

Conducting Marketing Science: The Role of Replication in the Research Process

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The role of replication in marketing research has been a tenuous one, at best. On the one hand the prevalent perceived bias against replication research has deployed more research effort into the process of theory generation. On the other hand, theory development and refinement have suffered from the lack of an explicit replication tradition in research. At various times through the history of social science, reminders have appeared in the literature for an increased emphasis on replication. In principle, most researchers agree that replication is a necessary ingredient for knowledge advancement in a discipline, but, in reality, few strict replication studies have been published. Many factors account for the apparent lack of interest toward conducting replication research, including a perceived lack of importance or creativity in such studies and a perception of editor and reviewer bias against such studies. We maintain that much of this bias may be rooted in a misunderstanding of the role of replication in the research process. The belief that replication can be extricated from the research process, let alone be optional, is a sign of misunderstanding both the nature and process of science. Thus, the purpose of the present study is threefold. First, we discuss replication research and its relationship to the advancement of knowledge. Next, we discover the replication process in the context of publishing. Finally, a prescription for the conduct of replication research is provided that attempts to explicate the conditions necessary to promote a replication tradition in marketing research. J BUSN RES 2000. 48:83–92. © 2000 Elsevier Science Inc. All rights reserved.

There is no more fundamental requirement in science than that the replicability of findings be established.—Seymour Epstein (1980)

In 1963, Campbell and Stanley stated that, “. . . We must increase our time perspective, and recognize that continuous, multiple experimentation is more typical of

science than once-and-for-all definitive experiments. The experiments we do today, if successful, will need replication and cross-validation at other times under other conditions before they can become an established part of science, before they can be theoretically interpreted with confidence” (1963, p. 3). Since Campbell and Stanley’s call for a replication tradition in social science research, replication and its role in the conduct of scientific inquiry has been the object of considerable discussion in the social science literature (Bornstein, 1990a, 1990b; Brown and Coney, 1976; Brown and Gaulden, 1982; Epstein, 1980; Greenwald, 1975; Leone and Schultz, 1980; Lykken, 1968; Madden, Franz, and Mittelstaedt, 1979; Mahoney, 1987; Mittelstaedt, 1981; Mittelstaedt and Zorn, 1984; Monroe, 1991, 1992; Neuliep and Crandall, 1990; Reid, Soley, and Wimmers, 1981). Discussion has primarily centered on calls for the need for replication research and attempts to catalog the extent that replication studies are represented in the literature. The primary conclusion drawn from these studies is that a paucity of studies exist in the extant consumer/marketing research literature that have attempted to replicate previous work. Consequently, the literature is replete with one-shot studies of phenomena whose veracity is unquestioned and whose findings are disseminated as implicit laws. If the goal of science is to produce universal truths, inherent to this goal is the task of adequate theory development and refinement, in which the criterion of reproducibility should be inextricably intertwined.

This paper attempts to synthesize and integrate disparate schools of thought regarding the issues of replication in the research process in advertising, consumer, and marketing research. We argue that replication research, although not having received favorable consideration over time by academicians in the social sciences, is essential to the conduct of good science. Negative connotations are associated with the term “replication research,” which stem from confusion in the litera-

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ture as to what a replication actually encompasses. Consequently, clarification of replication and its role in experimentation is given. The outline of the paper is as follows. First, we discuss replication research and its relationship to the advancement of knowledge. Next, we discuss the replication process in the context of publishing. Finally, a prescription for the conduct of replication research is then provided that attempts to explicate the conditions necessary to promote a replication tradition in marketing research.

Replication Research and the Advancement of Knowledge

Replication Research and External Validity

The salience of external validity to social science research was first explicated by Campbell and Stanley (1963) and expounded on by Cook and Campbell (1979). External validity's importance to the research process is unquestioned. However, an article by Calder, Phillips, and Tybout in the marketing research literature ignited debate concerning the role of external validity in theory development (Calder, Phillips, and Tybout, 1981, 1982, 1983; Lynch, 1982, 1983). McGrath and Brinberg (1983) provide a synthesis of the debate, along with an interpretation of it within the context of their validity network schema.

