REVISITING THE REPLICABILITY OF MARKETING RESEARCH:
REPORTED CONTENT AND AUTHOR COOPERATION
EIGHTEEN YEARS LATER

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ABSTRACT

This study replicates Madden, Franz, and Mittelstaedt’s (1979) research on reported content and author cooperation. Results indicate that the amount of reported content has increased for constructive replication, but not for operational replication; and author attitude toward replication and willingness to cooperate has changed little over the past eighteen years.

INTRODUCTION

The importance of replication to the scientific advancement of a field is well established. According to Reid, Soley, and Wimmer (1981), one of the principal foundations of the scientific method is that the results are replicable. Replications allow a field of study to have confidence in its empirical foundations (Hubbard and Vetter 1992). In the late 1970s and early 1980s, the issue of marketing research replication emerged as a pertinent topic in academic discussions as revealed in its increased importance in scholarly journals and conferences.

At the 1976 AMA Educator’s Conference Brown and Coney reported the results of their content analysis, indicating that few replications were undertaken in marketing, which demonstrated a bias in the reward structure toward studies searching for answers to newly emerging questions. Similar to Brown and Coney’s (1976) results, Reid, Soley, and Wimmer (1981) found that few advertising research replications were actually published in scholarly journals.

At the 1979 AMA Educator’s Conference Madden, Franz, and Mittelstaedt (1979) presented a content analysis of conference proceedings which suggested that reporting habits of many marketing scholars precluded replication and revealed that discussions of methodology were inadequate for conducting a replication. In other words, to replicate most conference papers researchers must write to authors asking for details. Madden, Franz, and Mittelstaedt (1979) followed their content analysis with a survey asking authors if they would comply with a request for more information about the study and questioning their agreement on whether replication is important to the advancement of the field. Twenty-nine of the sixty authors (49%) surveyed stated that they would supply further detail. Reid, Rotfeld, and Wimmer (1982) conducted a similar study, except they wrote to authors of specific journal articles, disguising their request as one from a graduate student, and asked for data and details about the authors’ studies. Forty-nine of the ninety-nine authors (49%) contacted complied with the request for study data and details. The similarity in results seemingly validates Madden, Franz, and Mittelstaedt’s (1979) method.

It appears that since 1976, more applied replication studies have been published in the leading academic journals (Akaah and Riordan 1989; Chan, Yau, and Chan 1990; Lim, Olshavsky, and Kim 1988; Maddox 1981; Stern and Resnik 1991; Stewart and Koslow 1989; Weinberg and Winer 1983). Others have also discussed the importance of replication research to the testing of theories (Monroe 1992a; Monroe 1992b). More recently, researchers have conducted Bayesian analyses of inductive inference to assess the value of replications (Raman 1994).

Despite the increase in published replications over the past twenty years, the total number published in the functional areas of business ranges from 9.7 percent (54 published replications and extensions of 556 empirical journal articles) in finance to 2.9 percent (33 published replications and extensions of 1,139 empirical journal articles) in marketing (Hubbard and Vetter 1992; Hubbard and Vetter 1996). Of those that are published, the majority of replications (approximately 65% or 60 of 92 journal articles) conflict with previous findings. As argued by Hubbard and Vetter (1992; Hubbard and Vetter 1996), because about 20 percent (19 of 92 journal articles) of replications fully support past results, a field’s empirical findings may not be useful in guiding business theory and practice. These findings support the usefulness of replication in establishing the accuracy of marketing’s empirical foundation.

Eighteen years ago, Madden, Franz, and Mittelstaedt (1979) found that to replicate most conference papers readers must write to authors asking for details. When asked to supply further detail, many authors appeared hesitant. Since 1979, marketing literature has continued to emphasize the important role of replications in research. After eighteen years of advancement as a field, reporting practices should have improved in that mar-
Marketing researchers should be supplying greater methodological detail in their conference papers. Also, attitudes toward supplying information to other researchers for the purpose of replication should be more favorable than they were eighteen years ago.

