Essential Content for Training Behavior Analysis Practitioners

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A recent national survey of 265 behavior analysts has produced a list of 12 content areas and 108 tasks that the group felt were essential in the training of behavior analyst practitioners. The survey methodology, sample demographics, and survey results are summarized. The implications of these results are discussed as they relate to instruction in behavior analysis and the standards of practice of behavior analyst practitioners. The final task list of essential content is provided.

Key words: practitioner training, essential content, behavioral practitioner, behavior analysis certification, education, quality control

The specific content of a university course in behavior analysis is determined primarily by the individual teaching the course. Although some general influence may be exerted by the department, the specific course objectives, the course text, lectures, and examinations usually are controlled by the instructor, based on what that individual believes to be important. Because what the instructor believes to be important is determined by that individual's unique history, the content of behavior analysis courses varies. Although most of what is important may be consistent across most behavior analysis courses, some of it may not. Even within university programs where a sequence of courses is offered in behavior analysis, what seems to be important may differ from one instructor to the next. This variability can become a problem for behavior analysis practitioners who, once they are in the field, find that their training was in-

complete, inaccurate, or otherwise inadequate.

The problem of what is important extends into other aspects of the behavior analysis practitioner's world as well. Employers of practitioners have individual views as to what is important in behavior analysis, as do state regulators, human rights advocates, practitioners in other professions, parents, consumers, accreditation agencies, other behavior analysts, and program quality assurance surveyors.

Perhaps those best able to make the determination are well-trained and experienced behavior analysts themselves. Unfortunately, until the present study, no systematic process had been implemented to determine what behavior analysts, as a group, consider to be important.

Test construction experts, who develop credentialing examinations for various professional groups (such as psychologists, physicians and lawyers), are faced with the problem of determining what is important for the particular group. The content of the examination must reflect what practitioners actually do in the field—that is, what knowledge, skills, and abilities

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are essential to being a competent professional. To determine what is important for a given group, test construction experts obtain extensive input from qualified members of that profession through a comprehensive systematic process known as an occupational analysis.

In Florida, test construction experts at the Department of Business and Professional Regulation (BPR) did an occupational analysis for behavior analysis practitioners in the course of constructing the newest edition of the Behavior Analysis Certification Examination. The Behavior Analysis Certification Examination is used by the Florida Department of Health and Rehabilitative Services (HRS) as a part of its program to certify behavior analysts. Because the occupational analysis used behavior analysts from across the country as sources of information, the results very likely reflect what behavior analysts believe to be the essential content for training prospective behavior analysis practitioners.

METHOD

Development of the Task List and Survey Instrument

The present occupational analysis was begun in September of 1991 with the construction of a preliminary list of work activities performed by behavior analysis practitioners. A panel of experts in behavior analysis was selected from the population of certified behavior analysts in Florida and represented practitioners who had both extensive experience in the application of behavior analysis and formal university training in the field. This panel produced an initial task list with approximately 20 content areas. These content areas contained all the tasks from the previous task list, as well as new ones.

This draft list was further refined by BPR and the HRS Behavior Analysis Consultant, and a second panel of behavior analysts (which was drawn from the same population as the first panel) was convened. The second panel made

major revisions to the list, reducing it from 20 to 13 content areas. Many redundant tasks were eliminated, and the level of task specificity was evaluated. After extensive independent work by BPR and HRS staff, the panel was reconvened to review the completed draft of the task list. The list was fine tuned and two small content areas were combined, resulting in a total of 12 content areas and 112 task statements. This list was then used to develop a survey instrument for determining the content of the final task list. This survey instrument was pilot tested in April 1993. Comments from pilot subjects identified some areas of concern that needed further review. A third panel of behavior analysts was convened and made several changes to the task list. This list was used to construct the final survey instrument that was completed in October 1993.

Both the pilot and final survey instruments asked two questions concerning each of the 112 task statements. The first question was whether or not a behavior analyst should be able to perform the work activity specified in each task. Respondents could answer "yes" or "no" under the "need to know" column on the survey. The second question asked the respondents to rate the importance of each task using a Likert scale, where 1 = *no importance*, 2 = *little importance*, 3 = *some importance*, 4 = *moderate importance*, and 5 = *great importance*. The survey instructions explained that a variety of factors could affect the importance of a task, including frequency, potential for harm, and the respondent's belief about whether questions on the task should be included on the certification examination.