External validity refers to the generalization of findings to other well-specified populations or generalization of findings across subpopulations that may not be specifiable (Cook and Campbell, 1979). In Cook and Campbell's distinction, the former situation is an "applications" form of external validity; whereas, the latter is more concerned with the external validation of cause-and-effect relationships in the study. It is this latter form of external validity that replication research aspires to in order to contribute to theory refinement.

The Natural versus Social Science Dichotomy

Many factors serve to differentiate the natural and social sciences with respect to replication research and replicability of results, not the least of which are the differences among journals and their perspectives on publishing. A useful task would be to classify these differences; Bornstein (1990a) has done this by outlining his perceptions of the major differences between the two disciplines. For example, in the natural science journals:

1. Authors typically share publication costs, so that more journal pages are available for the publication of methodologically sound research findings (Bornstein, 1990b);
2. The over-all acceptance rate for submitted manuscripts is far higher (generally about 76 to 80% in the natural sciences versus 20 to 25% in the social sciences);
3. A far greater number of straightforward replication stud-

ies are published within the natural sciences (Beyer, 1978).

A further difference between the two sciences is the unit of analysis. In the social sciences, human subjects' behavior is the unit of analysis; whereas, in the natural sciences, human behavior is rarely a part of what is studied. Consequently, there are more background factors and greater variability in those factors in the social sciences, which has implications for the replicability of social science research.

To illustrate, ease of replication is a particularly important constraint that effectively limits, in a relative sense, the replicability of studies. Contrast the tasks of a chemist, for example, as compared to a marketing research when conducting a replication. The chemist, in most cases, is working in a sterile laboratory, very free (again, in a relative sense) from extraneous potentially mitigating factors, with elements that are the same yesterday, today, tomorrow, and forever. Furthermore, these elements are always in a good mood, always cooperative, and never try to guess the experimenter's hypothesis. In short, they are not humans. Finally, there is remarkable consistency over time when they interact with other chemicals.

The marketing researcher, on the other hand, even when working in a "sterile" laboratory, is studying complex organisms that do have moods, can be generally uncooperative, and are known to evidence behavioral inconsistencies over time. In addition, the marketing researcher is faced with polytomous mitigating factors. We are, as they say, dealing with a moving target. Can we say, therefore, with confidence that one study will definitively answer a theoretical question; Jacoby (1978) and Hubbard and Armstrong (1994) have collected evidence that several well-cited studies were unreplicable by others; however, they continue to be accepted as the conventional wisdom in their particular theoretical area.

In some cases, a reanalysis of the data provides *counter*-support for a hypothesis. Perhaps the most cited marketing-related research that illustrates this phenomenon is that of Zielske (1959), who studied the relative efficacy of massed versus spaced advertising. His conclusion was that pulsing (massed advertising) is more effective than spaced advertising. Simon (1979), after obtaining Zielske's raw data, reanalyzed it and determined that the *opposite* finding was provided by the data: a *spaced* schedule is more effective than a pulsed schedule. However, Simon's conclusions were published two decades later, obviously after many generalizations had been made using Zielske's original findings. Moreover, if the question were asked, it is safe to assume that the original findings are still commonly accepted as conventional wisdom.

The Nature of Replication in the Social Sciences

Social science researchers have traditionally defined replication research in a variety of different ways Bornstein, 1990a; Carlsmith, Ellsworth, and Aronson, 1976; Hendrick, 1990;

Hendrick and Jones, 1972; Leone and Schultz, 1980; Lykken, 1968 (See Table 1). As can be surmised from the table, confusion exists in the marketing literature regarding ways to classify replications. Furthermore, given the inherent differences between the social and natural sciences (as discussed above), it is evident that a strict replication cannot be conducted in social science research.

Therefore, we propose a classification system that both eliminates inconsistencies and provides for a social science counterpart to a “precise duplication” replication from the natural sciences. The commonalities in replication terminology enable the various definitions to fall under four major categories, hereafter referred to as Type 0, Type I, Type II, and Type III replications.

