree) were consistent with established literature suggesting that although we used a sample of convenience, some of the findings can be based on a semi-representative sample.

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