

The Recipe for Making a Significant Contribution to the Body of Knowledge: Revisiting the Essential Criteria

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ABSTRACT

This study attempts to provide a comprehensive overview of criteria for making a significant contribution to the body of knowledge. Authors propose a unique perspective of viewing such contributions as a combination of art and science, focusing on specific criteria such as rigor and relevance, novelty and originality, unity and form. While science-related criteria are based on formal logic and scientific methodology, equally important art-related criteria are based on creativity and congruency. The proposed classification may be useful for both academics and practitioners representing various disciplines. It provides researchers with a practical recipe for making significant contributions to the body of knowledge and offers a way to understand better and evaluate such contributions. Additional essential ingredients such as quality, balance, and timing are also discussed.

Keywords: rigor, relevance, scientific inquiry, scholarly research, validity, intellectual work

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INTRODUCTION

Scholarly research can be defined as a set of choices and tradeoffs (Mentzer et al., 1999). The purpose of doing research through various choices and tradeoffs is to build theory that will contribute to the body of academic and practitioner knowledge known as science (Selye, 1966). How can we evaluate the outcomes of those choices? What questions should be addressed? How should the research be organized and presented to make a scholarly contribution? What makes the contribution significant? What are the essential elements of such a contribution? This paper aims to synthesize the discussions of these and other related questions in the literature by proposing a set of criteria for assessing the contribution of intellectual work (either conceptual or empirical) to the body of knowledge.

For this discussion, the contribution to the body of knowledge is defined as adding value to that part of knowledge specific to the particular discipline (e.g., the social science discipline of business), which is materialized in the form of publication in one of the peer-reviewed academic journals.

The contribution could be viewed as a science and/or as an art. The authors believe that these two essential aspects of contribution are interrelated. Science-related criteria are based on formal logic and scientific methodology, while art-related criteria are based on creativity and congruency. As a result, art-related criteria are more intangible and difficult to measure. The right combination of these ingredients would give researchers an excellent recipe to significantly contribute to the body of knowledge. A research contribution represents a balance of art and science and is the primary conceptual idea of this paper.

With that in mind, this paper is organized as follows. First, the contribution is discussed as a science and essential criteria are formulated and analyzed. Second, the art aspect of contribution is discussed, and the related criteria are provided. Next, integration of these two approaches is added to the discussion of significance. Finally, the conclusions are provided to summarize the discussion of the proposed criteria.

CONTRIBUTION AS A SCIENCE: UNITY OF RELEVANCE AND RIGOR

The scientifically based criteria are organized into two major categories: relevance and rigor. It is essential to understand the relationships between these categories. Being rigorous does not mean that there should be any tradeoff in terms of relevance. Rigor and relevance are vital and central components of good research (Varadarajan, 2003). Thus, the unity of these two categories is essential for considering a piece of intellectual work a significant contribution to the body of knowledge.

CRITERIA OF RELEVANCE

Everything that exists must have a necessary and sufficient reason for existence, and that reason can be discovered and communicated to others. This conception was formulated by Leibniz, the great German logician, mathematician, and philosopher, as "the principle of sufficient reason" (Belot, 2010, p. 55). Research does not exist in a vacuum. It integrates and builds on previous research. Many centuries ago, Isaac Newton acknowledged standing "on the shoulders of giants" in science. Today the idea of theoretical justification is equally

essential. Flint et al. (1999) emphasizes that there should be a link between what we know and what is already known. The research process begins with idea generation, often during a literature review (Mentzer & Kahn, 1995). A review of the literature grounds new theory by linking it to prior established methodological approaches, considers previous authors, and provides a solid organization to the research concepts (Flint et al., 1999). The lack of attention to a proper literature review causes concern about where key findings, evaluations, and opportunities for integration should be included (Cooper, 1984). Thus, it becomes evident that any meaningful contribution to the body of knowledge should integrate current theories in the literature and make an attempt to take them to a new level with conceptual thoroughness and rigor (Churchill & Perrault, 1982; Flint et al., 1999), discussed in the following sections of this paper.

