

## **GUIDELINES FOR THE CRITIQUE OF A RESEARCH ARTICLE**

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### **Abstract**

*A review of research evaluation literature, reinforced by discussion with research people, shows increasing recognition of the questions that must be answered, and an awareness of the need to lay the ground for defining them, setting priorities for them and attaching them in due order. This article, by no means, suggests what constitutes an adequate answer to research questions, but poses ones that should be answered by trained and experienced researchers.*

The following is a set of guidelines which may be used in the critique of research articles. It is suggested that the reviewer evaluate the factors described below, which are characteristic of a well done report. For the purpose of practicality an attempt has been made to derive a selective segment from the vast amount of literature available regarding research evaluation.

This well-agreed format of a journal article has therefore been chosen to delineate the critical process.

### **I. Title**

- A. Does the title precisely identify the area of the research problem?
- B. Is the title clear, concise, and descriptive enough to permit the study to be classified in its proper category?
- C. Are superfluous words such as "a study of" or "an analysis of" and catchy, misleading or vague phrases avoided<sup>(8)</sup>?

### **II. Abstract**

An abstract is a summary of the entire journal article which appears at the beginning of the article. Its sole purpose is to provide the reader with an

overview of the materials to be encountered in the remaining portions of the article. Although it normally contains no more than five or six sentences, the abstract usually answers the following questions:

- A. What is the purpose or objective of the study?
- B. What are the characteristics of the subjects?
- C. Briefly, what did the participants do during the study?
- D. What are the important results of the study<sup>(9)</sup>?

### **III. Introduction**

A. Definition--The introductory section of a research paper serves to specify the problem under investigation, as well as the research strategy. A complete introduction should provide the reader a clear description of what is being done and why, as well as answer the following questions:

1. What is the reason for the study?
2. What is the logical connection between the problem and the research design?
3. What theoretical implications does the

investigation have?

4. How does the study relate to prior relevant research<sup>(1)</sup>?

B. Review of the literature--In the introduction, a brief summary of relevant research ought to be included to place the study in context. This need not be an exhaustive historical review. General guidelines are:

1. Are the cited selected studies relevant to the specific issue under investigation?
2. Are references with tangential or questionable relevance to the problem avoided?
3. Are nonessential details avoided?
4. Have major conclusions, findings, and relevant methodological issues been emphasized?
5. Has a logical continuity between previous and present work been shown?
6. Does the literature review proceed chronologically<sup>(2)</sup>?

C. Statement of the problem--Following the review of relevant literature (which should provide a rationale for the present study, a research article should offer the specific purpose or goal of the study<sup>(3)</sup>.

Look for a definition of the variables and a formal statement of the hypotheses. Are the following questions answered?

1. What variables were manipulated?
2. What are the expected results?
3. Why would these results be expected?
4. Is a clear rationale for each hypothesis developed<sup>(4)</sup>?

#### IV. Method

In the method section of a journal article, an author explains in detail how the study was conducted. The section should contain enough information so that a reader could duplicate the study. The critique should address the following questions:

- A. Who participated in the study?
1. Is the population clearly defined?
  2. How many subjects were used (consider alpha, beta, power and the effect size)?
  3. Who were the subjects?
  4. How were the subjects selected?
    - a. Were the subjects randomly selected?
    - b. Were the subjects randomly assigned to the experimental treatment?
- B. What type of research design was used?

1. Were the subject groups arranged for use in an experimental design?

2. What design was used?

3. Was the research design appropriate to the solution of the problem?

4. Was the research design free of specific weaknesses?

C. What type of materials were needed?

1. What is the measuring device (e.g. test or questionnaire) used to collect data from or about subjects?

2. Was the instrument newly developed for this study or is it a standard instrument?

3. Was the instrument pretested?

4. Was the instrument found to be valid and reliable?

5. Is special equipment necessary to carry out a replication of the experiment?

D. What were the participants required to do?

1. Are the tasks clearly delineated?

2. Did the subjects receive a reward in return for their participation<sup>(5)</sup>?

#### V. Research design

In most research studies the researcher attempts to acquire or confirm information about a particular question by making comparisons among two or more groups. In the criticism of an article, the following questions are asked:

A. Is the design clearly formulated?

B. Will the design answer the questions that the hypothesis raises?

C. Does the design provide the controls required to obtain valid answers?

D. Does the design suggest what observations to make and how to make them?

E. What statistical tests are appropriate?

F. How is the quantitative data analyzed?

G. What possible conclusions may be drawn from the statistical analysis?

H. Does the design have all the potential sources of threats to internal and external validity carefully checked?

I. Is the research design adequate in scope, depth, and precision, to obtain the specific data required to test the hypothesis, or will the design produce a haphazard, superficial, indiscriminate collection of data<sup>(6)</sup>?

