

# **Research in the treatment of autism: Where are we now and where should we be going?**

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#### Some Websites

- Association for Behavior Analysis [www.abainternational.org](http://www.abainternational.org)
- Association for Science in Autism Treatment: [www.asatonline.org](http://www.asatonline.org)
- Cambridge Center for Behavioral Studies: [www.behavior.org](http://www.behavior.org)
- COSAC: [www.njcosac.org](http://www.njcosac.org)
- Organization for Autism Research: [www.researchautism.org](http://www.researchautism.org)
- Special Interest Groups (SIGs) of the Association for Behavior Analysis
- Autism SIG [www.autismsig.org](http://www.autismsig.org)
  - Parent Professional Partnership SIG [www.pppsig.org](http://www.pppsig.org)
  - Behaviorists for Social Responsibility SIG [www.bfsr.org](http://www.bfsr.org)
  - Dissemination of Behavior Analysis SIG – website coming soon
  - Evidence Based Practice SIG - <http://abainternational.org/ABA/newsletter/vol302/EBPSIG.asp>
  - Positive Behavior Support SIG [www.pbsaba.org](http://www.pbsaba.org)
  - Speech Pathology and Applied Behavior Analysis SIG <http://behavioralspeech.com/>
  - Verbal Behavior Special Interest Group SIG [psyc.csustan.edu/verbalbehavior](http://psyc.csustan.edu/verbalbehavior)

# Questions for Consideration when Evaluating a Research Article

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## Abstract

- ❑ What was the primary objective of the study?
- ❑ Who participated in the study?
- ❑ How were the participants selected and assigned to conditions?
- ❑ What were the dependent and independent variables in this study?
- ❑ To what conditions were the participants exposed? What interventions did they receive?
- ❑ What type of design was employed in the study?
- ❑ What were the main findings?
- ❑ Briefly, what were the implications of these findings? For further research? For clinical or educational practices?

## Introduction and Literature Review

- ❑ What was the *theoretical* background for the study?
- ❑ What was the *research* background for the study?
- ❑ What was included in the literature review? Does the literature review include reference to relevant theory and research? What kinds of articles were cited? Theoretical papers? Empirical studies? Basic research? Applied research?
- ❑ What aspects of current theory, existing research, or clinical work made this study useful, important, or of interest?
- ❑ Given the existing literature, what was different or special about this study with respect to its emphasis, methods, or sample of participants?
- ❑ To what extent would the study *further* the research in the chosen area? Does it fill a void in the literature? Would it address any area of inconsistency or conflict?
- ❑ Was the rationale clear regarding the constructs to be assessed? What constructs/variables were chosen? Do these appear to be appropriate constructs/variables to measure?
- ❑ What specifically were the purposes, predictions, hypotheses, or research questions?
- ❑ Do these purposes, predictions, hypotheses, or research questions seem meaningful?
- ❑ Does the introduction lead up logically to these purposes, predictions, hypotheses, or research questions?

## Method Section

### *Participants*

- ❑ Who were the participants and how many were included in this study?
- ❑ What were the subject and demographic characteristics of the sample? Would other researchers be able to recruit similar participants?
- ❑ Given the nature of the study, which characteristics would have been important to report (e.g., gender, age, diagnosis, level of functioning, educational placement, ethnicity, race, socioeconomic status)?
- ❑ Why was this particular sample selected in light of the objectives of the study?
- ❑ How was this sample obtained, recruited, and selected? Are these procedures replicable?
- ❑ What were the inclusion and/or exclusion criteria? On what basis were potential participants deemed appropriate for the study?
- ❑ Did the participants need to possess any prerequisite skills?
- ❑ How many of those participants eligible or recruited were selected and actually participated in the study?
- ❑ Was informed consent solicited? How and from whom?

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### *Design*

- ❑ Was this a between subjects, within subjects, mixed design, or single case design? If so, what type of single case design?
- ❑ How were participants assigned to groups or conditions?
- ❑ How many groups were included in the design?
- ❑ How were the groups similar and different in how they were treated in the study?
- ❑ Why were these groups critical to address the stated research questions or hypotheses?
- ❑ How would the design enable the author to address the stated research questions or hypotheses? In other words, to what extent would the method result in information to answer the research questions or test the hypotheses?