Positioning of the Research

A piece of research should establish a position in the relevant research stream (Daft, 1985). It must apply to the domain or field of study for which it is intended to be considered a contribution to the body of knowledge (Ozanne et al., 1989). Evaluating a set of related literature and discerning the critical concepts and relationships could be a good starting point. The purpose of the research should be clearly stated in the very beginning. The research limitations should also be provided.

The researcher should demonstrate a clear understanding of the relevance of his or her intellectual work to the target audience. A contribution to the body of knowledge must be relevant to at least one target audience segment, such as scholarly researchers, educators, practitioners, or public policy officials (Flint et al., 1999; Varadarajan, 2003). The potential relevance of the piece of research, according to Varadarajan (2003), is the extent to which acting upon the manuscript's findings requires one or more of the journal's readership segments to alter their beliefs and/or behaviors. In other words, the knowledge claim should be valuable to one or more target audience segments (Flint et al., 1999). For example, relevance to practitioners assumes that practitioners could use research findings by applying investigated concepts in the organizational settings and adjusting and manipulating related variables (Varadarajan, 2003).

Securing an appropriate channel for knowledge dissemination is also extremely important for reaching the right audience of selected scholars, academics, and practitioners. This action substantially increases the chances of potential publication through scholarly contribution to the discipline's body of knowledge. For instance, research for publication in the *Journal of Marketing Research* must consist of marketing research and not simply a discussion of proposed applicable models (Churchill & Perreault, 1982). Thus, it is fair to conclude that targeting a journal based on relevancy is superior to targeting a journal based on the likelihood of publication, personal connections, or other subjective considerations.

The usefulness of a theory to generate future research (Seth & Zinkhan, 1991) should also be considered, reflecting the relevance to the researchers. If the above conditions are satisfied, the piece of research could play a role of a catalyst for driving further inquiry by summing up past research, identifying possible gaps in the literature, advancing the body of knowledge, and giving an indication as to future research directions (Flint et al., 1999).

CRITERIA OF RIGOR

Research is a rigorous process that should be taken seriously. For a theory to be credible, it must be rigorous. By increasing the rigor, the researcher increases the quality of the research outcomes (Flint et al., 1999). In other words, rigor is a necessary condition of research credibility. Several vital criteria fit under the category of rigor. Conceptual thoroughness, methodological appropriateness, and methodological rigor are discussed in detail in the following sections.

Conceptual Thoroughness

Conceptual thoroughness reflects how well the study explains the phenomena in question. Contributing to the body of knowledge is not possible with only an observation and a prediction of the phenomenon; understanding is also necessary (Hendrick & Jones, 1972). One of the main goals of research is the development of a theory or theories. Theory justifies the study, states why certain phenomena are investigated, organizes variables into meaningful data, and serves as a core element of a piece of research (Daft, 1985). Theory is defined in the literature as a systematically interrelated set of hypotheses, propositions, statements, and/or law-like generalizations concerning a phenomenon or set of phenomena that is empirically testable (Hunt, 1991; Shaw & Costanzo, 1982; Spender et al., 1979). Sound theory comprises well-connected and logical hypotheses and constructs and can help explain and predict investigated phenomena (Hunt, 1991). Conceptual rigor deals with logical reasoning, the strength of its inferences about the phenomena under study, references to the relevant literature, and conceptual density (the level of detail in research). Conceptual thoroughness ensures that the readers can rely on the reported research findings.

Methodological Appropriateness

The method depends on what question the author is asking and the paper's research objectives (Flint et al., 1999). Significant research is that which excels at both method and theory (Daft, 1985); however, a poor choice of methodology could fail to establish the bridge between the method and the theory (Ferber, 1979). A paper that does not explicitly explain the justification behind using a particular method and uses full disclosure about the reasoning behind a method creates confusion, increasing the likelihood of rejection from a targeted journal (Daft, 1985). In general, each method has its limitations, strengths, and weaknesses. Therefore, every qualitative or quantitative research study must be evaluated regarding the specific assumptions and procedures of the research methods used to generate the findings. McGrath (1982) recognizes this method-selection process as optimization and concludes that while research will always be flawed due to the tradeoff between strengths and weaknesses inherent in every method, a well-thought-out selection of methods is crucial to the strength of research. Thus, it is impossible to do flawless research, but testing the same theory using multiple methods is an excellent way to handle the limitations of each method. If a combination of quantitative and qualitative methods is used in the same study, the purpose of such combination should be clearly stated. For example, quantitative measures could be built into the theory to verify further the conditions, actions/interactions, and consequences. Using exploratory interviews to build a theory could be followed by conducting several surveys and

experiments. That will allow for validating the theory, minimizing the bias of the method (Flint et al., 2000).