Sample Selection and Mailing of the Final Survey

The majority (65%) of those surveyed were Florida Certified Behavior Analysts representing two potential certification levels (bachelors and masters/doctoral). All known Florida mas-

ters and doctoral level Certified Behavior Analysts were included. A random sample stratified by year of certification was used to select the Florida bachelors level sample. The national sample was drawn from the membership of the Association for Behavior Analysis. Several individuals from each state were sent surveys, including all individuals in Oklahoma who had passed the behavior analysis certification examination administered in Oklahoma by BPR in 1993. A total of 1,022 packets was mailed in November 1993: 330 to Association for Behavior Analysis members, 465 to Florida masters and doctoral level Certified Behavior Analysts, 199 to Florida bachelors level Certified Behavior Analysts, and 28 to Oklahoma Certified Behavior Analysts.

RESULTS

Response Rate and Respondent Demographic Characteristics

The response rate to the survey was 29.9% overall, or 276 responses from 922 surveys actually delivered (100 surveys were returned as undeliverable). Responses were returned from 35 of 50 states, with 61% of the responses being from Florida.

The respondents had a mean age of 43 years and a mean of 13 years of professional experience, and was fairly equally divided between males and females. Fifty-nine percent of the respondents provided services to persons with developmental disabilities, and 18% provided services to persons in mental health settings. About 13% had bachelors degrees, about 42% had masters degrees, and about 44% had doctorates. Approximately half of those sampled indicated that their primary area of study was behavior analysis, psychology, or counseling.

Ratings

Analyses conducted by subgroups indicated little variation between groups in their ratings of each of the

112 tasks on both the "need to know" question and the "importance" question. For that reason, only data for the entire sample are presented here. Percentages and ratings were calculated based on the actual number of responses received for each task.

Responses to the "need to know" question for the 112 tasks were grouped as follows: 26 tasks were rated "yes" by 100% of the respondents, 76 tasks were rated "yes" by 90% to 99% of the respondents, 5 tasks were rated "yes" by 80% to 90% of the respondents, and 5 tasks were rated "yes" by 70% to 80% of the respondents. One of the five lowest rated tasks was "Define response measures that provide indirect, discontinuous measurement and dimensionless quantities of behavior." It was apparent from respondent comments that some of them did not understand the wording of this task. The other four lowest rated tasks all addressed use of the standard celeration chart (six-cycle graph). It is common practice to include tasks in the examination that are rated as necessary by the majority (over 50%) of respondents. All tasks listed in the survey met this criterion.

Responses to the "importance" question for the 112 tasks were similar to the "need to know" question: 57 tasks had mean ratings above 4.5; 40 tasks had mean ratings above 4.0; 7 tasks had mean ratings above 3.5; and 8 tasks had mean ratings above 3.0. The task statements that fell into this latter category were: (a) Distinguish between behaviorism, the experimental analysis of behavior, and applied behavior analysis. (b) Conduct narrative recordings. (c) Define response measures that provide indirect, discontinuous measurement and dimensionless quantities of behavior. (d) Complete a parametric analysis. Also included were those task statements dealing with the standard celeration chart. It is the accepted practice of test construction experts to include tasks in the examination that are rated above 3.0. All

tasks listed in the survey met this criterion.

Conclusions

The narrow variability in the responses of those surveyed and the high ratings for all tasks support the inclusion of all surveyed tasks in the final task list. The agreement that all tasks surveyed were important is understandable given that the occupational analysis began with an existing well-developed task list, and that the survey was preceded by a considerable amount of development by experts in behavior analysis. Although the survey task statements were adequate to identify the essential tasks, some of the task statements were combined, yielding 108 tasks, or were revised slightly on the final task list as a function of survey feedback. This final task list (see Appendix), was used by the Department of Business and Professional Regulation to construct a new edition of the Behavior Analysis Certification Examination, a form of which was administered in September 1994 in Florida.

