Behavioral Intervention Certification Council (BICC)

Differential Job Analysis Study

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Background

History

The Behavioral Intervention Certification Council (BICC) is a non-profit organization established in 2013. BICC promotes the highest standards of treatment for individuals with autism spectrum disorder (ASD) through the development, implementation, coordination, and evaluation of certification programs. The twofold purpose of BICC is to (1) recognize individuals who are qualified to treat the deficits and behaviors associated with ASD using the principles and procedures of applied behavior analysis (ABA) and to (2) enhance public protection.

BICC was initially established with support from the Center for Autism and Related Disorders (CARD), a for-profit organization established in 1990. CARD was founded based on peer-reviewed studies showing that intensive early intervention using ABA could effectively treat the core deficits and behaviors commonly associated with ASD. This treatment modality was considered a breakthrough at the time, given the history of autism being poorly understood clinically. Thousands of subsequent studies established the effectiveness of ABA in treating ASD, and 39 states now require private health plans to include coverage for ASD treatment using primarily ABA.

The success of ABA led to the formation of the Behavior Analyst Certification Board (BACB) for certifying behavior analysts. Although BACB has been a collaborative organization, two limitations of its certification aroused significant concern. First, BACB certification does not require autism-specific education, training, or experience, which raises concerns regarding effectiveness in a complex and highly challenging clinical environment. Second, BACB policy relies on certificants to self-report professional license revocations and criminal convictions, which raises consumer safety concerns across multiple stakeholders, including healthcare plans, other caregivers, parents, and state policy makers.

In collaborative discussion of these issues, BACB indicated that it did not wish to change its eligibility requirements for certification and did not wish to create an ASD-specific credential. Believing that ASD-specific certification is necessary for optimal care, CARD decided to launch a certification program to eliminate the existing certification gap and design the program to be at an accreditation-level quality. Consistent with the criteria for accreditation, CARD supported the establishment of BICC as a separately incorporated, non-profit organization to manage the development and administration of the certification program.

BICC's first credential, the Board Certified Autism Technician (BCAT) was launched in 2015 with the first exam administered in July. Certification as a BCAT demonstrates autism-specific competency by entry-level individuals who work under the supervision of a qualified health professional. Initial NCCA accreditation for the BCAT program was achieved in November 2015.

Purpose

Following successful development and launch of the BCAT credential, the BICC Board chose to investigate two additional certifications at the supervisor and assistant supervisor levels. The differential job analysis described in this report was designed to identify the performance domains and associated knowledge, skills, and abilities relating to each of the proposed certification programs.

The study was conducted to:

- Validate the need for the programs
- Distinguish between these and other existing certifications
- Determine if there is a sufficient breadth of knowledge base to sustain each program

A job analysis ascertains, directly from practicing professionals, the frequency with which prerequisite knowledge is applied in practice, and the importance or criticality of this knowledge to satisfactory client outcomes. The results of the job analysis become the basis for the subsequent development of the certification exam. The exam blueprint reflects the findings of the job analysis with regard to areas of knowledge that should be included, as well as their relative emphasis (i.e., number of exam items). Areas of knowledge that are most consequential with regard to high frequency and importance should include more exam items than areas of knowledge that are least consequential.

The linkage between the job analysis and the exam blueprint and component exam items is the underpinning of exam content validity. This is the most important trait of any certification exam, a requirement for third-party accreditation, and the primary basis of defensibility if exam results are challenged legally.

In designing the survey, the BICC Board of Directors developed the following working definitions of the two proposed credentials. The scope of the proposed BCAP and BCAPA programs is presented below along with the existing BCAT credential.