A Type 0 replication is defined as a precise duplication of a prior study. Therefore, Type 0 (precise duplication) studies are those studies in which every nuance of the experimental setting is precisely reproduced; as such, the cause–effect relationship is finite. The ability to conduct a Type 0 replication is limited to experimenters in only some of the natural sciences. As others have stated, it is an impossibility to conduct a Type 0 replication in a social science context (Brown and Gaulden, 1982; Lykken, 1968; Runkel and McGrath, 1972), because uncontrolled extraneous factors have the potential to interact with the various components in an experimental setting. For example, human subjects cannot be precisely duplicated. A social scientist is limited only to matching subjects as closely as possible.

A Type I replication is a faithful duplication of a prior study and, as such, is considered the “purest” form of replication research in the social sciences. It should be mentioned at this point that a Type I replication is the one most closely associated with the term “replication” in the minds of most researchers. Moreover, this is also the type of replication research most criticized for not being creative. This is somewhat ironic, given the apparent receptivity of reviewers to cross-cultural research that, in many cases, is usually the study of the generalizability of findings from a single country or culture to others and, thus, is simply a Type I replication.

A Type II replication is a close replication of a prior study, and a Type III replication is a deliberate modification of a prior study (See Table 1). Type II replications are the most common form of replication research in marketing settings and are useful in testing phenomena in multiple contexts. If effects are shown in a variety of testing contexts, the case for the finding is strengthened. This has been called the process of triangulation (Sternthal, 1994; Sternthal, Tybout, and Calder, 1987). In a Type III replication, the threat of extraneous factors inherent to the nature of human subjects, unless explicitly accounted for in theory testing, is not a factor of concern with regard to replicability.

In a social science setting, then, only three types of replications (i.e., Types I, II, and III) have practical applicability. Despite the apparent tendency of researchers to avoid replica-

tion work, Type I, II, and III replications play an important role in the establishment of the external validity of cause and effect relationships in marketing research.

Replication and the Publishing Process

The Costs of Replication

On the surface, the costs of replication seem high for academic researchers (particularly those concerned with promotion and tenure). This is because of the common misperceptions and negative connotations associated with replication research stemming from the fact that most perceive replication research as consisting of strict replications (Hendrick 1972, p. 46). In this scenario, the replicating researcher is faced with a dilemma: on the one hand, if replication findings support the original research, the reader is motivated to say “so what?” On the other hand, if the original findings are not supported—which is often the case, (Epstein states that “. . . it follows that the laboratory study as normally conducted is often unreplicable” [1980, p. 793].) then the inclination is to ignore the results as an artifact of the replication experiment and not the original research. Rarely is the original research suspected to be flawed.

As Shimp, Hyatt, and Snyder state: “(nonreplication) can be explained by at least five factors, including improper replication (e.g., nonequivalent manipulations), nonrobust theory, the presence of demand artifacts in the original or replicated data, sampling effects, or laboratory effects” (1991, p. 276). Nonrobust theory and the presence of demand artifacts in the original data are the only explanations above that cast doubts on the original research when replicated by a different researcher. Moreover, the burden of proof lies with the person attempting to replicate findings. Finally, Churchill’s discussion of the lack of review articles in our literature sheds some light on challenging the topic of original published studies:

“. . . one may step on the toes of one or more people, because a favorite viewpoint is slighted. Scholars working in the area naturally serve as reviewers for such an article. If their favorite perspective is not completely supported, some reviewers may be inclined to criticize and reject it more forcefully. The human tendency to protect the ‘turf’ we have staked out produces the sorry situation that few review articles end up being published in the marketing journals in spite of their contribution to the field. The fact that few are published discourages other authors from even preparing them.” (Churchill 1988, p. 31)

In addition, if the alternative explanations above for non-support in replication research can be effectively ruled out, then the biases associated with the presentation of negative findings may then be the foundation for challenging the results (Atkinson, Furlong, and Wampold, 1982; Bornstein, 1990a; Greenwald, 1975; Kupfersmid, 1988; Mahoney, 1987; Shimp,