The task list is an evolving instrument, subjected to constant critical review and refinement. It will be revised as frequently as necessary to remain accurate and comprehensive. Proposed changes in the Florida Behavior Analysis Certification Program may require additional survey work that could result in further revisions of the task list.

Behavior analysts again would be asked to help in determining what content is important for behavior analysis practitioners.

DISCUSSION

The current task list reflects what qualified behavior analysts across the country believe to be the essential content, that is, what is important for training behavior analysis practitioners. This information may be used by instructors in developing the content of individual courses or by university departments in constructing a course of study in behavior analysis. Additional material the instructor feels is important may be added to the task list content; however, using the task list as the basic content helps to ensure that the material necessary for competent practice will be covered.

The task list may also be useful for other individuals, such as program administrators, state regulators, human rights advocates, practitioners in other professions, parents, consumers, program accreditation agencies, textbook authors, other behavior analysts, and surveyors as a standard for the content of behavior analysis. For example, program administrators might use the task list in helping to determine the qualifications of applicants for behavior analyst positions, and state regulators might use it in formulating the qualifications of behavioral program review committee members.

APPENDIX

Content Area 1: Definition and Characteristics of Applied Behavior Analysis	
1.	State assumptions of behavior analysis that distinguish it from other approaches to studying behavior (e.g., behavior is lawful, behavior can be studied scientifically, behavior is a function of genetics and environment)
2.	Distinguish between behaviorism, the experimental analysis of behavior, and applied behavior analysis
3.	Describe dimensions of applied behavior analysis that, taken together, distinguish it from other treatment approaches (i.e., applied, behavioral, analytic, technological, conceptually systematic, effective, and has generality)
4.	Define behavior/response/response class
5.	Define environment
6.	Define stimulus
7.	Define consequence
8.	Define antecedent
9.	Define reinforcement
10.	Define punishment
11.	Define stimulus control
12.	Define establishing operation
13.	Define contingency
14.	Define functional relations
15.	Define extinction
16.	Define generalization and maintenance
17.	Describe the respondent conditioning model
18.	Describe the operant conditioning model
19.	Define contingency-shaped and rule governed behavior and distinguish between examples of each
Content Area 2: Legal and Ethical Considerations	
20.	Assess behavior within applicable legal and ethical standards
21.	Decide when to intervene within applicable legal and ethical standards
22.	Select target behaviors and goals within applicable legal and ethical standards
23.	Choose intervention procedures within applicable legal and ethical standards
24.	Obtain formal informed consent within applicable legal and ethical standards
25.	Obtain approval from other appropriate entities within applicable legal and ethical standards
26.	Implement behavior change interventions within applicable legal and ethical standards
27.	Evaluate interventions within applicable legal and ethical standards
28.	Protect confidentiality within applicable legal and ethical standards
29.	Use emergency and crisis interventions within applicable legal and ethical standards

Content Area 3: Emergency Procedures	
30.	Define an emergency situation
31.	State the role and function of emergency procedures
32.	State the essential components and precautions for managing emergency procedures

Content Area 4: Behavioral Assessment	
33.	State the reasons for conducting a behavioral assessment
34.	State the benefits and limitations of behavioral assessment
35.	Use various methods to gather assessment information
36.	Use various methods to display, summarize and interpret data

Content Area 5: Selection of Target Behaviors and Goals	
37.	Define and develop goals
38.	Define and develop target behavior
39.	Define and develop objectives
40.	Prioritize goals/objectives

Content Area 6: Measurement of Behavior	
41.	Define response measures that provide direct, continuous measurement (dimensional quantities) of behavior (e.g., frequency, rate, latency, intensity, duration)
42.	Define response measures that provide indirect, discontinuous measurement (dimensionless quantities) of behavior
43.	Define and determine the optimal duration of recording interval
44.	Select the recording apparatus (e.g., data sheet, timer, stopwatch, wrist counter) based on ease of use and potential measurement reactivity (i.e., the change in behavior as a result of the awareness of measurement)
45.	Use rate (frequency)
46.	Use latency
47.	Use duration
48.	Use inter-response time (IRT)
49.	Use celeration
50.	Use percent of occurrence
51.	Use partial-interval recording
52.	Use whole-interval recording
53.	Use momentary time sample recording