Given that many research articles over the past eighteen years have been devoted to reiterating and demonstrating the importance and usefulness of replication, one would conclude that many of the results from the 1970s addressing the extent of replication, the availability of reported content, and author cooperation are not valid today. The purpose of this paper is to replicate the study of Madden, Franz, and Mittelstaedt (1979) by conducting a content analysis of reported results in assessing the availability of information for replication, and examining author cooperation and opinions about the practice of replication. Madden, Franz, and Mittelstaedt's (1979) results are compared to those obtained in this study to investigate the historical change of reported content and author cooperation in marketing.

Replication

To better understand replication it is necessary to define it. However, as many researchers have argued, replication lacks a precise definition. Mittelstaedt and Zorn (1983) referred to replication as "an attempt to test the consistency of a relationship among two or more variables under similar or predictably different conditions" (p. 10). Hubbard and Vetter (1992) define replication as "a substantial duplication of a previously published empirical research project that is chiefly concerned with increasing the internal validity of the research design" (p. 29). A replication with extension, on the other hand, is a duplication of previous research with intent of increasing the external validity of the research design (Hubbard and Vetter 1992). Replication is best understood through a descriptive typology of its different forms, each of which is defined according to its unique purpose.

Many researchers have developed classification schemes for the different types of replications, including Kane (1984) and Kelly, Chase, and Tucker (1979). However, most classifications were originally grounded in Lykken's (1968) categorization.

Lykken (1968) distinguished between three classes of replication. (a) Literal replication precisely duplicates the original study's sampling procedures, measurement techniques, experimental conditions and methods of analysis. (b) In operational replication, the replicator uses the same format as the original researcher, following it closely. The researcher tests whether or not a study will produce similar results, which is important because findings may come about solely based upon conditional circumstances such as given directions influencing participants' responses. (c) Constructive replication purposely deviates from the original study's format to verify its findings in a distinctly separate manner; confidence in a relationship can be increased by demonstrating its existence through different measurement techniques and the use of unique samples.

Madden, Franz, and Mittelstaedt (1979) argue that (a) literal replication is not possible; (b) operational replication requires considerable methodological detail to be reported (or available); and (c) constructive replication requires, minimally, enough reported detail to be able to judge "effect size." In order to conduct a replication for purposes of generalizing the findings, full reporting is necessary to provide a researcher with enough detail to conduct constructive replication and securely compare its results with those of the original. If a researcher wishes to test the predictions derived from a model or its methodologies, he/she needs substantially more detailed information about the original study's methods. Thus, Madden, Franz, and Mittelstaedt (1979) conducted a two-stage content analysis of replication to examine the possibilities of constructive and operational replication. This study replicates that process.

CONTENT ANALYSIS

Method

Ten research papers were selected from the proceedings of the 1994, 1995, and 1996 Summer American Marketing Association Educator's Conference and the Association for Advances in Consumer Research Annual

EXHIBIT 1

Lykken's Three-Category Classification of Types of Replication

| Literal Replication: exact duplication of original study |
| Operational Replication: follow similar format to produce similar results |
| Constructive Replication: verify findings through a different means |

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Conference, resulting in a total of sixty papers for the sample. According to Madden, Franz, and Mittelstaedt (1979), despite the fact that scholarly journals contain more studies suited for replication, the details reported in the published manuscript often are a reflection of editorial policies and not the individual author’s reporting style. Even though acceptance into conference proceedings is competitive, their publication without an editorial policy is more “reflective of our collective habits as researchers and writers” (Madden, Franz, and Mittelstaedt 1979, p. 80).

Based on their methodology, an instrument was developed (described below) to assess the reported detail necessary to facilitate both constructive and operational replication. Details necessary to allow constructive replication involved judging the following items (based on the following scale):

A. Methodological details, which included, at minimum, an approximate description of the population sampled and the instrument used to collect and record data.

B. Effect size, which included, at minimum, the name of the statistic used, alpha level and sample size, or power estimate.

C. Problems and limitations, which included, at minimum, some discussion of factors which limit generalizability of findings.