Table 1. Replication Terminology

Researcher	Type 0 (Precise Duplication)	Type I (Duplication)	Type II (Similar)	Type III (Modification)
Gardner, Hake, and Erickson, 1956			Parallel	Converging
Lykken, 1968	Literal		Operational	Constructive
Hendrick and Jones, 1972	Exact		Conceptual	
Cronback, 1975				Quasi-replication
Carlsmith, Ellsworth, and Aronson, 1976	Direct		Systematic	
Leone and Schultz, 1980		Experimental	Nonexperimental	Corroboration
Kane, 1984			Improvisational	Improvisational
Bornstein, 1990a				Modified
Rosenthal, 1991				Imprecise
Hendrick, 1991	Strict		Partial	Conceptual
Monroe, 1992		Faithful reproduction	Faithful reproduction of some aspect	Similar concepts, but changes in procedures and independant variables

Hyatt, and Snyder, 1991). All of the factors above cause researchers to perceive that efforts to publish replication research may be futile.

This is not to say that the lack of a replication tradition in our discipline is not without its benefits. For example, replication, by its notable absence, has played an important role in theory development. That is, because the generation of new ideas is implicitly encouraged in our discipline, and replication is discouraged, the absence of replication has led to the stimulation of theory development. The apparent disfavor of replication research is attributable to the implicit belief that it is not “academic”—that is, it does not present anything new or particularly novel. Marketing researchers have been trained to think of “good science” as consisting of the development of new theories. On the other hand, theory refinement has been impeded. Central to the process of theory refinement is the reproducibility of research results. The lack of endorsement of a replication tradition by the related social science disciplines, consequently, impedes the process of theory refinement.

Is There a Bias Against Replication Research?

In the March 1992 editorial of the *Journal of Marketing Research*, the editor states, “. . . *JMR* should not be the primary vehicle for publishing research that simply adds another parameter to an existing model or illustrates an estimation method.” The preceding statement is illustrative of the belief

held by many as to what constitutes replication research. Such research is often summarily dismissed as “not creative,” a term that is, unfortunately, viewed synonymously, by many, as indicative of a lack of contribution to knowledge. Further evidence of the prevalent belief of the need for replication research to play, at most, a limited role in the pursuit of knowledge is provided in the following statement by a biology journal editor in a recent study concerning the need for replication research: “With 250,000 more angiosperms to examine, there is little time or justification in repeating earlier studies” (Madden, Easley, and Dunn, 1995). These negative connotations are the result of a misunderstanding of what replication research represents.

The various biases associated with publishing in the academic literature have been the topic of much debate in the academic literature. An example is that of Mahoney (1977), who has extended the issue of confirmatory bias to the reviewing process. Confirmatory bias is defined as the tendency to agree with those statements and philosophies that support an individual’s “world view” and disagree with things that do not support this view. This topic was first discussed in science by Francis Bacon in 1621 (Bacon, 1960). Mahoney, with the aid of the editor of the *Journal of Applied Behavioral Analysis*, extended the study of this tendency to the academic reviewing process by sampling reviewers of the *Journal of Applied Behavioral Analysis*, who were invited to review an article for the journal. Mahoney manipulated the content of the articles,

along with the assignment of the articles to reviewers who were expected to advocate or refute the conclusions put forth in the articles. He found that negative results of any kind were frowned upon, especially those that were in opposition to the reviewers' perceived theoretical biases.

The above discussion is in keeping with a perception that gatekeeping is conducted in academic journals by the editor and members of the review board. Churchill, in a commentary on the AMA Task Force position paper (1988), describes the situation in the consumer/marketing discipline:

“Reviewers, along with editors, tend to serve as gatekeepers of the discipline. They judge what is worthy to be published and consequently what is worth being consumed by the marketing community at large. Though some reviewers are very eclectic and tolerant of divergent viewpoints, others maintain a particular philosophical posture. . . . By asking people to serve on multiple review boards, we may be restricting the range of perspectives, issues, and approaches we allow in our journals. . . .” (Churchill 1988, pp. 27–28)

A recent *Journal of Marketing Research* editorial written by Bart Weitz serves as an excellent illustrative example of Churchill's assertion that particular philosophical postures are maintained by editors and reviewers: “In addition, I will make a special effort to motivate research consistent with my perspective and to assist it through the review process” (Weitz 1992, p. 3). Further evidence of this is provided by two *Journal of Marketing* editorials. Wind's editorial states that, “. . . the only acceptable articles [for *JM*] will be those that provide a *new* theoretical, methodological, or substantive contribution to the field. This criterion places a strong emphasis on truly *scholarly* work . . .” (Wind 1979, p. 9, *Italics* mine).

