

Essential Readings for Graduate Students in Behavior Analysis: A Survey of the *JEAB* and *JABA* Boards of Editors

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We surveyed the editorial boards of the *Journal of the Experimental Analysis of Behavior* and the *Journal of Applied Behavior Analysis* in an attempt to construct an essential reading list for graduate students in behavior analysis. Respondents were asked to list up to 10 behavior-analytic journal articles, 10 behavior-analytic books, and 5 non-behavior-analytic books or journal articles that they felt were essential readings. Several behavior-analytic books were listed by members of both editorial boards, suggesting that an understanding of the philosophy of radical behaviorism and its basic principles are essential for graduate students. In contrast, a number of disparities point to differences in training and a lack of integration that may exist between basic and applied researchers. However, these disparities might also be indicative of the strength of behavior analysis. Finally, several non-behavior-analytic readings draw attention to the convergence of behavior analysis and other fields of study.

Key words: essential readings, *JEAB*, *JABA*, graduate students

Students of behavior analysis typically are expected to peruse a variety of readings covering a wide range of content areas. Many of these readings are encountered in classes and seminars, or in conjunction with conducting research projects. Often though, graduate students are given less direction with respect to wading through the giant pool of other important readings that has emerged since Skinner first began writing on the experimental analysis of behavior some 70 years ago.

It has been two decades since Michael (1980) constructed his version of a “minimal doctoral repertoire in behavior analysis,” which contained readings from a variety of content areas including the experimental and applied analysis of behavior and the philosophy of radical behaviorism. Few other resources exist that provide a starting point for students and others

interested in learning the theories, methods, and concepts of behavior analysis. Thus, the purpose of the present research was to obtain a list of essential readings. We did so by appealing to well-established behavior analysts.

METHOD

Participants and Procedure

An information letter and survey (described below) were mailed to 96 members of the editorial boards of the *Journal of the Experimental Analysis of Behavior (JEAB)* and the *Journal of Applied Behavior Analysis (JABA)*. Respondents were asked to complete and return the survey to us. In addition, respondents were asked to not discuss the survey with other board members who may have received it.

Materials

We constructed a survey that asked respondents to provide several pieces of information. The survey consisted of six questions. The first question asked respondents to list whether they were members of the *JEAB* board of editors, the *JABA* board editors, or both boards of editors. The second question

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asked respondents to list the year in which they earned their PhD. The third question asked respondents to list their primary area of interest: (a) clinical and behavioral medicine (CBM); (b) community, corrections (COM); (c) developmental disabilities, autism (DDA); (d) human development, gerontology (HDG); (e) experimental analysis of behavior (EAB); (f) education (EDU); (g) ethical, legal, and social issues (ELS); (h) organizational behavior management (OBM); (i) teaching behavior analysis (TBA); and (j) behavioral pharmacology and toxicology (BPT). In addition to these demographic questions, respondents were asked to answer three questions regarding "essential readings for students who are being trained in the experimental analysis of behavior, applied behavior analysis, and its related disciplines." No definition of the word *essential* was provided on the survey. The first question asked respondents to list up to 10 behavior-analytic journal articles that they felt were essential readings. The second question asked respondents to list up to 10 essential behavior-analytic books. The final question asked respondents to list up to five essential non-behavior-analytic journal articles or books.

RESULTS AND DISCUSSION

Twenty-eight ($\approx 30\%$) participants responded to our survey. Twelve of the respondents were from the *JEAB* board of editors, and 16 were from the *JABA* board of editors. None of the respondents served on both editorial boards. Of the 12 respondents who served on the *JEAB* board of editors, 8 listed EAB as their primary area of interest; the remaining 4 respondents listed BPT as their primary area. Of the 16 respondents who served on the *JABA* board of editors, 8 respondents listed DDA and 4 respondents listed EDU as their primary area of interest. The remaining three respondents listed CBM, HDG, and EAB, respectively, as their primary area of interest. One *JABA* re-

spondent did not list a primary area of interest. Finally, for all board members who responded to our survey, the median year in which a PhD was earned was 1987 (range, 1954 to 1997). The median year for *JEAB* respondents was 1985 (range, 1954 to 1992), and the median year for *JABA* respondents was 1989 (range, 1974 to 1997).

