Research Methods in Education
An Introduction

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CHAPTER 5
Evaluating Research Reports

With all the articles in professional journals, reports to funding agencies, papers, and so on that deal with some type of educational research, it stands to reason that a very large quantity of research reports is in the professional literature. With a large quantity comes a lot of variation in the quality of reports and the quality of the research on which the reports are based. Journals have varying standards of acceptance for manuscripts submitted for publication. Most journals are what are called “refereed,” which means that manuscripts are reviewed and evaluated, usually by two or more reviewers. Before being accepted for publication, the manuscripts must meet certain criteria or standards that may be more implied than explicit. However, because of the numbers of manuscripts submitted, most journals have numerous reviewers so the extent of the manuscript critique depends on the competence of the specific reviewers to whom the manuscript is assigned. Research reports submitted to funding agencies, although they should be critiqued internally at the institution where the research was conducted, often are little more than first drafts of the report. Papers presented at professional association meetings may not be prepared in time for discussant review, and the papers are presented with no revision. Anyone can put anything on the Internet, and it is not surprising that many research reports that are available online have never been refereed, peer reviewed, or critiqued in any way. These “rogue” sources should be used with care. So, there is opportunity for poorly reported research to appear in the literature.

Just because research is reported in the literature does not ensure that the research was conducted well or reported well.

Types of Errors and Shortcomings in Reports

Conducting research can be a complex process; thus there are numerous kinds of errors and shortcomings possible, both with conducting the research and reporting it. Errors may range all the way from relatively minor technical errors, such as an incomplete reference, to substantive errors such as the use of an inappropriate design for the research problem. Much educational research is reported in professional journals and certainly the journals
are a major source of research information. In a typical dissertation, for example, the number of references to journal articles far outnumber all other references combined. Also, research for dissertations and funded projects often is reported in reduced form in the journals. So, errors that appear in journal articles are similar to those in other reports.

Twenty years ago, Hall, Ward, and Comer (1988) conducted an evaluation of fifty-four published research articles and found that 42 percent of the articles were:

judged to be either unacceptable for publication or in need of major revisions to make them acceptable. (p. 186)

The situation is not likely to be much different today.

The most commonly identified error, which really was an omission, was the lack of validity and reliability information about the data-collection instruments, an error that appeared in 43 percent of the articles (p. 188). Tingle, DeSimone, and Covington (2003) found similar results when evaluating the research on eleven school-based smoking prevention programs. They reviewed fourteen studies and found reliability evidence in only four of them and validity evidence in just one (p. 66).

The sections of research reports dealing with methods or procedures are especially susceptible to errors. Research designs may be weak or inappropriate, sampling may have flaws, and the analyses may not be the most appropriate or they may even be wrong. Of course, reports may be so poorly written that, even if the procedures and analyses are correct, there is confusion that leads to misunderstanding.

This brings us to what might be considered broad deficiencies in a report. Sometimes reports are not clearly written, and Hall et al. (1988) found this problem in 26 percent of the articles reviewed (p. 188). The organization of the report may be confusing, or it is difficult to follow the logic from procedures to results to conclusions. Results may be presented in a confusing manner, with notation not readily apparent to readers. Lack of transition across the sections can make a report seem disjointed and may lead to reader confusion.

There are broad types of deficiencies such as confused reporting and lack of continuity that reduce the quality of a research report, even if the research on which the report is based was well conducted.

**Critiquing Major Sections of a Research Report**

Chapter 4 discusses the characteristics and procedures that make for effective communication about research. When evaluating research reports, we can look for the same characteristics and procedures and raise questions about whether or not they are present. The discussion of Chapter 4 was organized according to the major sections of a research report and the same organization will be followed here.
CHAPTER 5 / Evaluating Research Reports

Introduction

The introduction should contain a statement of the research problem and this statement should be identified clearly and easily for the reader. If hypotheses are appropriate they should be stated. There should be provided enough of a context for the research so that the reader understands the research problem and how it fits in the education world. The significance of the research should at least be alluded to or implied. Variables should be identified, although they may not be operationally defined until measurement is discussed in the methods section.