The preceding editorial statements do not necessarily imply an antireplication bias, although in conjunction with the remaining text of the editorials, it is certainly suggested. They merely illustrate the existence of the gatekeeping function of the editor of an academic journal. However, two recent studies by Madden, Easley, and Dunn (1995) and Neuliep and Crandall (1990) shed some light on editorial policies regarding replications and their acceptability in the literature. In the Neuliep and Crandall study, a sampling of present (and past) editors from social science journals was contacted to respond to a questionnaire about replication studies. Neuliep and Crandall found that 42% of the editors surveyed had never received a direct replication for review. Not surprisingly, the study also found that only 5% of the editors indicated that replication studies were explicitly encouraged.

The Madden, Easley, and Dunn (1995) study surveyed editors in both the natural and social sciences in an attempt to determine differences between the two groups concerning replication and its importance in the conduct of science. The sample consisted of 107 editors (58 from the natural sciences and 49 from the natural sciences). Social science editors were equally divided over the belief that their respective disciplines

devote enough attention to replication research. In contrast, over 75% of the natural science editors felt that enough attention was being devoted to replication.

A Prescription for Replication in Consumer and Marketing Research

Replication should be reconceptualized as a necessary condition that is intertwined with the basic research process in consumer and marketing research. A replication research *tradition* is a frequently cited, but seldom fulfilled goal in our discipline. Because many theory-testing articles destined for consumer behavior and marketing journals represent the extension of theories from other disciplines to a consumer context, replication of theoretical findings that these articles are based upon is especially needed. Every potential journal submission in the consumer/marketing literature should be required to first substantiate previous related findings (or call into question those findings) and then make a contribution to the literature by extending the prior research. By doing so, the authors take responsibility for their roles in the stream of research under investigation. To this end, we have provided a suggested framework for analyzing the contribution of marketing research studies (see the Figure 1). As can be seen from the framework, the replication terminology proposed earlier is used to illustrate the framework. In addition, we have dichotomized the two major avenues available to consumer/marketing researchers in their attempts to replicate and extend research findings, hereafter referred to as intrastudy and interstudy replication. Before our discussion of the steps in Figure 1, we discuss these briefly.

Intrastudy Replications

An intrastudy replication is the reproducibility of results within a singular study. An example of this would be the use of multi-item measures when examining hypothetical constructs. In marketing research, the use of single-item measures has been criticized on the grounds that such measures are unreliable and are not valid measures of a construct (Peter, 1979). Consequently, we have come to expect intrastudy verification of our measures in the form of multiple items that have reasonable levels of internal consistency. It would be highly unlikely that a study that uses hypothetical constructs and purports to measure them with single indicators would be published.

The blocking of such extraneous factors as sex of subject, intelligence, education, product class familiarity, and product knowledge can also be considered an intrastudy replication. If a study does not block on a particular variable, but does attempt to measure differences in responses between levels of the variable, then this would be considered an assumed replication (Monroe, 1992). When explicitly incorporating

