2002 Annual Report

National Athletic Trainers' Association Board of Certification, Inc.

CASTLE Worldwide, Inc
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The National Athletic Trainers Association Board of Certification (NATABOC) offers the credential Certified Athletic Trainer (ATC) to individuals who meet a number of eligibility requirements and pass an examination with three components. NATABOC works with CASTLE Worldwide, Inc., a professional testing service specializing in certification and licensure examinations, to ensure that all guidelines and standards pertaining to the examination are fully satisfied. NATABOC monitors the performance of the examination regularly to ensure its function at the highest possible level of quality. Included in this report are activities associated with the examination that were conducted between February 2002 and February 2003.

Role Delineation Study

The concept of validity is fundamental among the qualities of a certification examination. Validity refers to the ability of the examination to achieve the purpose for which it is intended. In order to argue successfully that an examination is valid, there must be studies and other accumulated evidence documenting that the examination accomplishes its intended purpose. In other words, in order to fulfill the purpose of identifying individuals who are competent in a profession, a credentialing or licensure examination must be shown to be related to the profession in question. Thus, the content-valid examination in athletic training must cover adequately the knowledge and skills required for competent practice in that profession.

The primary means of ensuring content validity is to conduct an analysis of the profession. The method NATABOC uses to establish a profession-examination linkage is referred to as role delineation study. In role delineation studies, the focus of analysis is the role played by the professional in providing care to those who require it. Because changes occur in professions with the introduction of new research and technology, it is important to conduct role delineation studies periodically so the definition of practice to which the examination is linked is current and accurate. NATABOC has conducted role delineation studies regularly since establishing the certification program for athletic trainers, with the most recent report published in 1999.

In November 2002, NATABOC's fifth role delineation study began with meeting of subject matter experts in athletic training in Denver, CO. The experts carefully delineated the tasks, knowledge, and skills associated with the role of the athletic trainer.

The Written, Simulation, and Practical Portions of the Examination

In order to achieve certification in athletic training, a candidate must meet eligibility criteria and pass a written multiple-choice test, a written simulation, and a practical test. These three components are designed to test whether a particular candidate has sufficient understanding of the principles, practices, and science underlying the practice of athletic training, whether or not a candidate for certification makes decisions appropriately, and whether or not a candidate demonstrates the necessary level of skill in employing a wide variety of procedures and techniques.

In 2002, two meetings were held in order to develop new items and problems for the examination and review existing items and problems. In February, the simulation subcommittee reviewed, revised, and validated two simulation problems and developed one new simulation problem. At the same time, the written subcommittee developed and reviewed 57 examination items while the practical subcommittee reviewed, revised and validated 12 practical problems, reviewed the item bank, made writing assignments for independent development, and conducted preliminary assembly of 2003 exams. At a second meeting in July 2002, the committees focused on assembling the next year's examination versions. In addition, the written committee reviewed, revised, and validated, as necessary, 125 items and developed and validated seven (7) new items. The practical committee was equally busy as they reviewed, revised, and validated 18 practical problems and developed 11 new practical problems. The Written Simulation Committee reviewed, revised, and validated ten (10) problems, validated one new simulation problem, continued development of one simulation problem, and developed one new simulation problem.

Analysis of the Examination

Although each of the three parts of the NATABOC examinations makes a unique contribution to certification decision making, each is studied carefully to ensure that it adheres to psychometric principles. By adhering to these principles NATABOC ensures the examination is a valid and reliable measure of professional knowledge and skill. As previously discussed, validity is demonstrated by identifying the task, knowledge, or skill on the 1999 Role Delineation Study that is tested by each item on the examination. Thus, a linkage is made between the item and the profession, achieving content validity. Additionally, each item goes through a stringent review process with multiple subject matter experts in order to ensure quality.