Table 1 contains 12 essential behavior-analytic journal articles and books suggested by *JEAB* board members. Table 2 includes 16 essential behavior-analytic journal articles and books suggested by *JABA* board members. Each table lists the readings that were suggested most often, the number of times each reading was listed, and the percentage of respondents listing that book or journal article. Only those books or journal articles that were listed by at least 25% of the participants from a particular board are shown.

There are some important similarities between the *JEAB* and *JABA* lists. Not surprisingly, respondents from both boards listed several of Skinner's writings as essential readings. For example, Skinner's (1953) *Science and Human Behavior* was listed as essential by 75% of both the *JEAB* and *JABA* respondents, suggesting that a general understanding of the philosophy of radical behaviorism, its basic principles, and the extension of these principles to a variety of complex human behaviors is pertinent for graduate students in behavior analysis. In addition, respondents from both boards seem to place a strong emphasis on behavior-analytic research methods, as is evidenced by the high placing of Sidman (1960) on both the *JEAB* and *JABA* lists and Johnston and Pennypacker (1993) on the *JABA* list.

Journal articles accounted for less than one half of the entries on both the *JEAB* and *JABA* lists. This might be due to the fact that respondents from both editorial boards suggested a large number of journal articles (*JEAB* = 69; *JABA* = 75). In contrast, the number of books suggested by respondents from both editorial boards was smaller

TABLE 1

Essential behavior-analytic readings suggested by *JEAB* board members

Number of listings	%	Book or journal article
9	75.0	Skinner, B. F. (1953). <i>Science and human behavior</i> . New York: Macmillan.
7	58.3	Sidman, M. (1960). <i>Tactics of scientific research: Evaluating experimental data in psychology</i> . New York: Basic Books.
7	58.3	Skinner, B. F. (1957). <i>Verbal behavior</i> . New York: Appleton-Century-Crofts.
6	50.0	Herrnstein, R. J. (1970). On the law of effect. <i>Journal of the Experimental Analysis of Behavior</i> , 13, 243–266.
4	33.3	Honig, W. K., & Staddon, J. E. R. (Eds.). (1977). <i>Handbook of operant behavior</i> . Upper Saddle River, NJ: Prentice Hall.
4	33.3	Skinner, B. F. (1938). <i>The behavior of organisms</i> . New York: Appleton-Century-Crofts.
4	33.3	Skinner, B. F. (1981). Selection by consequences. <i>Science</i> , 213, 501–504.
3	25.0	Baum, W. M. (1994). <i>Understanding behaviorism: Science, behavior, and culture</i> . New York: Harper-Collins.
3	25.0	Catania, A. C. (1998). <i>Learning</i> (4th ed.). Upper Saddle River, NJ: Prentice Hall.
3	25.0	Skinner, B. F. (1969). <i>Contingencies of reinforcement: A theoretical analysis</i> . New York: Appleton-Century-Crofts.
3	25.0	Skinner, B. F. (1950). Are theories of learning necessary? <i>Psychological Review</i> , 57, 193–216.
3	25.0	Baum, W. M. (1974). On two types of deviation from the matching law: Bias and undermatching. <i>Journal of the Experimental Analysis of Behavior</i> , 22, 231–242.

(*JEAB* = 45; *JABA* = 56), leading to the greater likelihood that respondents would agree on what constitutes an essential behavior-analytic book. In addition, considering that the number of behaviorally oriented journal articles published each year far outweighs the number of behavior-analytic books published each year, it seems probable that respondents would be more likely to concur on their choices for essential books.