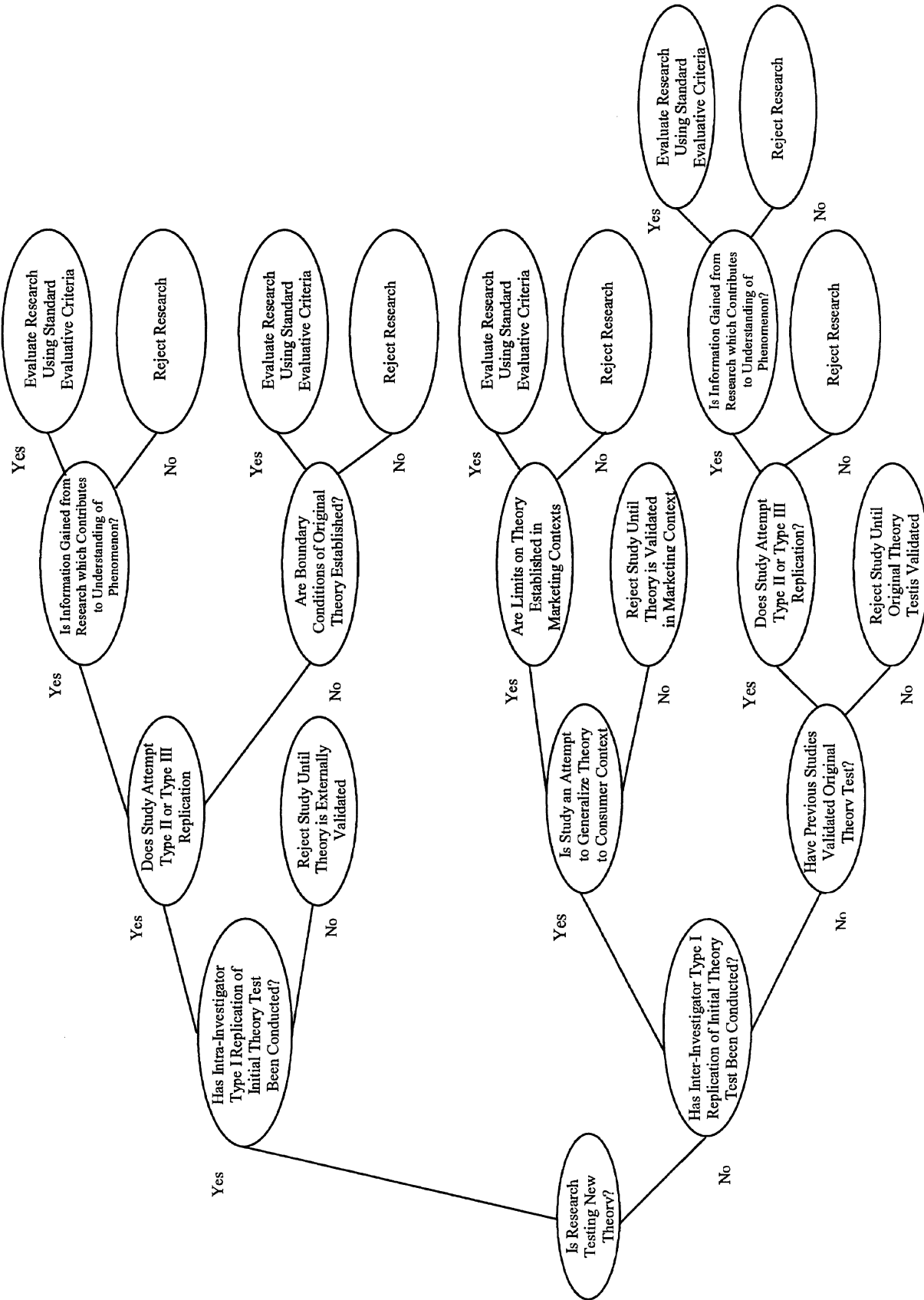


Figure 1. Suggested Framework for Analyzing the Contribution of Replication Studies.

such factors into an experiment's design, the reproducibility of results is examined, and boundary conditions on the effects of a particular independent variable can be established. This method of theory confirmation is advocated by Sternthal, Tybout, and Calder (1987, p. 121) and is considered by them to be the strongest form of replication within a confirmatory approach. By definition, an intrastudy replication has to be conducted by the same experimenter(s).

Interstudy Replications

Interstudy replications are those that are conducted across different experiments. They can be conducted by the same experimenter(s) (i.e., nonindependent, Monroe, 1992) or by different experimenters. The publishing of a paper that has relied on results from a single study (and, thus, has not been replicated) should be unacceptable to the discipline because of the inherent variability in human subjects. As Epstein (1980, pp. 794–795) states:

The prevalence of higher order interactions (in behavioral research) attests to the extreme situational specificity of behavior and indicates that experiments conducted in a single situation cannot be relied upon to produce laws that are general across minor variations in stimulus conditions. It follows that the single-session experiment is often unreplicable because incidental, unidentified variables . . . may interact with an experimental manipulation to produce a unique outcome or may otherwise restrict its generality.