Methodological Rigor

Methodological rigor is necessary for the research design's appropriateness, robustness, reliability, validity, and empirical findings (Varadarajan, 2003). The robustness of the measurement items in terms of reliability, validity, and strength of the relationships between the variables should be evaluated appropriately to ensure methodological rigor.

Validity refers to the extent to which any measuring instrument measures what it is intended to measure. Several different types of validity are relevant to this discussion. More specifically, a contribution to the body of knowledge should address the four noteworthy elements of validity. These elements are statistical conclusion validity, internal validity, construct validity, and external validity. Unless otherwise indicated, each element is described hereafter based on Mentzer & Flint (1997).

Statistical Conclusion Validity

Statistical conclusion validity is concerned with the existence of a statistical relationship (in terms of covariation) between the two phenomena or constructs. Mentzer and Flint (1997) cite three essential questions that should be answered to establish statistical conclusion validity:

- 1) Are the methods in the study sensitive to the covariation of the variables?
- 2) What variance can be presented to show this covariation?
- 3) How strong is this evidence?

Statistical techniques should be used to demonstrate covariation and appropriate statistics should be reported and analyzed (e.g., statistical power, effect size).

Internal Validity

Internal validity examines causal relationships between variables (e.g., “X” causes “Y” where “X” precedes “Y” in time). It addresses whether an observed covariance between the variables should be considered a causal relationship. Does the covariance between “X” and “Y” mean that “X” causes “Y” or vice versa? Several threats to internal validity should be considered, including history (change of events over time), maturation (subjects change with experience), instrumentation (changes in method of measurement over time), and sample selection (sampling method must ensure a proper representation of the population, sample bias and non-respondents should be considered).

Construct Validity

Construct validity is a complex concept that involves logical definitions and measurements of constructs within a particular theory to ensure theoretical and empirical correspondence. According to Bagozzi (1994), theoretical correspondence ensures that a concept, in theory, has a single, precise definition.

According to Mentzer and Flint (1997), empirical correspondence means that the measures selected in an empirical study are, in fact, reasonable measures for a given theoretical construct. Construct validity includes three major components: nomological validity, face/content validity, and trait validity. Trait validity includes convergent validity, discriminant validity, and reliability. Nomological validity measures the degree to which the constructs fit within the theoretical framework. Face/content validity addresses the effectiveness of the content behind each construct tapped. Convergent validity describes the convergence of different measures of the same construct on a standard statistical factor. Conversely, discriminant validity evaluates how measures of different constructs load on different factors (i.e., discriminate from each other). Reliability generally refers to the extent to which an experiment, test, or other measurement procedure yields the same result on repeated trials. There are four significant ways of testing for reliability:

- 1) test/retest (ensures reliability over several applications of the same test)
- 2) split half (ensures reliability by splitting the sample into two halves and testing each of them separately)
- 3) internal consistency (uses Cronbach's Alpha statistic to measure the consistency of a measure compared to other measures of the construct)
- 4) inter-judge (minimizes researcher-related bias by involving more than one researcher in the measurement process).

External Validity

External validity is the degree to which research findings could be generalized to the broader population, settings, and time. It includes three major components: statistical generalizability (a degree to which conclusions could be extended from the sample to the broader population), statistical replicability (a degree to which other studies could replicate conclusions), and realism (a degree to which a study was conducted in a realistic setting).

CONTRIBUTION AS AN ART: UNITY OF FORM AND CONTENT

The art element of contribution includes more intangible criteria, which are generally classified into two distinct categories: form and content. Some of these criteria should be more widely discussed. Sometimes they are difficult to control, but they add a unique flavor of creativity to our recipe for significant contributions.