Two disparities between the *JEAB* and *JABA* lists are evident. First, although several books are represented on both lists, no journal article appears on both the *JEAB* and *JABA* lists. For example, although Herrnstein's (1970) influential article on matching was list-

ed as essential by 50% of the *JEAB* respondents, it was listed only twice by *JABA* board members. Similarly, although Baer, Wolf, and Risley's (1968) seminal article on the dimensions of applied behavior analysis was listed as essential by 87.5% of *JABA* respondents, it was listed only once by a *JEAB* respondent. It is important to note, however, that there are only three journal articles on the *JEAB* list and seven journal articles on the *JABA* list. Consequently, the likelihood of overlap between the two lists is small. Thus, any conclusions about the lack of agreement on essential journal articles must be interpreted with prudence.

Second, a glance at Table 1 shows that there is a large number of basic

TABLE 2

Essential behavior-analytic readings suggested by JABA board members

Number of listings	%	Book or journal article
14	87.5	Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. <i>Journal of Applied Behavior Analysis, 1</i> , 91-97.
12	75.0	Skinner, B. F. (1953). <i>Science and human behavior</i> . New York: Macmillan.
11	68.8	Sidman, M. (1960). <i>Tactics of scientific research: Evaluating experimental data in psychology</i> . New York: Basic Books.
9	56.3	Skinner, B. F. (1957). <i>Verbal behavior</i> . New York: Appleton-Century-Crofts.
9	56.3	Stokes, T. F., & Baer D. M. (1977). An implicit technology of generalization. <i>Journal of Applied Behavior Analysis, 6</i> , 1-27.
9	56.3	Johnston, J. M., & Pennypacker, H. S. (1993). <i>Strategies and tactics of behavioral research</i> (2nd ed.). Hillsdale, NJ: Erlbaum.
8	50.0	Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. <i>Journal of Applied Behavior Analysis, 27</i> , 197-209.
7	43.8	Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. <i>Journal of Applied Behavior Analysis, 11</i> , 203-214.
6	37.5	Cooper, J. O., Heron, T. E., & Heward, W. L. (1987). <i>Applied behavior analysis</i> . Columbus, OH: Merrill.
6	37.5	Michael, J. (1982). Distinguishing between discriminative and motivational functions of stimuli. <i>Journal of the Experimental Analysis of Behavior, 37</i> , 149-155.
5	31.3	Catania, A. C. (1998). <i>Learning</i> (4th ed.). Upper Saddle River, NJ: Prentice Hall.
5	31.3	Honig, W. K., & Staddon, J. E. R. (Eds.). (1977). <i>Handbook of operant behavior</i> . Upper Saddle River, NJ: Prentice Hall.
4	25.0	Skinner, B. F. (1974). <i>About behaviorism</i> . New York: Knopf.
4	25.0	Skinner, B. F. (1969). <i>Contingencies of reinforcement: A theoretical analysis</i> . New York: Appleton-Century-Crofts.
4	25.0	Carr, E. G., & Durand, V. M. (1985). Reducing behavior problems through functional communication training. <i>Journal of Applied Behavior Analysis, 18</i> , 327-383.
4	25.0	Baer, D. M., Wolf, M. M., & Risley, T. R. (1987). Some still-current dimensions of applied behavior analysis. <i>Journal of Applied Behavior Analysis, 20</i> , 313-327.

research readings on the *JEAB* list. This result is mirrored by a large number of applied research readings on the *JABA* list (see Table 2). This is not to

say that the *JEAB* list is devoid of applied readings or that the *JABA* list is lacking basic research readings. For example, several readings on the *JEAB*

TABLE 3

Essential non-behavior-analytic readings suggested by *JEAB* and *JABA* board members

Number of listings	%	Book or journal article
3	10.7	Dawkins, R. (1986). <i>The blind watchmaker</i> . New York: Norton.
3	10.7	Dawkins, R. (1989). <i>The selfish gene</i> (2nd ed.). Oxford, England: Oxford University Press.
3	10.7	Pavlov, I. P. (1927). <i>Conditioned reflexes</i> . Oxford, England: Oxford University Press.
2	7.1	Mayr, E. (1997). <i>This is biology: The science of the living world</i> . Cambridge, MA: Belknap Press.
2	7.1	Green, D. M., & Swets, J. A. (1966). <i>Signal detection theory and psychophysics</i> . New York: Wiley.
2	7.1	Kuhn, T. S. (1970). <i>The structure of scientific revolutions</i> (2nd ed.). Chicago: University of Chicago Press.
2	7.1	Harris, M. (1978). <i>Cows, pigs, wars, and witches: The riddles of culture</i> . New York: Vintage Books.