Content Area 7: Data Display and Interpretation	
54.	Select the best graphic display to effectively communicate quantitative relations (e.g., cumulative record, linear graph, histogram)
55.	Decide when to use equal interval (a.k.a. conventional or plain paper) graphs
56.	Decide when to use standard celeration charts (a.k.a. standard behavior chart or

	6-cycle precision teaching chart)
57.	Label and calibrate the scale of the horizontal and vertical axes of equal-interval graphs
58.	Plot data points on equal-interval graphs
59.	Plot data points on standard celeration charts
60.	Display baseline, intervention changes, major environmental changes, and interruptions in data collection on equal-interval graphs
61.	Display baseline, intervention changes, major environmental changes, and interruptions in data collection on standard celeration charts
62.	Determine and describe the level, trend, and variability of data displayed on equal-interval graphs
63.	Determine and describe the level, trend, and variability of data displayed on standard celeration charts
64.	Interpret data and make decisions using level, trend, variability, and the change in each
65.	Interpret data on a cumulative record consistent with principles of behavior and the behavior analytic literature
66.	Interpret articles from the behavior analytic literature

Content Area 8: Demonstrating Functional Relations	
67.	State the primary characteristics of the process of demonstrating functional relations
68.	State the rationale for determining functional relations and for determining the reliability and generality of functional relations
69.	Use various methodologies to demonstrate functional relations and to determine the reliability and generality of functional relations through direct and systematic replication, respectively
70.	Identify factors particular to applied settings that must be managed when attempting to demonstrate functional relations
71.	Complete a component analysis (e.g., determining effective component(s) of a treatment package)
72.	Complete a parametric analysis (e.g., determining effective parametric values of consequences such as duration or magnitude)

Content Area 9: Establishing and Strengthening Behavior	
73.	Determine reinforcers
74.	Identify potential reinforcers
75.	Select and use appropriate parameters and values of reinforcement (e.g., quantity, duration)
76.	Select appropriate schedules of reinforcement
77.	Describe variables affecting reinforcement effectiveness (e.g., establishing operations, effort)
78.	Use differential reinforcement
79.	Develop and implement token economy procedures
80.	Develop and implement shaping procedures
81.	Develop and implement chaining procedures
82.	Use stimulus control strategies
83.	Select appropriate techniques for developing incidental learning
84.	Use contextual variables
85.	Use establishing operations

Content Area 10: Weakening Behavior	
86.	Develop a behavior replacement plan using the least restrictive interventions likely to be effective given the function of the behavior
87.	Determine punishers
88.	Identify potential punishers
89.	Select and use appropriate parameters and values of punishment (intensity)
90.	Select appropriate punishment procedures based on assessment data
91.	State the possible negative effects and limitations of punishers in changing behavior and their effects on behavior
92.	Address other variables influencing punishment effects (e.g., reinforcement frequency, availability of alternative responses)
93.	Use differential reinforcement
94.	Use extinction
95.	Use stimulus control strategies
96.	Use contextual variables
97.	Use establishing operations

Content Area 11: Maintenance and Generalization	
98.	Select behaviors for acquisition that will contact natural contingencies in the target setting
99.	Select appropriate stimulus and response generalization procedures to the target setting
100.	Select appropriate maintenance procedures

101.	Determine when it is appropriate to use a molar system (e.g., stage, levels) to
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	arrange for the maintenance and generalization of target behaviors
102.	Describe how to arrange for generalization and maintenance of target behaviors through a molar system
103.	List the advantages and disadvantages of a molar system to promote maintenance and generalization of target behaviors
104.	Develop a "self control" repertoire to facilitate maintenance and generalization of the target behavior

Content Area 12: Performance Management, Incidental Learning, and Accountability	
105.	Establish systems that promote positive interpersonal relations and incidental learning and support behavior change interventions on the part of persons directly involved with (affected by) behavior analysis services
106.	Establish support for behavior change interventions from persons (individuals or groups) not directly involved with these interventions (e.g., administration, advocacy groups, consumer groups, law makers, other human service providers)
107.	Establish competency-based training for persons who will be responsible for carrying out behavior analysis procedures
108.	Establish performance monitoring systems