The introduction should address the questions: What is the research problem, where does it fit in the educational context, and what is its significance?

Review of the Literature

Reviews of the literature for journal articles are limited because of available space, so they require skilled writing to have adequate comprehensiveness for the review. The references reviewed should be clearly relevant to the research problem. If their relevancy seems obscure or missing, the review has a major weakness. Questions to keep in mind when reviewing the literature are:

1. Do the results from the references have a logical flow; that is, are they well organized?
2. Does the researcher “pull together” results and show their relevance to the research problem rather than state them as a series of individual and possibly isolated results?
3. Is there a summary or adequate closure to the review so that it does not conclude abruptly with the results of the final study referenced?
4. Does the review reflect the researcher’s understanding of how the results cited in the review are integrated and relate to the research problem or have implications for it?

The review of the literature is susceptible to technical errors. References may not be included in an acceptable format. A referenced study may be omitted from the bibliography. Errors may be made in the spelling of authors’ names and dates of publication.

Relevance to the research problem, organization, continuity across the studies reviewed, and closure are characteristics to be considered when evaluating the review of the literature.

Journal articles especially are limited in the number of possible references, so all or even the most relevant related studies may not appear in the review. Quite often, a reader is not even aware of what may be the most relevant studies. Thus, in terms of evaluating the
review, it is best to focus on what is there, not what might have been had other or additional studies been included.

**Methods or Procedures**

The methods or procedures section probably is the most crucial section when evaluating a report because from this section the reader must obtain an understanding of how the research was done. The research design may have weaknesses for the specific research, or, even worse, the design may be inappropriate for the research problem. Overall, this section should provide enough description so that the reader understands how the research was done, the specific procedures, and the sequence in which they occurred.

There are numerous questions that may be raised when evaluating the methods section, some specific to the type of research.

1. Are the data gathering (measurement) instruments described so that the variables are operationally defined? The validity and reliability of the instruments should be addressed. If a questionnaire was used, do the items have content validity? If a standardized test was used, was it appropriate for the situation and were reliability coefficients reported? In an experiment, was the experimental procedure consistent?

2. Are the data sufficient for testing the hypotheses or for addressing the research problem?

3. Is the design adequately identified, and was it appropriate? For example, if a $2 \times 4$ factorial was used, the two independent variables should be identified and be part of the research problem.

4. If sampling was used, is the sampling design described, was it appropriate, and was the number of subjects adequate? If a survey was conducted, is the return rate given? A serious flaw that can occur with reporting questionnaire studies is to fail to give the return rate, or to give it, but then ignore it if it was low.

5. Was the analysis appropriate for the hypotheses or research problem and the data collected? For example, an error may be analyzing data that are only ordinal level with statistical procedures that require interval or ratio level data. If statistical procedures were used, was there enough statistical power to test hypotheses with confidence? For example, in an experiment, does the number of subjects seem adequate?

6. As the research was conducted, does it appear to be free of confounding variables and other factors that may threaten the internal and external validity of the research? In the chapter on experimental research, several such factors were described. If an experiment was conducted in the school setting, for example, was it adequately free from extraneous factors so that the internal validity was not threatened?

7. Is the analysis described so that it is clear to the reader?

8. Does the methods section have adequate closure so that the reader has in mind a composite of how the research was conducted?
Evaluating the methods or procedures section is a process of focusing on the specifics of how the reported research was conducted, specifics of the instrumentation and data collection, design, and analysis.

Results

One of the major problems with many research reports is that the data are inadequately reported. For example, statistics such as means may be omitted or the means for groups may be given but no variance data are provided. So, the results should be checked for completeness relative to the analyses that were done and relative to results required to address the research problem.

Questions that may be raised when evaluating the results section are:

1. Are the results well organized, clearly identified, and presented so that there is no confusion? For example, are tables used appropriately and without "overloading" of information?