#### VI. Materials

In this section of a journal article the author

should describe the material which is used in the study. He or she should have been able to answer the following questions:

A. Is the writer familiar with the scientific rules to be observed in the collection of data and the operations to be performed when utilizing the various measures, scales, tests and instruments?

B. Do the instruments possess the reliability and validity (content, predictive, concurrent or construct) required for the research purpose?

C. Are the Instruments and test norms appropriate for the sample of subjects in the study (age, sex, ability, etc.)?

D. Are the instruments (tests) appropriate for the time available for administration and conditions under which they are to be administered (size of room or group, abilities of test administrators, scorers or interpreters)?

E. Are there any items or factors in the testing instruments that might limit the extent or type of subjects' responses?<sup>(8)</sup>

## VII. Procedure

How the study was conducted is explained within the procedure section of the journal article. In this section the author describes what the subjects did or what was done to them during the research investigation. To accomplish this goal, the author should provide answers to the following questions:

A. Where was the study conducted?

B. Who conducted the study?

C. How long were the subjects allowed to work on examinations or tasks that were associated with the study?

D. Did any of the subjects drop out of the study?<sup>(9)</sup>

## VIII. Results or analysis of data?

The result section provides a technical report of the results of the statistical analyses. It includes a collection and presentation of the data. Questions asked include:

A. Did the researcher decide how the data would be ordered early in the investigation?

B. Are the classification categories sufficiently comprehensive and specific?

C. Are any unnecessary data presented?

D. Is the amount of data collected adequate?

E. Are the methods employed to treat data appropriate?

F. Was the interviewer, observer or scorer biased because he or she had access to information about the previous behaviour of subjects?

G. Were precautions taken to collect and record data objectively and accurately?

H. Were procedures and results checked for errors made when observing phenomena, making mathematical computations, selecting or carrying out experimental or statistical procedures, or copying quotations, dates, names or any data?

I. Were source materials examined critically for authenticity and credibility?

J. Are sources given for theories and facts taken from other reports so that the reader can examine them for him or herself?

K. Are all source materials paraphrased accurately?

L. Are drawing, charts, diagrams, graphs, tables or photographs used when they can convey most effectively?

M. Do the tables and figures conform to the rules for constructing "good" ones?

N. Do tables and figures present the evidence accurately, without distortion or misrepresentation?

O. Was the level of statistical significance reported for findings that involved comparisons between groups or relationships between variables?<sup>(8)</sup>

P. Is the evidence collected to test each hypothesis, adequately and logically analyzed?

Q. Does the researcher omit or ignore evidence that does not agree with his hypothesis?

R. Is attention called to unpredicted results as well as the hypothesized relations in the data?

## IX. Discussion or summary and conclusion:

In this section of a research article, the reader should find an explanation of what the results mean in regard to the study's main objective. That is, the underlying research questions articulated in the statement of the problem ought to be directly answered in the discussion section<sup>(9)</sup>. Any theoretical consequences of the results should be emphasized. The validity of the conclusions should be addressed.<sup>(10)</sup> Especially if the results obtained are inconsistent with expectations, it is appropriate for the author to examine why the results turned out as they did<sup>(3)</sup>. Regarding the implications of the results, three major aspects are generally reviewed:

A. Are references to similar situations to which

the present results may be generalized included?

B. Is there a description of the limits of legitimate generalization of the present findings?

C. Is there a discussion of relevant unanswered questions (perhaps including recommended future research)?

D. The reader should find answers to the following:

1. What did the research contribute?
2. Were the conclusions logical extensions of the results?
3. What are the practical and theoretical implications?
4. Has the study been successful in solving the research problem?
5. Were the hypotheses accepted or rejected?

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