Figure 1: Description of Practice Levels

Board Certified Autism Technician (BCAT)	Board Certified Autism Provider Assistant (BCAPA)	Board Certified Autism Provider (BCAP)
• Certification as a Board Certified Autism Technician (BCAT) demonstrates autism-specific competency and a commitment to consumer safety by entry-level individuals who treat the deficits and behaviors associated with autism spectrum disorder using the principles and procedures of applied behavior analysis and under the supervision of a Board Certified Behavior Analyst, licensed psychologist, or other licensed professional acting within the scope of his/her license. Individuals who earn the BCAT designation are qualified to implement evidence-based, autism-specific treatment using the principles and procedures of applied behavior analysis under the supervision of a qualified health professional.	• Certification as a Board Certified Autism Provider Assistant (BCAPA) demonstrates behavior analytic competency in the treatment of autism spectrum disorder and a commitment to consumer safety by experienced professionals who provide clinical support, case management, and technician training and supervision to implement treatment plans to address the deficits and behaviors associated with autism spectrum disorder using the principles and procedures of applied behavior analysis. Individuals who earn the BCAPA designation are qualified to implement treatment, train technicians to implement treatment, supervise technicians, communicate clinical observations to a licensed or certified supervisor, and provide case management under the supervision of a Board Certified Autism Supervisor or other qualified health care professional acting within the scope of his/her license and/or certification.	• Certification as a Board Certified Autism Supervisor demonstrates behavior analytic competency in the treatment of autism spectrum disorder and a commitment to consumer safety by graduate-level professionals who are independent practitioners. Board Certified Autism Supervisors provide evidence-based autism treatment services, including but not limited to designing and supervising the implementation of treatment and providing treatment and clinical supervision to address the deficits and behaviors associated with autism spectrum disorder using the principles and procedures of applied behavior analysis. Individuals who earn the BCAP designation are qualified to design, supervise, and implement treatment independently and work in a leadership role to provide clinical supervision, including training and monitoring, to individuals providing direct and indirect treatment and those that supervise them.

Task Force

A Task Force was appointed by the BICC Board in January. Task Force members were recruited by the BICC Executive Director and BICC Board members. Seventeen Task Force members were selected for their subject matter expertise with a focus on ensuring representation from all of the practice levels including the 2 planned credentials as well as a range of practice sites, geographic areas, and years of experience.

Because distinguishing knowledge, skills, and abilities across the entry-level, assistant supervisor, and supervisor roles was an essential focus of the study, care was taken to ensure that these roles were adequately represented by the Task Force. A list of Task Force members is included in Appendix A.

The Task Force met in Woodland Hills, CA for a 2-day, in person meeting on February 22-23, 2016 to draft the job analysis survey. The meeting agenda is included in Appendix B. During the meeting, the Task Force members participated in discussion regarding the purpose of the job analysis, Task Force member roles and responsibilities as subject matter experts, and a detailed review of the planned process. The meeting presentation slides are included in Appendix C.

Task Force members participated in a pre-pilot survey that was conducted via SurveyMonkey. Task Force responses and comments were compiled for review during two virtual meetings conducted via GoToMeeting on June 14 and July 22.

A third virtual meeting was conducted on November 3 to finalize the survey content following the pilot test that is described later in this report. The pilot survey was distributed on September 8 with responses due by September 17. The final survey was open for responses from October 10 until November 12.

Consultant Qualifications

In keeping with the decision to achieve accreditation for the BCAT program, BICC determined that it would seek accreditation with the National Commission for Certifying Agencies (NCCA) for the new programs as well. BICC retained SeaCrest Company to provide expertise and guidance in developing policies and procedures that comply with NCCA's accreditation criteria. SeaCrest CEO, Janice Moore, led policy development efforts. SeaCrest addressed the psychometric components of the program by engaging Leon Gross, Ph.D., as a psychometric consultant. Dr. Gross and SeaCrest were also retained to develop the existing BCAT credential and have collaborated on several other certification programs seeking accreditation.

Leon Gross, Ph.D.

Leon Gross served as Director of Psychometrics and Research for the National Board of Examiners in Optometry (NBEO) for 28 years. Under his leadership, NBEO became the first national board for a fully licensed health profession to replace grading-on-a-curve with criterion-referenced standards, and the first to implement a national performance examination with live patients.

Prior to NBEO, Leon was Assistant Director for Research and Measurement at the Board of Registry of the American Society of Clinical Pathologists, and held a faculty appointment at the University of Illinois Medical Center.

As a psychometric consultant to a variety of other credentialing boards on a domestic and international level, Leon has numerous publications in testing, and has lectured extensively on test development and design, both on written and practical examinations, for professional associations, state boards, and national regulatory agencies.