However, Monroe states that, "Generally, replication research that originates with an independent researcher would be preferred . . ." (1992, p. 1). It is important to note, however, that this generalization ignores the problems inherent in replications wherein human behavior is examined. Given the extraneous factors described previously that can conceivably have an impact on the findings in a singular study, an intrastudy replication, as a first step, would be necessary to determine the influence (if any) of such factors on the study's outcomes. Moreover, in some situations, an intrainvestigator replication would be *preferred*. As Shimp, Stuart, and Engle state: "Isolated experiments conducted by researchers in different laboratories using different methods and procedures are inevitably subject to different results" (1991, p. 1).

The practice of interstudy replicability by independent investigators (intersubjective certification using Hunt's [1976] terminology) is important to determine the robustness of results and the extent and type of boundary conditions placed on findings. When replication is not endorsed by a discipline, we are implicitly subscribing to the validity of *n* of 1 research studies.

Many Paths, One Destination

Each of the preceding sections makes the case for replication for different reasons. If we are to understand effects truly, we must approach their potential proof or disproof from a variety

of different standpoints and, thus, triangulation as Sternthal (1994) suggests.

We believe that replication is essential to the conduct of good science. Furthermore, it is our contention is that, until macrobased norms are placed upon the need for replication research, change will not occur. Figure 1 provides the boundaries for developing disciplinary norms for replication research.

Discussion of Figure 1 follows each of the main paths separately. It begins with the question "Is the experiment testing new theory?" If answered in the affirmative, then it is incumbent upon the authors to provide intra-investigator evidence of the reproducibility of their findings. In other words, can the authors replicate their own findings? If not, the study should be rejected until confirmation attainment. If the findings have been replicated, does the study attempt a Type II or Type III replication? To ensure the generalizability of results, it is essential to test in different settings, times, and places. The next branch is more subjective in nature than either of the first two. In the affirmative case, we are looking for information gain, not simply confirmation. In the negative case (where a Type II or III replication was not conducted), have boundary conditions been established by the research? If not, the research should be rejected.

If the chosen study is not testing new theory, has an interinvestigator replication of the initial theory test been conducted? If yes, the study should be an attempt to generalize the theory to a consumer context. If it is not, then it should be rejected. If does attempt to generalize, then are limits on the theory established by the research in consumer contexts? If so, then the research should be evaluated using standard evaluative criteria. If not, the research should be rejected.

Looking again at the first branch of the "not testing new theory" sequence, if an interinvestigator replication has not been conducted (in the current research), then have previous studies validated original theory test? If affirmative, does the study attempt a Type II or Type III replication? If yes, do we have information gain? If not, then the research should be rejected.

Meta-Analysis and Its Relationship to Replication Research

In recent years, meta-analysis has gained the respect of academicians in marketing research who, implicit in their endorsement of the technique, are seeking reproducibility of research results (Brinberg and Jaccard, 1986; Glass, 1976; Houston, Peter, and Sawyer, 1983; Hunter and Schmidt, 1990; Hunter, Schmidt, and Jackson, 1982; Monroe and Krishnan, 1983; Olson, 1981; Peterson, Albaum, and Beltramini, 1985; Reilly and Conover 1983; Ryan and Barclay, 1983; Zaltman, Pinson, and Angelmar, 1973). Meta-analysis attempts to establish the reproducibility of results by synthesizing and integrating existing findings into "laws" through the use of effect sizes of phenomena. The overriding objective of a meta-analysis, then,

is to supplant the traditional qualitative literature review by quantifying prior research results. Several assumptions are implicit in the use of a meta-analysis. First, by definition, a meta-analysis is an integration of research results. Consequently, to perform a meta-analysis, two or more studies investigating the same phenomenon are necessary. Second, the constructs and measures used in the studies should be identical (i.e., a Type I replication), although this is an ideal that is seldom achieved (Monroe and Krishnan, 1983).