Reliability

The table below presents reliability information for all parts of NATABOC's examination, including information from examinations administered between April 2002 and February 2003. The reliability computation for each examination is an estimate of the consistency of the scores as a measure of competence. Internal consistency reliability is reported as the Kuder Richardson [KR(20)] coefficient and accounts for the degree to which items on the test contribute consistently to candidates' scores. The standard error of measurement provides the range in which the candidate's true score (if measured in absence of any error) resides.

Table I. Examination Reliability and Standard Error of Measurement (S.E.M)

	Written		Practical					Simulation				
Form #	316	317	320	321	322	323	326	318	319	318	319	318
Date			Apr	Jun	Aug	Nov	Feb	Apr	Jun	Aug	Nov	Feb
Reliability (KR20)	.80	.79	.88	.82	.85	.85	.90	.89	.89	.87	.87	.88
Interrater Rel. % Agreement			.94	.88	.85	.92	.90					
Interrater Rel. Pearson's			.94	.91	.90	.91	.91					
S.E.M.	5.26	5.35	3.11	3.07	3.03	3.09	3.66	7.76	7.54	7.85	7.51	7.96

Candidate Performance on the Examination

During the 2002 testing year, a total of 5236 candidates (including both first-time candidates and those retaking parts of the examination) took the written multiple-choice part of the examination offered by NATABOC. The practical portion of the examination was taken by 4103 candidates, with almost 65% of those candidates passing. In addition, 4614 candidates took the simulation portion of the examination. The performance of the candidates on each examination type is presented in Table II below.

Table II. All Candidates Taking the Examinations

Exam	# Candidates	# Pass	% Pass	# Fail	% Fail
Written	5236	2404	45.91%	2832	54.09%
Practical	4103	2658	64.78%	1445	35.22%
Simulation	4614	2494	54.05%	2120	45.95%

A total of 2736 candidates took the NATABOC written examination for the first time in the 2002 testing year. Of those 58.95% passed. The practical portion was completed by 2740 candidates with 68.07% passing on that first attempt. Of the 2742 candidates taking the simulation examination for the first time during the 2002 testing year, 55.80% passed. The performance of candidates taking the examination for the first time is presented below in Table III. This table also includes separate statistics for internship and curriculum candidates. Curriculum candidates completed a course of study approved by the Commission on Accreditation of Allied Health Education Programs order to achieve eligibility for the ATC certification. Internship candidates achieved eligibility through completion of seven required courses, a supervised internship and various other requirements.

Table III. Candidates Taking the Examination for the First Time

Exam	Total Sitting	Total #/% Pass	Total #/% Fail	Total Intern	Intern #/% Pass	Intern #/% Fail	Total Curric	Curric #/% Pass	Curric #/% Fail
Written	2736	1613/ 58.95	1123/ 41.05	1219	597/ 48.97	622/ 51.03	1517	1016/ 66.97	501/ 33.03
Practical	2740	1865/ 68.07	875/ 31.93	1221	730/ 59.79	491/ 40.21	1519	1135/ 74.72	384/ 25.28
Simulation	2742	1530/ 55.80	1212/ 44.20	1222	603/ 49.35	619/ 50.65	1520	927/ 60.99	593/ 39.01

As the table below shows, of the 2736 candidates sitting for the NATABOC examination for the first time, a total of 990, or 36.18%, passed all three examination parts.

Table IV. First Time Candidates Passing All Three Parts on First Attempt

	Total Sitting	Total Pass	Total Pass %	Total Fail	Total Fail %
Overall	2736	990	36.18%	1746	63.82%
Internship	1219	333	27.32%	886	72.68%
Curriculum	1517	657	43.31%	860	56.69%

During the 2002 testing year, the written portion of the NATABOC examination was retaken by 2500 candidates, with 31.64% of those retake candidates passing. The practical portion of the examination was retaken by 1363 candidates and passed by 793, or 58.18%. The simulation portion of the examination was retaken by 1872 candidates. Of those, 51.50% passed. The performance of candidates retaking the NATABOC examination is presented in Table V.