2. Are acceptable formats used for presenting results? If tables are used, are they titled adequately and presented with correct and clear headings?

3. Do the results follow from the analyses? For example, if hypotheses about means were tested, there should be information about t-tests or analyses of variance.

4. Are the results comprehensive? If hypotheses were tested, are there results for all hypotheses?

5. Is there adequate information about the conditions of the results such as the levels of significance used if hypotheses were tested? Are the results internally valid, that is, can they be interpreted with confidence?

6. Are the results free of confusing and unidentified symbols? There are conventional symbols widely used and these are appropriate, but if an author uses unique symbols they must be defined.

7. Does the results section have closure with some type of summary? For reports requiring an abstract, much of this statement may appear in the abstract.

The results should be presented clearly and follow directly from the analyses. They should be complete.

Conclusions, Recommendations, and Implications

The concluding section (sometimes called "Discussion") is the capstone of the research report. A major criterion for evaluating this section is that the conclusions follow from the
results, and any recommendations or implications are logical extensions of the conclusions. Additional issues or questions relative to this section are:

1. Are conclusions in fact conclusions and not simply a restatement of the results?

2. Is it clear which conclusions follow from which results?

3. Are possible limitations of the study identified and the results interpreted accordingly?

4. Is the issue of importance to education addressed? Some authors equate statistical significance with practical importance, and this may not be the case.

5. Is external validity or generalizability of the study addressed, and, if so, are the generalizations reasonable and based on the conclusions? Errors with this issue can take two directions. External validity may be ignored so the readers are left to make their own generalizations, or generalizations are given that are not justified by the results.

6. Are there recommendations for continued research, either addressing related research problems or the same problem with extended research?

7. Are the conclusions from the research tied in with research documented in the references? Are conclusions consistent with those of other researchers, and, if not, are possible reasons given for inconsistencies?

8. Does this section have a summary statement?

9. Is there adequate closure for the entire report?

Conclusions should follow directly from the results, and this section should address external validity of the research, as well as providing closure for the entire report.

Evaluating the major substantive sections of a research report has been discussed above. Other sections such as the reference list are relatively straightforward. The reference list should be complete and presented in an acceptable format. If all the references in the list are old, say none more recent than five or so years, a question may be raised about the recency of the references. Has research in this area been dormant and, if so, why? The author should address this question in the review of literature.

Abstracts usually are brief statements and should be clear and concise. If appendices are included, their content should be identified explicitly, and typically there is at least one reference to each appendix in the body of the report.

Overall Impressions When Evaluating a Report

There are many specific questions that can be raised when evaluating the sections of a research report but there also is the overall impression that impacts the quality of a report. Technically, a report should be "clean," that is, free of spelling errors, use accepted headings
and formats, and follow a logical organization. There should be adequate continuity and transition within and between sections so readers get a “complete picture” rather than the feeling of somewhat isolated parts.

Another pitfall of research reports is inappropriate editorializing. This may occur through an overuse of value-laden words such as important or interesting. There may be a tendency to pass off results as important just because the writer says so, rather than establishing the case for importance. The writing in the report should be complete, but also concise. Sometimes, with longer reports, the reader gets the feeling that “filler” is being included. Filler is content that, although not incorrect, adds nothing to the report in terms of substance or quality.

A report should be clearly written and readable. It should be free of unnecessary jargon. All professions have their technical language, and education is no exception, but the jargon should be used only to the extent that it is known and appropriate. Definitions should be provided as necessary, and any assumptions underlying the research and the conclusions drawn from it should be stated.

Overall, the reader should get a feeling of completeness and cohesiveness about the research report. The research should have implicit or explicit importance in the educational context. Although most researchers do not write best sellers, the report should have adequate style and format and be free of technical errors.