Meta-analysis differs from replication, then, in at least two important ways. A meta-analysis attempts to document the reproduction of preceding research results and is, consequently, passive and *post hoc* in nature. As such, the implicit assumption is that the results have been reproduced, under the proper conditions, over time. A replication, on the other hand, is actively testing the results of prior research to determine if the relationships are reproducible across settings, times, etc.

Replication Research as Exemplified in the Shimp, Stuart, and Engle (1991) Study

An excellent example of the use of replication in externally validating a study's results is that of Shimp, Stuart, and Engle (1991). Classical conditioning served as the theoretical basis for the study in which the authors conducted 21 experiments. (It is important to note that by using the Shimp, Hyatt, and Snyder study, we are not suggesting that *extensive* multiple experiments are necessary to conduct good research. The study's use was motivated primarily because of its excellent example of replication in contemporary marketing literature.) In the study, several of the forms of replication discussed in previous sections of the current paper were utilized.

In the study, the authors held everything constant across all of the experiments, except for the conditioned stimulus (different brands of cola drinks were used) and the embedding context for the independent variable (nonexperimental brands of cola drinks used as filler stimuli). Thus, the authors tested the theory using multiple products under differing conditions. Next, the authors used multiple measures for the constructs (intra-study replication). Finally, a meta-analysis of the 21 studies was conducted to determine the effects of classical conditioning.

Macro Strategies for Integrating the Replication Framework

The need for a reassessment of the role of replication into the marketing theory development process is readily apparent. After many calls for more replication and more serious roles for the replication process, we have still seen very few attempts to integrate replication into the empirical research process in marketing. What would it take to bring about a serious reconsideration of the role of replication?

First, editors and reviewers, as gatekeepers, must assume more responsibility for the research reporting process. As seen in other disciplines, that responsibility may include asserting authority over journal submissions by specifying reproducibility of research. Editors and reviewers must insist that a replication tradition be evidenced in journal submissions. Unless editors and reviewers provide positive incentives for research to not only be replicated but to be *replicable*, no amount of discussion within the discipline will carry this message forward.

Second, there must be a frank and open discussion of the importance of replication as a part of the research process before even a single empirical paper is published from a research stream. If doctoral students are confronted with the need to replicate work as part of the research process in their training and not as an optional activity, we will begin to see a more complete research approach. Finally, those of us who are doing work in the same area must both offer opportunities for replication and consider it our responsibility to extend and replicate work that is related to our own.

Therefore, a possible way of approaching the discrepancy that currently exists in the research process in marketing would be to redefine the responsibilities of editors, mentors of doctoral students, and other researchers. There is no structural change in the field that could successfully integrate replication without a general willingness to assume the full mantle of scientific method into marketing theory development and testing processes.

Conclusion

That replication research is critical to the conduct of good science is unquestioned. It is argued in this paper that the perceived absence of a replication tradition in the social sciences is the result of incorrect perceptions regarding both the acceptability of replication studies and the form that such studies should follow.

The *Journal of Marketing Research* has recently advocated the need for replication: "Also, while replication research has not received favorable consideration over time, research that replicates and extends previous findings is nevertheless a necessary ingredient for the advancement of marketing research and is acceptable to *JCR*." (Monroe, 1991). The more recent *JCR* editorial (Monroe, 1992) is certainly the strongest position taken yet in the consumer/marketing literature advocating a replication tradition.

In training researchers, it is incumbent on all who are part of that process to inculcate the role of replication and responsibility for the *entire* scientific method to those who must investigate phenomena and integrate theory. Reconceptualizing replications as an integral part of the research process would be helpful. Understanding the true role of replication in the research process helps to avoid the incorrect and destructive dichotomy that has separated replication from "real

research.” The marketing and marketing research disciplines have scorned good science by revering new theory formulation and shunning studies that had prominent replication attributes. It is as though all students of violin were told that they must avoid playing songs that had already been played. Research is not only a creative process, it is a discipline. Some concertos are best understood by being played more than once.

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