Criteria of Form: Simplicity, Elegance, and Congruency

Scholars must take special care to "visualize" the entire paper to ensure the flow of ideas and arguments is disciplined, internally congruent, and logical in sequence (Daft, 1985). Visualizing and outlining the flow of ideas generates simplicity, elegance, and congruency. More specifically, the overall length of the paper should be proportional to the amount of its contribution (Holbrook, 1986), and the simplicity of language should be enforced. Internal congruency ensures that all the components of the paper, including conceptual definitions, hypotheses, data, references, diagrams, and figures, fit together as a

whole. Elegance is another crucial ingredient that is almost impossible to measure. Nevertheless, some of the most important scientific contributions are elegant in form and style. For example, when Copernicus put forward his idea that the Earth revolved around the Sun, rather than vice versa, it was not so much the experimental evidence as the theory's elegance, or aesthetic appeal, that was persuasive to contemporary thinkers. Similarly, Einstein developed the theory of relativity on the premise that 'absolute' motion does not exist; there can be no justification for saying that, of two scientific observers moving relative to each other, one is 'really' at rest and the other is not. There is no absolute standard of rest in the Universe. The elegance and intrinsic power of the theory played a large part in the theory's quick acceptance and the conviction of scientists that it must be true. In general, brevity and parsimony are paramount and preferable in the write-up of any piece of research, and excessive language should be avoided, if possible (Holbrook, 1986). The power of the theory is inversely related to the complexity of its explanation (Spender et al., 1979); thus, a parsimonious theory is considered more robust than a theory that is difficult and time-consuming to explain. The main message should be communicated so the reader understands the relevance and impact as completely and quickly as possible (Flint et al., 1999).

Clarity, Consistency, and Readability

The problem being studied, the explanation of the phenomena being explored, and the study's objective in a piece of research must be clearly articulated in its presentation to the reader (Flint et al., 1999; Ferber, 1979). The purpose of the writing should be made clear from the very beginning. In addition, the research should be written so that the readers can understand its terminology and explanations. Terms that are used interchangeably or take on new meanings across different sections of the piece of research could be very confusing and misleading (Flint et al., 1999; Daft, 1985). On the other hand, the consistency of definitions adds to the credibility of the research. Therefore, all technical term definitions, concepts, and constructs must be strictly defined and used consistently throughout the paper without deviation from the stated original versions. In summary, a successful research paper demonstrates clarity and consistency of all the significant elements, including clarity of purpose and research questions, clarity and consistency of definitions, clarity of structure and organization, clarity in procedures and methods used, and clarity of findings and implications. It should be readable and understandable by the target audience.

CRITERIA OF CONTENT

Novelty and Originality

The criteria of novelty and originality refer to another important set of questions. How original and creative is the idea and approach? What is known about the research question from the prior literature (theoretical and/or empirical)? What is not known and why? How is the proposed study unique? In what ways will it go beyond existing research? The Manuscript Guidelines for *The Journal of Marketing* (1982) defined a contribution to knowledge as providing new creative insights and ideas. Flint et al. (1999) provides examples of newness, which include: serving as a catalyst for future research opportunities,

filling a gap in the knowledge, re-evaluating accepted assumptions and theories, and adding to another piece of research.

Scientific ideas are novel and original when they open new dimensions of theory or phenomena and suggest new ways of practice that were not present before. Originality adds a sense of uniqueness to the research. Novelty is an essential element in most definitions of creativity. It could be defined as 'the quality of being new and fresh and interesting' or a new or unusual experience or occurrence' (Arieti, 1976). However, this concept is not self-evident, and a few reservations should be made to clarify its meaning and applicability. The sensation of novelty largely depends on the breadth of vision and the depth of expertise of the researcher and the reader in the subject area. Thus, it is essential to acknowledge the relativity of novelty. Sometimes the quest for novelty could present a danger of going to extremes, so the curious mind must proceed with a certain level of caution. The desire for novelty should not violate the essential principles of logic. Only such an approach ensures that the researcher keeps an eye on objective reality and adds value by contributing.

Quality of Organization

Quality of organization criterion combines structure, coherence, style, and logical flow. A contribution to the body of knowledge must be well constructed, organized, and presented in a clear and coherent writing style (Holbrook, 1986; Ferber, 1979). The presentation of concepts and models should be understandable and unambiguous (Churchill & Perreault, 1982). The appropriateness of the presentation channel is related to the positioning of the research discussed earlier under the criteria of relevance and is equally important.