list contain important discussions or reviews of behavior-analytic applications (e.g., Baum, 1994; Skinner, 1953). Similarly, several readings on the *JABA* list contain lengthy discussions of basic research findings (e.g., Catania, 1998; Honig & Staddon, 1977; Sidman, 1960). However, although both basic research and applied readings are represented on each list, the *JEAB* list contains a greater proportion of readings based on basic research, and the *JABA* list contains a greater proportion of readings emphasizing applied research.

Table 3 shows the seven non-behavior-analytic readings that were listed most often by respondents. The boards suggested a total of 55 different readings; *JEAB* board members suggested 33 readings, and *JABA* board members suggested 28 readings. However, because no entry was suggested more than three times and because there was overlap on six of the seven essential readings (only *JEAB* respondents listed Green & Swets, 1966, as essential), the listing of nonbehavioral readings represents a combined total from both editorial boards.

Several of the non-behavior-analytic readings listed in Table 3 point to the convergence of behavior analysis and other fields of study that has surfaced in recent years. For example, the inclusion of books by Dawkins (1986, 1989) and Mayr (1997) seems to suggest that knowledge of topics within the biological sciences might enhance one's understanding of various topics in behavior analysis (see also Fantino & Logan, 1979). Similarly, the inclusion of Harris' (1978) book on cultural anthropology points to a relatively recent interest in cultural analysis that has emerged within behavior analysis (e.g., Glenn, 1988; Malagodi, 1986). Finally, the addition of Green and Swets' (1966) well-known text on signal-detection theory points to an increasing interest by behavior analysts in psychophysics (e.g., Davison & Tustin, 1978; Irwin & McCarthy, 1998), a topic that has its roots in traditional experimental psychology. Thus, although there was a relatively large number of nonbehavioral readings suggested by respondents—resulting in a relatively short list of overlapping suggestions—these findings indicate that graduate

students in behavior analysis would do well to study a variety of topics that complement the standard behavior-analytic classics.

Several reasons for the disparities between the *JEAB* and *JABA* reading lists seem possible. One reason might revolve around differences in graduate training that experimental and applied behavior analysts often receive. Basic researchers are likely to spend a large portion of their time in the laboratory, but applied researchers typically learn to implement behavioral technologies under less controlled conditions in an attempt to solve socially significant problems. Such emphases may lead experimental and applied behavior analysts to immerse themselves in distinctively different literatures. A related and possibly more important reason might be the purported schism between basic and applied research that has received considerable attention within behavior analysis. For example, Hayes, Rincover, and Solnick (1980) suggested that applied behavior analysts have experienced a "technical drift" away from the experimentally derived principles that provided the basis for applied behavioral technologies (see also Michael, 1980). Similarly, Epling and Pierce (1986) suggested that basic researchers in behavior analysis would do well to recognize the relevance of applied behavior-analytic studies in developing externally valid research programs and increasing the theoretical significance of basic research findings.

If a lack of communication still exists in behavior analysis, as more recent studies suggest (e.g., Poling, Alling, & Fuqua, 1994), then discrepancies between the *JEAB* and *JABA* lists are not surprising. However, as Epling and Pierce (1983) noted, an integration of basic and applied research has the potential to be of major pragmatic and theoretical importance if continued efforts are made by experimental and applied behavior analysts to communicate with one another. Although there are similarities across lists that seem to suggest concurrence with regards to

the philosophy of radical behaviorism and research methodology, the lack of agreement on empirically based journal articles seems to provide additional support concerning the alleged paucity of communication and integration between basic and applied researchers. However, as mentioned previously, the number of journal articles suggested by respondents from both boards was relatively large and diversified, and respondents within the *JEAB* and *JABA* boards agreed on only three and seven articles, respectively. As such, one could argue that there is also little agreement within any one board as to what constitutes an essential reading. Therefore, conclusions regarding a schism between basic and applied researchers based on our findings should be viewed cautiously.