Table V. Candidates Retaking the Examination

Exam	Total Sitting	Total #/% Pass	Total #/% Fail	Total Intern	Intern #/% Pass	Intern #/% Fail	Total Curric	Curric #/% Pass	Curric #/% Fail
Written	2500	791/ 31.64	1709/ 68.36	1429	403/ 28.20	1026/ 71.80	1071	388/ 36.23	683/ 63.77
Practical	1363	793/ 58.18	570/ 41.82	843	449/ 53.26	394/ 46.74	520	344/ 66.15	176/ 33.85
Simulation	1872	964/ 51.50	908/ 48.50	1016	490/ 48.23	526/ 51.77	856	474/ 55.37	382/ 44.63

Descriptive Statistics of Candidate Performance

Descriptive statistics based on candidate scores are presented in Table VI for each form of the examination. Scores ranged from 48 to 139 on Form 316 of the written examination and 55-138 for form 317. The high score on each form of the Practical portion of the examination was 50 for every form except 326, for that form it was 48.

Table VI. Candidate Scores

	Written Form 316	Written Form 317
High Score	139	138
Low Score	48	55
Avg. Score – Overall	104.74	103.14
Avg. Score – Internship	102.45	100.63
Avg. Score – Curriculum	107.07	105.68
Std. Dev	11.9	11.9

	Practical Form 320	Practical Form 321	Practical Form 322	Practical Form 323	Practical Form 326
High Score	50	50	50	50	48
Low Score	10	14	9	15	15
Avg. Score – Overall	39.40	39.65	39.28	39.49	37.39
Avg. Score – Internship	36.90	38.59	38.28	38.54	36.64
Avg. Score – Curriculum	40.91	40.64	40.65	40.75	38.48
Std. Dev	6.58	6.43	6.49	6.48	5.87

	Simulation Form 318	Simulation Form 319
High Score	765	737
Low Score	200	200
Avg. Score – Overall	501.20	500.88
Avg. Score – Internship	490.40	486.78
Avg. Score – Curriculum	510.50	515.21
Std. Dev	97.5	98.61

Descriptive statistics were reported in detail at to the domain level for the written examination and are presented in Table VII, first for form 316 and then separately for form 317.

Table VII. Domain Scores for Written Examination Form 316 and 317

	Form 316 - Domain 1	Form 316 - Domain 2	Form 316 - Domain 3	Form 316 - Domain 4	Form 316 - Domain 5	Form 316 - Domain 6
Number of Items	21	33	28	31	15	12
High Score	21	32	28	31	15	12
Low Score	5	4	8	6	1	1
Avg. Score – Overall	13.80	20.95	19.59	19.40	11.30	8.54
Avg. Score – Internship	13.55	20.14	19.18	18.76	11.10	8.26
Avg. Score – Curriculum	14.06	21.77	20.01	20.06	11.50	8.82
Std. Dev	2.48	4.22	3.24	3.6	1.88	1.85

	Form 317 - Domain 1	Form 317 - Domain 2	Form 317 - Domain 3	Form 317 - Domain 4	Form 317 - Domain 5	Form 317 - Domain 6
Number of Items	21	33	28	31	15	12
High Score	20	32	28	29	15	12
Low Score	4	5	10	6	3	1
Avg. Score – Overall	12.40	20.32	20.56	18.22	10.71	7.71
Avg. Score – Internship	12.16	19.49	20.24	17.50	10.43	7.40
Avg. Score – Curriculum	12.63	21.16	20.88	18.95	10.99	8.02
Std. Dev	2.35	4.41	2.94	3.88	1.94	1.82

Conclusion

NATABOC works diligently to ensure that the certification examinations and all aspects of its development and administration are fair and of high quality. In addition, the testing program has a strong foundation for content validity and psychometric function to protect the public. The organization adheres to pertinent standards governing certification tests and implements an examination program that continues to be a valid and reliable measure of entry-level competence in the profession. Only candidates who truly demonstrate competence are successful in achieving certification.