In professional volunteer work, Leon served as a member of the American National Standards Institute (ANSI) Personnel Certification Accreditation Committee (PCAC), and has chaired its Psychometrics Subcommittee. He has also served as a commissioner on the National Commission for Certifying Agencies (NCCA) of the Institute for Credentialing Excellence (ICE, formerly NOCA), and on two of its test-related task forces, as well as its representative to the Joint Committee on the *Standards for Educational and Psychological Testing*. He recently served on NCCA's Main Committee for revising the Standards. Leon has also held several leadership positions on the Council on Licensure, Enforcement, and Regulation (CLEAR), which includes founding editor of the *CLEAR Exam Review*, and principal co-author of *Principles of Fairness:*

An Examining Guide for Credentialing Boards. More recently, he served as an officer on the Board of Directors of the Green Building Certification Institute.

Janice Moore

Janice co-founded SeaCrest Consulting with Cynthia Allen in 2006 to serve as a resource for organizations seeking to build, improve, and grow certification programs. Leveraging 18 years of experience in the certification industry, including her previous role with the Institute of Credentialing Excellence (ICE) and the National Commission for Certifying Agencies (NCCA), she serves as a strategic partner for organizations seeking to develop new credentials, improve existing programs, and achieve accreditation.

After working with clients across dozens of industries to develop their certification programs, Janice firmly believes that accreditation standards are an effective framework for improvement. Her understanding of the application and interpretation of accreditation standards and the workings of the NCCA, ANSI, and ABSNC accrediting processes is evident in the more than 150 successful accreditation applications submitted by SeaCrest.

Janice serves as a strategic planning partner to evaluate and improve clients' major program areas helping set goals, assess feasibility, develop strong governance foundations, facilitate policy development, and design quality management programs.

Method

The Task Force met in metropolitan Los Angeles on February 22-23, 2016. The meeting agenda is displayed in Appendix B. After introductions and a discussion of the DJA objectives and organizational perspectives, Gross led a discussion of the technical aspects of the study. This discussion included the following topics:

- Test content validity
- Knowledge and task content
- Level of resolution/detail; grouping content
- Frequency and importance rating scales
- Rating categories: how many, descriptors, symmetry, midpoints
- Gathering data by electronic survey
- Respondent sampling
- Demographic data
- Pilot of survey and follow-up revisions
- Time needed for completing survey
- Data analysis
- Technical report
- Application of report to test content
- Potential new certification program and/or modifications to current programs

The Task Force developed the main components of the survey. These components included the knowledge content, the rating scales that respondents would use to rate the frequency, importance, and practice level of the knowledge areas, and the demographic characteristics of interest. The demographics would be used to determine the representativeness of the respondents and to differentiate the three subgroups.

Defining Knowledge Content

The knowledge content consisted of 116 content items organized in 7 content clusters. As a starting point in developing the content domains and items for the survey, the Task Force reviewed the final exam

blueprint for the existing BCAT credential (see Table 1). Discussion included adding and deleting items from the BCAT blueprint as needed to ensure that items for all three subgroups were represented. Since *clinical management* was deemed to be an important content domain for level 3, it was also added to the survey for level 1 (BCAT) certificants to respond to.

Table 1: BCAT Exam Blueprint

A.	Autism Spectrum Disorder	10-12%
B.	Principles of ABA	18-22%
C.	Treatment: Skill Acquisition	28-34%
D.	Treatment: Reduction of Problem Behavior	24-30%
E.	Behavioral Data Collection	5-7%
F.	Ethical/Legal Considerations	4-6%

A. Autism Spectrum Disorder   **10-12%**

1. Knowledge of deficits in social-emotional reciprocity
2. Knowledge of deficits in nonverbal communicative behaviors used for social interaction
3. Knowledge of deficits in developing, maintaining, and understanding relationships
4. Knowledge of stereotyped or repetitive motor movements, use of objects, or speech
5. Knowledge of insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior
6. Knowledge of highly restricted, fixated interests that are abnormal in intensity or focus
7. Knowledge of hyper or hyporeactivity to sensory input or unusual interests in sensory aspects of environment
8. Knowledge of levels of severity across social communication and restricted, repetitive behaviors
9. Knowledge of research regarding treatment intensity
10. Knowledge of early intensive behavioral intervention research
11. Knowledge of foundational autism research
12. Distinguishing between evidence-based interventions vs. nonevidence-based interventions