Details necessary for operational replication were assessed by splitting the papers into experimental and non-experimental studies and applying the following criteria:

**Experimental Studies**

- Precisely Stated
  - data collection instrument
  - scoring method
  - instructions to subjects
  - procedures followed
  - treatment assignment method

- Approximately Stated
  - setting
  - props used

**Non-Experimental Studies**

- Precisely Stated
  - data collection instrument
  - scoring method

- Approximately Stated
  - population sampled
  - respondent selection method
  - instructions to respondents

For both constructive and operational replication, each item was judged to be:

- **Precisely stated**, capable of being deduced unambiguously, in reproducible detail

- **Approximately stated**, the reader could tell what had been done but would not be able to exactly reproduce it without further detail

- **Not stated**, although it should be expected to be covered within the report

- **Not applicable**, for example, describing the assignment method in a non-experimental study

One independent judge reviewed sixty papers and a second randomly critiqued ten of those sixty. One paper was excluded because its author was already represented in the sample. Similar to Madden, Franz, and Mittelstaedt (1979), the judges reached agreement 93 percent of the time. Most disagreements occurred between the precisely and approximately-stated categories and were resolved by discussion.

**RESULTS**

**Constructive Replication**

Table 1 presents the results of the assessment of details allowing for constructive replication. It provides the number of papers which were accorded to have the required items.

When the criteria were applied in a consecutive fashion, so that only the studies possessing enough methodological detail and effect size were considered, forty-one studies contained a sufficient amount of both methodological detail and effect size information. When the problems and limitations criteria were included, only eighteen studies met the standard for allowing constructive replication.

**Operational Replication**

To assess operational replication, a paper was judged as inadequate if the required amount of information was not reported. The results indicate that only three of the thirty-one experiments supplied adequate informational details. On average, the number of missing items was 3.5 (maximum of seven items). Two of the twenty-eight non-experimental studies had an adequate amount of information. On average, 2.6 (out of a possible of five items) were missing.

Although the results do not appear promising (a discussion follows), a comparison with Madden, Franz, and Mittelstaedt’s (1979) findings demonstrates that the reported content has changed over the last eighteen years. It should be noted that the original study’s findings were based on a sample size of forty-nine (constructive replication) and fifty-seven (operational replication) and this study on a sample of fifty-nine for both types of replication; thus, results are compared using percentages.
TABLE 1
Information Criteria for Constructive Replication

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Studies Possessing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodological details, at minimum an approximate description of the population, data instrument;</td>
<td>44</td>
</tr>
<tr>
<td>Effect size, at minimum the name of the statistic used, alpha level and sample size, or power estimate;</td>
<td>53</td>
</tr>
<tr>
<td>Problems and limitations at minimum some discussion of factors which limit generalizability of findings;</td>
<td>20</td>
</tr>
</tbody>
</table>

In regard to constructive replication, the percentage of reported information in this study was greater than Madden, Franz, and Mittelstaedts' (1979). The methodological details were available in approximately 74 percent of the studies, compared to 59 percent previously. The effect size reflected that 89 percent of the studies reported a sufficient amount of information, compared to 34 percent originally. The problems and limitations increased 17 percent, up from 16 percent in the original study to 33 percent in the replication.

For operational replication, 9 percent of the experimental studies supplied an adequate amount of information, measurably greater than Madden, Franz, and Mittelstaedts' results of 0 percent. Similarly, approximately 7 percent of the non-experimental studies supplied an adequate amount of information; this is also larger than Madden, Franz, and Mittelstaedts' findings of 0 percent.

AUTHOR WILLINGNESS TO SHARE METHODOLOGICAL DETAILS

Method

On November 15, 1996, a one-page questionnaire was mailed to the first author of each paper included in the sample of fifty-nine selected papers. A cover letter introduced the survey, briefly describing the content analysis and citing the article used in the research sample. The questionnaire introduced a scenario in which a researcher wrote the author asking for details about the cited article. The author was asked if he/she would provide sufficient detail to permit replication ("A

TABLE 2
Constructive Replication: A Comparison of the Percentage Results of the Original and Replication

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Original</th>
<th>Replicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodological details</td>
<td>59.18%</td>
<td>74.57%</td>
</tr>
<tr>
<td>Effect size</td>
<td>34.69%</td>
<td>89.83%</td>
</tr>
<tr>
<td>Problems and limitations</td>
<td>16.32%</td>
<td>33.90%</td>
</tr>
</tbody>
</table>