### *Procedures*

- ❑ In what setting was the study conducted? Were generalization probes collected in other settings? Was the setting adequately described for replication purposes?
- ❑ Who implemented the intervention or experimental conditions? Was his/her credentials and experiences reported? Did he/she require special training?
- ❑ What measures were used in the study? Were these already existing measures or developed for the purposes of this study?
- ❑ What materials, equipment, and/or apparatus were used in the study? Anything out of the ordinary?
- ❑ With respect to the procedure, what was the chronological sequence of events to which participants were exposed?
- ❑ Did the experimental manipulations seem powerful enough to occasion change in the dependent variables? Were these manipulations under the control of the experimenter?
- ❑ Were the procedures ethical? Were the participants subjected to potential risk? Were steps taken to ameliorate these risks? Were the steps adequate?
- ❑ How much time was needed for the various components of the study (e.g., recruitment, assessment, intervention, follow-up)?
- ❑ If the study included newly created measures specific to this study, what information was provided regarding the reliability and validity of these measures?
- ❑ What deviations in the administration of conditions emerged over the course of the study that may have introduced some degree of variation within and between conditions?
- ❑ How were the dependent variables defined? Were operational definitions provided? Did these definitions seem adequate?
- ❑ How and when were the dependent variables measured?

### **Reports of Reliability and Fidelity**

- ❑ What procedural checks were completed to avert potential sources of bias in the implementation of the manipulation and assessment of dependent measures?
- ❑ Was some index of reliability reported? Was sufficient reliability data collected? If interobserver agreement was reported, was it adequate?
- ❑ What other information would the reader need to know if he or she was intending to carry out a direct replication of the study?
- ❑ What checks were made to ensure that the conditions (independent variable) were carried out as intended?

## Results Section

- ❑ What kind of data would have been needed to support the hypotheses?
- ❑ What analyses were used and how specifically do these address the original hypotheses and research questions?
- ❑ Were the assumptions of the data analyses met?
- ❑ If multiple tests were used, what means were provided to control error rates?
- ❑ Prior to the experimental conditions, were groups similar on variables that might otherwise explain the obtained results (e.g., diagnosis, age, level of functioning)?
- ❑ Were data missing due to incomplete measures (not filled out completely by the participants) or due to attrition? If so, how are these handled in the data analyses? How were these explained in the discussion section?
- ❑ Were there ancillary analyses that might further inform the primary analyses or exploratory analyses that might stimulate further work?
- ❑ Was stimulus and response generalization assessed? How?

## Discussion

- ❑ What were the major findings of the study?
- ❑ To what extent were the hypotheses supported? To what extent were the research questions answered?
- ❑ How do these findings add to the existing research?
- ❑ How do these findings support, refute, or inform current theory?
- ❑ Do the author's interpretations seem justified?
- ❑ What *alternative* interpretations can be made given the obtained results?
- ❑ What were the threats to the internal and external validity controlled for by experimenter? And not controlled by experimenter?
- ❑ Given the makeup of the sample, what limits should be placed upon the generalizability of the findings?
- ❑ How socially valid was the goals, outcomes, and procedures?
- ❑ What limitations or qualifiers did the author place upon the findings given the methodological and design issues?
- ❑ What additional limitations or qualifiers should the author have placed upon the findings?
- ❑ What research follows from the study to move the field forward? What further research questions are posed by the findings of the study?
- ❑ What might a systematic replication of the study look like?
- ❑ To what extent should educational and clinical practice be modified to incorporate these findings?

### Relates Resources:

Davitz, J. R., & Davitz, L. L. (1996). *Evaluating research proposals: A guide for the behavioral sciences*. Upper Saddle River, New Jersey: Prentice Hall.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005) *The use of single-subject research to identify evidence-based practice in special education*. *Exceptional Children*, 71, 165-179.

Katzer, J., Cook, K. H., & Crouch, W. W. (1991). *Evaluating information: A guide for users of social science research*. New York, New York: McGraw-Hill, Inc.

Kazdin, A. E. (1992). *Research design in clinical psychology*. Needham Heights, Massachusetts: Allyn & Bacon.

Martin, D.W. (1985). *Doing psychology experiments*. Monterey, California: Brooks/Cole Publishing Company.