B . Principles of ABA   **18-22%**

13. Positive reinforcement
14. Negative reinforcement
15. Positive punishment
16. Negative punishment
17. Reinforcer
18. Punisher
19. Conditioned reinforcer
20. Unconditioned reinforcer
21. Extinction
22. Deprivation
23. Satiation
24. Contingency
25. Motivating operation
26. Antecedent
27. Behavior
28. Consequence
29. 3-term contingency
30. Stimulus
31. Discriminative stimulus
32. Stimulus control

Table 1: BCAT Exam Blueprint (continued)

33. Response
34. Discrete trial

C. Treatment: Skill Acquisition   **28-34%**

35. Discrimination training
36. Discrete trial training
37. Natural environment training
38. Fluency-based training
39. Generalization
40. Maintenance
41. Caregiver training
42. Premack principle
43. Preference assessment
44. Prompt
45. Errorless learning
46. Most-to-least prompting
47. Least-to-most prompting
48. Prompt fading
49. Time delay prompt
50. Chaining
51. Shaping
52. Pacing
53. Alternative and augmentative communication
54. Functional approaches to teaching language skills
55. Mand training
56. Tact training
57. Training echoic behavior
58. Training intraverbal behavior
59. Teaching joint attention
60. Teaching play skills
61. Teaching motor skills
62. Teaching adaptive and safety skills
63. Teaching social skills
64. Teaching cognition skills
65. Teaching executive function skills
66. Teaching academic skills
67. Visual supports
68. Curriculum modification

D. Treatment: Reduction of Problem Behavior   **24-30%**

69. Behavior intervention plan
70. Target behavior
71. Operational definition
72. Functional behavior assessment
73. Escape function
74. Attention function
75. Access to tangible function
76. Automatic function
77. Antecedent interventions

Table 1: BCAT Exam Blueprint (continued)

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78. Functional communication training
79. Token economy
80. High-p request sequence / behavioral momentum
81. Noncontingent reinforcement
82. Replacement behavior
83. Escape extinction
84. Attention extinction
85. Access to tangible extinction
86. Extinction burst
87. Continuous reinforcement
88. Intermittent reinforcement
89. Differential reinforcement of alternative behavior
90. Differential reinforcement of incompatible behavior
91. Differential reinforcement of other behavior
92. Response blocking
93. Redirection
94. Overcorrection
95. Response cost
96. Time-out from reinforcement
97. Spontaneous recovery

E. Behavioral Data Collection   **5-7%**

98.   Measurement dimensions (e.g., rate, duration, percentage)
99.   Measurement procedures (e.g., event recording, timing, time sampling)
100. Skill acquisition data
101. Problem behavior data
102. Graphing
103. Interobserver agreement (IOA)

F. Ethical/Legal Considerations   **4-6%**

104. Safety (including OSHA)
105. Responding to emergencies
106. Confidentiality (including HIPAA)
107. Recognition of client abuse
108. Reporting client abuse
109. Dual relationships

Developing Rating Scales

JTAs typically utilize two rating scales for respondent evaluation of knowledge areas: frequency and importance. Some JTAs utilize only one—not both—of these scales. However, since this JTA was designed to both evaluate and differentiate knowledge at multiple levels of practice, a third rating scale, practice level, was also used.

The rating scale development followed extensive discussion regarding having sufficient distinctiveness to capture differences that exist in on-the-job performance vs. being too granular such that rating categories create differences that are not significant.

The frequency and importance rating scales were designed with a similar structure. Both were 4-point scales with the lowest and highest categories having anchor labels. Both scales are shown below. These scales were rigorously tested to determine ease of use, which was considered particularly important because the inclusion of three rating scales would increase recipient response time and therefore likely reduce the response rate. The Task Force felt that the rating scale design of two degrees each for slightly important and very important and two degrees each for occasionally and frequently would be easy for respondents to use, and in fact, had been effectively used in a prior BICC job analysis for the level 1 (implement) job analysis. The rating scale for practice level simply involved selecting which of three levels was the highest at which the knowledge items were applied.

Listed below are the rating scales that the committee developed. Respondents were instructed to use each of the three scales in rating each of the content items, and to base their ratings on their own (i.e., *not* anyone else's) professional experience in their own current job. These instructions were designed to structure the responses as actual rather than aspirational.