The Review Process for Journals

The evaluation of research reports is especially important when the research is considered for publication. Klausmeier (2001) described the range of review processes that journals require:

Some journals submit manuscripts to stringent review. They receive more manuscripts than they can accept because they are limited in the number of pages they can print yearly. These journals have high rejection rates. Other journals also review the manuscripts received and have firm page allocations; however, they receive fewer manuscripts and have moderate rejection rates. A feature of the preceding journals is that they do not charge authors for publishing their manuscripts. Other journals have relatively low rejection rates. Some of them have per-page or other charges and flexible page arrangements. The manuscripts received may have not been reviewed except by the journal editor. (p. 6)

An example of a typical review form for a journal is presented in Figure 5.1 (http://education.osu.edu/reached/eval-form.htm). This particular form is administered through the Internet. Note that care is taken to shield the identity of the reviewer. The Manuscript Evaluation Criteria for this journal are similar to the criteria for most other journals. Though not depicted in Figure 5.1, one important part of the form is the space for reviewer comments. These comments are usually returned to the author to help explain the basis of the ratings and to assist in revisions.

Suggested Disposition

- Accept with minor revisions. The ms requires specific revisions, but they are not substantial. Editors may decide to review the revised manuscript, or send it for re-review to the original review team.
FIGURE 5.1  Manuscript Evaluation Form for a Journal

Rehabilitation Education

Manuscript Evaluation Form

Manuscript number (for printed manuscripts enter 00)
Your rehabed username (e.g., rehabed999) [Do not use your real name]
Abbreviated manuscript title (up to 50 characters)
Please rate the manuscript on the following scale:

0 = The manuscript DOES NOT meet this criterion
1 = Manuscript is MARGINAL on this criterion
2 = Manuscript MEETS this criterion
3 = No opinion or does not apply

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<tr>
<th>RATING</th>
<th>MANUSCRIPT EVALUATION CRITERIA</th>
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<tbody>
<tr>
<td>0</td>
<td>The topic is of current interest</td>
</tr>
<tr>
<td>0</td>
<td>The article is prepared according to APA style</td>
</tr>
<tr>
<td>0</td>
<td>The article is based on a sound rationale</td>
</tr>
<tr>
<td>0</td>
<td>The literature review accurately reflects relevant literature</td>
</tr>
<tr>
<td>0</td>
<td>The research design is sound and appropriate</td>
</tr>
<tr>
<td>0</td>
<td>The data analysis is appropriate and done correctly</td>
</tr>
<tr>
<td>0</td>
<td>Conclusions are based on correct interpretation of the data</td>
</tr>
<tr>
<td>0</td>
<td>The article has appropriate implications for rehabilitation educators</td>
</tr>
<tr>
<td>0</td>
<td>The article is readable and generally well written</td>
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</tbody>
</table>

- Reject but invite resubmission. The ms requires significant revision and cannot be accepted, but the authors should be encouraged to revise and resubmit, or send it for re-review to the original review team.
- Invite resubmission as Gray Matter, Teaching Tip, Research Tip, and so on. (Content is of interest but not a research ms.)
- Reject. The authors need to totally rework the manuscript. The editors may invite submission as a new manuscript, which will then be sent to a new review team.
- Reject due to lack of fit with Rehabilitation Education. Submit to another journal. Type the suggested journal here ____________________________
- Reject. The manuscript appears not to be publishable, even with major revisions.

Please send additional comments by either attaching a document to an e-mail message and by including the comments directly in the body of the e-mail message. Send the e-mail to rehabed@osu.edu.

Standards for Publications

The American Educational Research Association has published a set of standards for AERA publications (2006) that applies to both quantitative and qualitative research studies. Its primary
audiences for the standards are those who wish to publish in AERA journals and those who serve as reviewers for those journals. The standards for publication actually apply very well to all research reports, whether or not they are submitted for publication. The standards could just as easily have been presented in the preceding chapter because they were written for those writing research reports and those who review those reports. Their placement here was arbitrary.