TABLE 3
Operational Replication: A Comparison of the Percentage Results of the Original and Replication

<table>
<thead>
<tr>
<th></th>
<th>Original</th>
<th>Replicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate Experimental Studies</td>
<td>0.00%</td>
<td>9.68%</td>
</tr>
<tr>
<td>Adequate Non-Experimental Studies</td>
<td>0.00%</td>
<td>7.14%</td>
</tr>
</tbody>
</table>
researcher writes to you asking for details regarding your study mentioned in the cover letter. He/she intends to replicate this study. Would you be willing to provide the information requested?""). A second question followed, asking the author’s opinion on the importance of replication ("Is replication important to the development of the discipline of marketing?"). An open-ended question, inquiring about the respondent’s experiences with replication or his/her comments on the subject ("Please provide any comments about or explain your experiences with replication."), concluded the survey.

The directions on the survey emphasized that the request did not ask for the original study’s raw data. Thus, agreement to supply further detail for purposes of replication would not encompass volunteering raw data to another researcher.

Results

Forty-three responses were received by December 31, 1996, and three questionnaires were returned as non-deliverable. As Madden, Franz, and Mittelstaedt (1979) argued, because the survey was brief (a minimal response required two check marks and the survey’s placement in a self-addressed, stamped envelope), "one can only speculate why fourteen authors chose not to respond" (p. 82), and treated them as refusals. A similar stance was taken here.

Three respondents did not agree that replication is important to the development of the discipline. Of those three, one qualified his/her statement by saying that replication’s only value is in the discovery of moderator variables.

Twenty-nine respondents unconditionally agreed to supply further information to another researcher. Thus, twenty-nine authors would provide enough detail to permit replication. Of that twenty-nine, one stated that he/she would even supply the raw data.

Interestingly, Madden, Franz, and Mittelstaedt (1979) found that twenty-nine of the sixty authors (49%) surveyed indicated that they would comply with a request for further information. When Reid, Rotfeld, and Wimmer (1982) actually solicited data and details from researchers, forty-nine of the ninety-nine (49%) originally contacted actually complied. This study’s results support previous findings and seemingly support the method of Madden, Franz, and Mittelstaedt (1979) in that twenty-nine of the fifty-nine authors (49%) surveyed replied that they would adhere to a request for more information.

None of the respondents unconditionally refused to supply detail, and fourteen of the authors were willing to supply further information under certain circumstances. The most frequently checked restrictions were as follows (the first being the most cited): (a) the author wanted to know more about the motives and qualifications of the researcher; and (b) the materials requested are no longer available or are too hard to find and reassemble. One respondent indicated that he/she wanted an inducement to cooperate. (Only one author checked more than one qualification.)

Approximately half (19/43) of the authors answered the final, open-ended question ("Please provide any comments about or explain your experiences with replication."). The most frequently given response was that there are no incentives for replication; replication studies are rarely published, unless they include an extension. The lack of incentive is pertinent given that the second most recurrent comment was regarding the importance of replications in providing strong support for theories. In fact, one author suggested that every graduate student ought to conduct two replication studies during his/her course work to gain a better understanding of the discipline's domain. Other comments argued that: a researcher who does quality work should not be threatened by replication, and that if the replication was necessary and interesting, the original author may ask to participate. One author lamented that he/she has replied to multiple requests for information, receiving only one thank you letter for his/her efforts.

Author Cooperation

This study's results on author cooperation are similar to those detailed by Madden, Franz, and Mittelstaedt (1979). With respect to agreeing that replication is important to the advancement of the discipline, Madden, Franz, and Mittelstaedt (1979) had only one dissenting response, while this study had three. Madden, Franz, and Mittelstaedts' results indicate that 53 percent of the authors agreed to provide sufficient detail for replication, compared to 67 percent in this study. Compared to the one person that volunteered his/her data in this study, Madden, Franz, and Mittelstaed had five who offered. Approximately 36 percent of Madden, Franz, and Mittelstaedts' respondents were unwilling or qualified their willingness to share results, compared to 33 percent of the authors in this study. The most frequently-checked qualifications differed for the original study and the replication (see Exhibit 2).