> **Importance**: *How important is application of the following content items for effective treatment*?
> > 1 – Slightly important
> > 2 –
> > 3 –
> > 4 – Very important
>
> **Frequency**: *How often do you apply the following content items when providing treatment to your patients*?
> > 1 – Occasionally
> > 2 –
> > 3 –
> > 4 – Frequently
>
> ***Practice Level***: *What is the **highest level** at which you apply the following content items in **your** professional role?*
> > 1 – Implement
> > 2 – Supervise
> > 3 – Design

Pre-Pilot Survey

The Task Force also prepared the instructions for the survey and the timeline for completion of the project. A complete copy of the survey is shown in Appendix G. However, the drop-down response menus for the three rating scales are not functional in the PDF version of the survey. Task Force members participated in a pre-pilot survey conducted via SurveyMonkey. The pre-pilot survey was conducted to verify that instructions were clear, rating scales functioned as intended, and that distinctions could be made between the practice levels. Task Force responses and comments were compiled for review during virtual meetings conducted via GoToMeeting on June 14 and July 22, 2016.

Pilot Test

A pilot version of the survey was emailed on September 8, 2016 to 32 individuals. The purposes of the pilot were to determine clarity and ease of use of the three rating scales, particularly whether practice level 2 would be readily distinguishable by respondents from level 1 and from level 3, whether any content was redundant or inadvertently omitted, and the approximate amount of time needed by respondents to complete the survey. The Task Force wanted to be sure that most respondents could complete the survey

in no more than 25 minutes, since a longer response time might depress the response rate. The pilot survey was completed by 27 of the 32 individuals (84%) who were invited to participate.

A virtual Task Force meeting was conducted on November 3, 2016 to review the pilot test results and finalize the survey content. In general, the pilot participants commented that the survey instructions were clear, the rating scales were easy to apply, and that the content coverage was thorough with little redundancy. However, in reviewing the responses, it became clear that very few respondents were selecting practice level 2 as their highest level of knowledge application. Further review led to a re-definition of level 2 from *monitor* to *supervise*, which connoted a more clinically active role. Subsequent data from the final survey indicated that the revised level 2 label (supervise) was clearer. Although the number of practice level 2 responses remained relatively low, the percentage of level 2 responses rose significantly. The review of pilot data also led to the list of content items being shortened from 120 to 116, as respondents noted some redundancies.

Of the participants who recorded the amount of time that they used in completing the survey, the average time was 24 minutes. The time used ranged from 15 minutes to 35 minutes; only 2 of the pilot participants used more than 30 minutes. These data supported the 30-minute time needed. The pilot also included three opened-ended comment fields for respondents to list any content areas that they felt were omitted from the survey and should be added, any content areas in the survey that were redundant, and any other comment. A list of the pilot survey comments is provided in Appendix D.

Survey Distribution

The final form of the survey was disseminated by email link on October 13, 2016. The survey was distributed via email directly to 3,726 individuals as well as to 437 contacts at ABA related agencies. Invitations to participate in the survey were also posted on various social media sites (see Appendix E). Because BICC and the Task Force sought participation from as many practitioners from all three levels as possible, this distribution represents all individuals and agencies for which BICC was able to obtain contact information. Initial email invitations were sent on October 13, 2016 followed by reminders on October 24 and November 4. Social media invitations and reminders were posted from October 24 through November 10, 2016 (see Appendix F).

The final version of the survey included a Starbucks $5.00 gift card incentive for the first 100 respondents. Respondents who wished to contend for the gift card were asked to enter their name and email address; otherwise, respondents completed the survey anonymously.

The survey closed on November 12, 2016. Of the more than 4,200 invitees, 867 responses were received. It cannot be known how many individuals were contacted to participate in the survey, since social media was used to maximize the number of responses. Therefore, a response rate cannot be calculated. After multiple reminders, deadline extensions, and the gift card incentive to participate, the number of responses slowed significantly, and the survey was closed.

Of the 867 respondents, 355 responded to the demographic questions only. Since the demographic questions were intended to evaluate the representativeness of the respondents who evaluated the content items, these 355 individuals were excluded from the analysis. Therefore, the analyses are based on the 512 respondents who reacted to the substantive portion of the survey; 28.0% of these individuals indicated having attained BCAT certification.