Two principles underlie the standards:

First, reports of empirical research should be warranted; that is, adequate evidence should be provided to justify the results and conclusions. Second, reports of empirical research should be transparent; that is, reporting should make explicit the logic of inquiry and activities that led from the development of the initial interest, topic, problem, or research question; through the definition, collection, and analysis of data or empirical evidence; to the articulated outcomes of the study. (p. 33)

The standards are divided into eight general areas with specific standards for each area. The following is a shortened and somewhat paraphrased listing of the standards:

**Problem Formulation**

1.1 The problem formulation should provide a clear statement of the purpose and scope of the study.

1.2 Reporting should make clear how the study is a contribution to knowledge.

1.3 Reporting should include a review of the relevant scholarship that bears directly on the topic of the report.

1.4 The rationale for the conceptual, methodological, or theoretical orientation of the study should be described and explained.

1.5 The rationale should be provided for the problem formulation as it relates to the group studied.

**Design and Logic of the Study**

2.1 Research reporting should follow a clear logic of inquiry that allows readers to trace the path from the statement of the problem, to the review of the relevant scholarship, to the research questions, to the description of the site and participants, to the methodology guiding collection and analysis of evidence, to the interpretation and presentation of outcomes and understandings gained from the research process.

2.2 There should be a specific and unambiguous description of the design.

**Sources of Evidence**

3.1 The units of study (sites, groups, participants, events, or other units) and the means through which they were selected should be adequately described.

3.2 The collection of data or empirical materials should be clearly described, including how and when they were gathered, by whom, and for what purposes.

**Measurement and Classification**

4.1 The development of measurements and classifications should be clearly described.

4.2 Any classification scheme should be comprehensively described and illustrated with concrete examples.
4.3 When measurement is entailed, reporting should describe data elements and organization in a specific and unambiguous way.

4.4 When transcriptions of audio- or video-recordings are provided, the conventions and symbols used to represent the discourse or characterize the actions or interactions should be clearly described.

4.5 A rationale should be provided for the relevance of a measurement or classification as capturing important characteristics where questions about appropriateness might arise.

**Analysis and Interpretation**

5.1 The procedures used for analysis should be precisely and transparently described.

5.2 Analytic techniques should be described in sufficient detail to permit understanding of how the data were analyzed.

5.3 The analysis and presentation of the outcomes of the analysis should make clear how they support claims or conclusions drawn in the research.

5.4 Analysis and interpretation should include information about any intended or unintended circumstances that may have significant implications for interpretation of the outcomes, limit their applicability, or compromise their validity.

5.5 The presentation of conclusions should (a) provide a statement of how claims and interpretations address the research problem; (b) show how the conclusions connect to support, elaborate, or challenge conclusions in earlier scholarship; and (c) emphasize the theoretical, practical, or methodological implications of the study.

With quantitative methods, standards 5.6 to 5.10 apply:

5.6 Reporting should clearly state what statistical analyses were conducted, describing them in enough detail that they could be replicated by a competent data analyst.

5.7 Descriptive and inferential statistics should be provided for each of the statistical analyses.

5.8 Any considerations that arose during data collection and processing that might compromise the validity of the statistical analysis or inferences should be reported.

5.9 Any considerations that are identified during the data analysis that might compromise the validity of the statistical analyses or inferences should be reported.

5.10 For each statistical result, it is important to include (a) an index of the quantitative relation between variables, (b) an index of uncertainty, (c) the test statistic and significance level, and (d) a qualitative interpretation of the effect.

With qualitative methods, standards 5.11 to 5.14 apply:

5.11 The process of developing the descriptions, claims, and interpretations should be clearly described.

5.12 The evidence that serves as a warrant for each claim should be presented.

5.13 Practices used to develop and enhance the warrant for the claims should be described, including a search for disconfirming evidence and alternative explanations.