For Madden, Franz, and Mittelstaedt (1979), one respondent declared a willingness to provide more information "to those who would pay an undisclosed, but presumably negotiable, amount" (p. 83). For this study, only one respondent indicated that he/she wanted an inducement to cooperate, and qualified that with a statement that it has taken him/her over twenty-hours to "assimilate (sic)" information for a single request.
EXHIBIT 2  
Most Frequently Checked Qualifications of the Original and Replicated Study

**Original**
1. Methodology was the proprietary right of another party
2. Materials requested were no longer available or were too hard to find and assemble
3. Individual would want to know more about the motives/qualifications of the researcher
4. Individual would want some inducement to cooperate

**Replication**
1. Individual would want to know more about the motives/qualifications of the researcher
2. Materials requested were no longer available or were too hard to find and assemble
3. Individual would want some inducement to cooperate

**CONCLUSION**

Madden, Franz, and Mittelstaedt (1979) derived three conclusions from their study, which are reiterated by this researcher. First they noted that “there appear to be many negative attitudes toward replications and replicators, even among those who accept the practice as necessary” (p. 83). Despite a history of substantial literature on replication, an attitude of reservation has persisted over the last eighteen years. Most authors agree that replication is important to the advancement of the discipline, but when they must provide details about their studies to accomplish replication, many are unwilling to do so without reservation. Of those authors possessing reservations, most wanted to know more about the motives and qualifications of the person requesting the information. This concern reflects the belief that replication’s purpose is “to ferret out those of less than perfect intellectual honesty” (Madden, Franz, and Mittelstaedt 1979, p. 83). In fact, as one author replied to the survey’s third question, “a researcher who produces quality work should not be threatened by replication.” This view represents the widely-held perception of replication as a means of retesting original research in search of revealing a procedural blunder or deception.

Second, Madden, Franz, and Mittelstaedt (1979) stated that “present reporting practices make operational replication almost impossible” (p. 83), a conclusion with which this study concurs. The results of the content analysis for constructive replication demonstrate that the amount of reported information has increased in the last eighteen years, which is promising. For example, a larger percentage of authors now report the problems and limitations encountered in their research. However, the reported information necessary for operational replication is still under-represented. In support of Madden, Franz, and Mittelstaedt’s’ (1979) conclusions, many papers failed to report a detailed description of their measurement instruments, instruc-

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that the field should devote 15 percent of journal space to replications. Each journal could include a separate replications and extensions section or create an annual (or biannual) special issue devoted to such research.

In 1979, Madden, Franz, and Mittelstaedt found that most conference papers were not reporting a sufficient amount of detail to complete a constructive and/or operational replication. Over eighteen years later, reporting practices of methodological detail have appeared to improve in that more authors are reporting sufficient detail to permit constructive replication. However, reporting practices have not significantly improved for purposes of operational replication. Attitudes toward providing details for purposes of replication have also changed little over time.

In conclusion, it appears that the applied and theoretical articles, published to date, which confirm the importance of replication, have had little impact on the perceived role of replication in advancing marketing knowledge. This study's results on reported content and author cooperation show little change from those found over eighteen years ago by Madden, Franz and Mittelstaedt (1979). The field must take measures such as creating a professional standard advocating replication, implementing a proper reward structure, and supporting a replication tradition for the literature on replication to influence marketers.

This study could be strengthened and extended in a number of ways. The responses to the second question on the survey, asking authors if replication is important to the development of the discipline of marketing, could have been subject to a social desirability bias. Only three of the forty-three respondents did not agree that replication is important to the development of the field. The forty respondents that agreed may have given socially desirable responses. Another limitation of this study is that one judge reviewed all sixty papers and a second randomly critiqued ten of those sixty. Lastly, because it is more likely that journal articles will be replicated by marketers, a possible extension of this study would include requesting information from authors of journal articles and inquiring on their opinions of replication.

REFERENCES


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