According to Daft (1985), to add to the knowledge base, a publishable piece of research must "add to or modify" existing theory and literature in a well-designed and organized way. Its arguments must be based on a relatively coherent body of logically consistent and precisely formulated propositions. All the elements of the manuscript macrostructure (Daft, 1985) should fit together in a holistic, coherent alignment. The flow of the paper should be logically structured to maximize the contribution's value, from the introduction and theoretical justification of the phenomena of interest to the conclusions, study limitations, and future opportunities. Ideally, the reader should be able to follow the storyline with increasing interest and intellectual satisfaction.

Sound Conclusion

Conclusions should be appropriate and robust. One of the reasons for rejecting otherwise strong manuscripts is a poorly written conclusion, hurriedly completed, or generalized beyond the findings of the data (Daft, 1985). Therefore, the ability to summarize the findings and make appropriate conclusions is critical. Appropriateness implies that the conclusion should be directly related to the arguments in the paper, presenting the findings clearly and concisely. A robust conclusion section should summarize essential points, present the findings, discuss research problems and limitations, and propose potential directions for further scientific inquiry and opportunities for future research.

SIGNIFICANT CONTRIBUTION AS A BALANCE OF ART AND SCIENCE

Even a small contribution is a contribution. On the other hand, not all contributions are significant. Moreover, the significance of the contribution is relative. What is insignificant today may become significant tomorrow; what is significant in one system of coordinates may not be significant in another, and vice versa. In order to measure the significance, three important aspects should be considered. These aspects include quality, balance, and timing.

First and foremost, the author views significant contribution as a *balance of art and science*, as a dynamic interaction of the criteria discussed in the previous sections of the paper. Rigor should be combined with creativity, relevance – with clarity and consistency. Next, the overall potential contribution of the paper to the discipline is a *function of quality*. Quality has different aspects that are reflected in the discussed criteria. For example, quality of organization refers to the logical flow of the author's arguments; quality of the author's statement of the research problem measures clarity and accuracy of the purpose formulation; quality of technical methodology refers to sample design, instruments, data analysis, and statistical tests employed to reach the declared objectives; quality of conceptual or empirical evidence presented measures the level of support and coordination between the evidence presented and the argument intended. Timing is also crucial. The significance of the contribution could be measured in the categories of *timelessness and timeliness*. The presence of both makes the difference in terms of significance. High-quality research should be 'timely' to adequately address the issues relevant to the target audience (e.g., practitioners) at a given time. It also should be 'timeless' in maintaining objectivity and detachment within a particular academic discipline's more significant theoretical and historical context (Varadarajan, 2003). Again, the right balance is the key to significance here.

In the final analysis, one of the widely accepted practical ways of measuring the significance of the contribution of the published research is based on the analysis of citations. The use of citations as a measure of contribution has been debated extensively. However, the fact remains that citations are the only readily available quantitative measures of professional response to published articles (Bush et al., 1974). For example, the Social Sciences Citation Index (SSCI) contains data on citations for most of the social sciences. The subsequent citation of the article reflects its popularity and influence on collective thought and future research directions. The author's reputation, the research topic's novelty, and the journal's reputation are also important determinants of popularity. However, a double-blind peer-review process adopted by the major academic journals ensures a high-level of selection objectivity. Therefore, the reader should be confident that adequately applying the abovementioned criteria could increase the chances of the manuscript's significant contribution to the body of knowledge.

CONCLUSION

The authors recommend using the criteria presented in this paper whenever there is a need to evaluate the potential contribution of a particular piece of research to the body of knowledge. The related criteria are classified based on the two distinct approaches: rigor and relevance are viewed as the formative elements of the 'science-related' approach. In contrast, the criteria of form and content from the 'art-related' approach. Each of those four main

criteria categories includes several related sub-criteria. The authors reinforce the need to balance the criteria appropriately based on the two approaches discussed. Three additional integrative criteria for evaluating significant contributions are presented.

It is essential to understand that the proposed categorization is conditional. It was developed with the purpose of simplification of the complex interrelationships among the relevant criteria.

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