Although we have suggested that our findings may point to differences in graduate education or a so-called schism between experimental and applied behavior analysts, another interpretation is also plausible. Initially, behavior-analytic methods, theories, and concepts occupied a small home within the field of psychology. More recently, these same methods, theories, and concepts have been employed in other disciplines such as pharmacology, business, and special education. As a result, the behavior-analytic literature has grown in volume and diversity. As published articles multiply in number and the content of those articles becomes more varied, the likelihood of agreement between behavior analysts as to what constitutes an essential reading might be expected to diminish. Thus, quite possibly, the lack of agreement within and between boards in our study might be indicative of the pervasiveness of behavior-analytic methods, concepts, and theories, which could be construed as strength rather than a potential weakness of behavior analysis.

Finally, the lack of agreement within and between boards might be an artifact of our data-collection methods. Because a low response rate is typical

when using mail surveys (e.g., Dignan, 1992), it is possible that we received surveys from a biased sample of respondents. For example, the majority of our respondents represented only four areas of study: EAB, BPT, DDA, and EDU. Thus, it is possible that our findings might have been different if other areas of behavior analysis were equally represented and if our sample had been larger.

Although we have constructed an essential reading list for students in behavior analysis, we do not view the present reading list as exhaustive, covering all of the topics that students in behavior analysis would wish to cover throughout their graduate careers. As one respondent stated, "I think that there are [a number of] essential concepts and facts, but for each one there are several readings that do the job nicely. [In addition], the literature is growing in sophistication, breadth, and clarity on the various issues. Ideas change, and new ideas arise."

We envision this list as providing a reasonable starting point for those who wish to acquire more information regarding behavior-analytic methods, theories, and concepts. Where graduate students (and others) go from here depends on many factors, including personal interests and the nature of the research problems they choose to address.

REFERENCES

- Davison, M. C., & Tustin, R. D. (1978). The experimental relation between the generalized matching law and signal-detection theory. *Journal of the Experimental Analysis of Behavior*, 29, 331-336.
- Dignan, M. B. (1992). A brief review of sample survey methods for research in health education and health promotion. *Health Values*, 16, 58-61.
- Epling, W. F., & Pierce, W. D. (1983). Applied behavior analysis: New directions from the laboratory. *The Behavior Analyst*, 6, 27-37.
- Epling, W. F., & Pierce, W. D. (1986). The basic importance of applied behavior analysis. *The Behavior Analyst*, 9, 89-99.
- Fantino, E., & Logan, C. A. (1979). *The experimental analysis of behavior: A biological perspective*. San Francisco: Freeman.
- Glenn, S. S. (1988). Contingencies and meta-contingencies: Toward a synthesis of behavior analysis and cultural materialism. *The Behavior Analyst*, 11, 161-179.
- Hayes, S. C., Rincover, A., & Solnick, J. V. (1980). The technical drift of applied behavior analysis. *Journal of Applied Behavior Analysis*, 13, 275-286.
- Irwin, R. J., & McCarthy, D. (1998). Psychophysics: Methods and analyses of signal detection. In K. A. Lattal & M. Perone (Eds.), *Handbook of research methods in human operant behavior* (pp. 291-321). New York: Plenum.
- Malagodi, E. F. (1986). On radicalizing behaviorism: A call for cultural analysis. *The Behavior Analyst*, 9, 1-17.
- Michael, J. (1980). Flight from behavior analysis. *The Behavior Analyst*, 3, 1-24.
- Poling, A., Alling, K., & Fuqua, R. W. (1994). Self- and cross-citations in the *Journal of Applied Behavior Analysis* and the *Journal of the Experimental Analysis of Behavior*. *Journal of Applied Behavior Analysis*, 27, 729-731.