5.14 Interpretive commentary should provide a deeper understanding of the claims.
Generalization
6.1 It is crucial to make clear the specifics of the participants, contexts, activities, data collections, and manipulations involved in the study.
6.2 The author should make clear the intended scope of generalization of the findings of the study.
6.3 The author should make clear the logic by which the findings of the study should apply within the scope of generalization.

Ethics in Reporting
7.1 Ethical considerations involved in data collection, analysis, and reporting should be explicitly addressed.
7.2 Reporting on research should be done in a way that honors consent agreements.
7.3 Reporting should include a description of any potential conflict of interest or biases of the researcher.
7.4 Reporting of research should be accurately stated.
7.5 Data or materials should be maintained so that a qualified researcher could reproduce the analysis or trace the trail of evidence.
7.6 Funding support should be acknowledged in a publication note.

Title, Abstract, and Headings
8.1 The title should clearly convey what the article is about.
8.2 The abstract should provide a summary of the article that is self-contained, concise, and accurate.
8.3 Headings and subheadings should make clear the logic of inquiry underlying the report.

The Evaluation of Proposals

Chapter 4 included the preparation of research proposals, and comments are made here about the evaluation of proposals. A proposal for graduate study research (dissertation or other) typically is reviewed by a professor or a committee of professors. The usual criteria of a relevant problem, evidence of knowledge in the area, appropriate methodology, and good continuity apply when a proposal is reviewed. Funding agencies also develop criteria for the evaluation of proposals, and these often appear in guidelines for proposal preparation.

Evaluation criteria of funding agencies are quite general and similar across agencies. Except for special criteria, such as the reasonableness of the budget, the evaluation criteria of funding agencies are similar to those for any proposal, including a dissertation proposal. The evaluation focuses primarily on two issues: (1) the significance of the proposed research and (2) the quality of the proposed research. The following issues are considered in evaluating proposals relative to those two characteristics.
Significance of the Proposed Research
1. Contribution to basic knowledge relevant to the solution of educational problems
2. Contribution to educational theory
3. Contribution to the development of methodological tools, either for educational practice or research
4. Contribution to the solution of educational problems, either long-range or short-range
5. The potential generalizability of anticipated results
6. The potential of anticipated results to influence the improvement of educational practice

Quality of the Proposed Research
1. The extent to which the writer shows a thorough knowledge of relevant prior research
2. The extent to which prior research is related to the proposed research
3. The comprehensiveness and appropriateness of the research design
4. The appropriateness of the instrumentation and the methodology
5. The appropriateness of the anticipated analyses
6. The likelihood that the proposed research can be completed successfully as described

Funding agencies usually consider the qualifications of the principal investigator and other research project staff, and they may require a statement about facilities and resources available to the researcher. The reasonableness of the budget has already been mentioned. However, this characteristic usually receives few points, because budgets can be negotiated if they do not seem appropriate to fiscal officers of the funding agency.

Implicit criteria also are applied in evaluating any proposal. The writing should be technically correct and neat. The content of the proposal should be well organized, and there should be good continuity from section to section and within sections. Generally accepted formats, including sizes of margins and spacing, should be followed.

The preparation of a good research proposal is no small task and internal evaluation should be a part of that preparation. When submitting a proposal to a funding agency, it is important to follow the proposal preparation guidelines of that agency. Some agencies do not have guidelines; they will accept any standard format. Private foundations and funding programs within large agencies often fund projects for specific purposes or only in certain areas. It is important to be aware of these limitations; there is little point in submitting proposals that do not correspond to agency interest.

The evaluation of research proposals focuses on two major issues: (1) the significance of the proposed research and (2) the quality of the proposed research.

The review process for proposals is often based on explicit criteria with a certain number of points allowed for each criterion. Figure 5.2 illustrates a typical rating form for proposals. This particular form was used for a Request for Proposals (RFP) to conduct research on teacher education/teacher training in Canada, but the evaluation criteria are the same for most proposals (Canadian Education Statistics Council, 2001).
### FIGURE 5.2 Proposal Evaluation Form

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<tr>
<th>Evaluation Parameters</th>
<th>Evaluation Criteria</th>
<th>Score</th>
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| 1. Comprehension/understanding of project  | - General understanding—comprehends essential aspects of the project  
- Needs identification—recognizes challenges/potential problems in the project  
- Solutions identification—provides creative and insightful, yet feasible, solutions to challenges/problems | 25    |
| 2. Methodology and project administration  | - Suitability and soundness of methodology—provides high probability of accomplishing study objectives  
- Technical integrity—based on good research design principles | 25    |
| 3. Relevance                               | - Applicability of findings to policy and practice—findings address policy questions/issues and/or other pertinent issues related to the five priority subject areas in the RFP | 25    |
| 4. Qualifications and experience           | - Education/technical expertise—demonstrates knowledge and expertise required to undertake the project  
- Experience—demonstrates experience in the field of study under consideration | 10    |
| 5. Budget                                  | - Budget—adequate but realistic, given amount of work involved | 10    |
| 6. Overall assessment                      | - Strategy—proposal provides superior strategy for accomplishing goals of the project  
- Style—clear and concise writing, carefully edited, well-presented concepts, attractive and easily understood layout  
- Overall quality of proposal—provides overall impression that adequate care, attention to detail, and effort went into the planning and creation of the proposal | 5     |

**Total** | **100**

### Summary

Anyone involved in educational research, sooner or later, and usually sooner, finds it necessary to read research reports about the area of research. In doing so, evaluations are made about the reports and the research on which the reports are based. There is a variety of types of research reports, but certainly one of the major sources for research information is the professional periodical literature.
When evaluating research reports we focus on (1) the content and quality of the individual sections and (2) the overall report, its comprehensiveness, continuity, and so on. Substantive errors, such as an inappropriate design, tend to be more serious than technical errors, such as a misspelled word. Usually, careful editing can eliminate technical errors. Substantive errors are more difficult to deal with and may invalidate the research study.

The criteria for judging the quality of research reports may imply that the writing style has to be mechanical and that the format is dictated. Although a common format makes reading the reports easier because the reader will know where to find certain information, the important thing is that the information is included somewhere and can be easily understood by the reader. The writing style should be one that flows well with smooth transitions between sections. The research report is a means for communicating with target audiences. As such, the emphasis should be on helping the reader understand the research rather than on making the writer look impressive.

The first five chapters have focused on the research process, from developing a statement of the research problem all the way to writing the report of the completed research. The next set of chapters is about the various research designs that are commonly used in educational research. The emphases are on understanding the strengths and weaknesses of the different designs and on selecting the appropriate design for addressing the research problem. Terms that have been used in a general way, such as experimental research and ethnography, will now be explained in detail. Our goal is to fill the beginning researcher’s toolkit with research approaches that will fit most research questions.

**KEY CONCEPTS**

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<tr>
<th>Technical errors</th>
<th>Broad deficiencies</th>
<th>Inappropriate editorializing</th>
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<tbody>
<tr>
<td>Substantive errors</td>
<td>Significance of research</td>
<td>Standards for publication</td>
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**EXERCISES**

5.1 Suppose you are reviewing an article about a study involving survey research. Give examples of two substantive errors that might occur in such an article.

5.2 Identify two substantive errors that may occur in an article about experimental research. In the reported research, college sophomores serve as subjects in a physical performance experiment. Both genders participate. The independent variable of primary interest is the level of training with three different training routines.

5.3 Use Research Navigator to locate an article that reports on research in your area of interest. Evaluate the article using the applicable questions of this chapter. List any deficiencies you find in the article.

5.4 A research article was titled “Johnny’s Big Struggle.” Explain why the title, although intriguing, is inadequate as a title.

5.5 The AERA Standards for Publications (2006) state that research should be warranted and transparent. Explain what is meant by these two terms.
5.6 A major criterion used for evaluating research proposals is that the research should be significant. Explain in your own words what would make the proposed research significant.

NOTES


REFERENCES


