MEASUREMENT IN MARKETING

Editor-in-Chief Naresh K. Malhotra
Edited by Hans Baumgartner
and Bert Weijters

REVIEW OF MARKETING RESEARCH

VOLUME 19

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Editor-in-Chief: Naresh K. Malhotra

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REVIEW OF MARKETING RESEARCH VOLUME 19

MEASUREMENT IN MARKETING

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INTRODUCTION

OVERVIEW

Review of Marketing Research, now in its 19th volume, is a publication covering the important areas of marketing research with a more comprehensive state-of-the-art orientation. The chapters in this publication review the literature in a particular area, offer a critical commentary, develop an innovative framework, and discuss future developments, as well as present specific empirical studies. The first 18 volumes have featured some of the top researchers and scholars in our discipline who have reviewed an array of important topics. The response to the first 18 volumes has been truly gratifying and we look forward to the impact of the 19th volume with great anticipation.

PUBLICATION MISSION

The purpose of this series is to provide current, comprehensive, state-of-the-art articles in review of marketing research. Wide-ranging paradigmatic or theoretical, or substantive agendas are appropriate for this publication. This includes a wide range of theoretical perspectives, paradigms, data (qualitative, survey, experimental, ethnographic, secondary, etc.), and topics related to the study and explanation of marketing-related phenomenon. We reflect an eclectic mixture of theory, data, and research methods that is indicative of a publication driven by important theoretical and substantive problems. We seek studies that make important theoretical, substantive, empirical, methodological, measurement, and modeling contributions. Any topic that fits under the broad area of "marketing research" is relevant. In short, our mission is to publish the best reviews in the discipline.

Thus, this publication bridges the gap left by current marketing research publications. Current marketing research publications such as the *Journal of Marketing Research* (USA), *International Journal of Market Research* (UK), and *International Journal of Research in Marketing* (Europe) publish academic articles with a major constraint on the length. In contrast, *Review of Marketing Research* can publish much longer articles that are not only theoretically rigorous but also more expository, with a focus on implementing new marketing research concepts and procedures.

Articles in *Review of Marketing Research* should address the following issues:

- Critically review the existing literature
- Summarize what we know about the subject – key findings

- Present the main theories and frameworks
- Review and give an exposition of key methodologies
- Identify the gaps in literature
- Present empirical studies (for empirical papers only)
- Discuss emerging trends and issues
- Focus on international developments
- Suggest directions for future theory development and testing
- Recommend guidelines for implementing new procedures and concepts

A FOCUS ON SPECIAL ISSUES

Since volume 8 published in 2011, *Review of Marketing Research* has a focus on special issues realizing that this is one of the best ways to impact marketing scholarship in a specific area. The volume editors of all of the special issues have been top scholars. These special issues have focused on the following topics.

Volume, Year	Topic	Volume Editors
8, 2011	Marketing Legends	Naresh K. Malhotra
9, 2012	Toward a Better Understanding of the Role of Value in Markets and Marketing	Stephen L. Vargo and Robert F. Lusch
10, 2013	Regular Volume	Naresh K. Malhotra
11, 2014	Shopper Marketing and the Role of In-Store Marketing	Dhruv Grewal, Anne L. Roggeveen, and Jens NordfÄlt
12, 2015	Brand Meaning Management	Deborah J. Macinnis and C. Whan Park
13, 2016	Marketing in and for a Sustainable Society	Naresh K. Malhotra
14, 2017	Qualitative Consumer Research	Russell W. Belk
15, 2018	Innovation and Strategy	Rajan Varadarajan and Satish Jayachandran
16, 2019	Marketing in a Digital World	Aric Rindfleisch and Alan J. Malter
17, 2020	Continuing to Broaden the Marketing Concept: Making the World a Better Place	Dawn Iacobucci
18, 2021	Marketing Accountability for Marketing and Non-marketing Outcomes	V. Kumar and David W. Stewart
19, 2022	Measurement in Marketing	Hans Baumgartner and Bert Weijters

THIS VOLUME

This special issue focuses on measurement in marketing. In the recent years, significant advances have been made in measurement, particularly in terms of theoretically conceptualizing the constructs, collecting data to empirically examine the measures, and formulating appropriate measurement models to establish their psychometric properties. The chapters in this volume represent an eclectic mix of measurement issues and methodological approaches to address them.

Bagozzi (2022) develops the philosophical foundation for hylomorphic structures and show how they are rooted in dispositions and dispositional causality; he also examines the various mind–body trade-offs. In contrast to simple concepts, complex concepts, when expressed in hylomorphic structures, achieve unique ontological status and serve particular explanatory capabilities. Bagozzi offers the first exposition of the underlying philosophical foundations of hylomorphic frameworks in marketing and consumer research and shows that hylomorphic structure can be used to represent independent, dependent, mediating, and moderating variables. As marketing scholars come to appreciate the usefulness of complex concepts, we should see more applications in the years ahead.

Measurement in marketing and the social sciences commonly assumes that a set of observed variables is a function of an underlying common factor plus some error. Rigdon and Sarstedt (2022) question several of the assumptions in this approach. They argue that (1) the common factor model is seldom correct in the population, (2) the common factor generally does not correspond to the quantity the researcher intends to measure, and (3) the measurement error does not fully capture the uncertainty associated with measurement. The norm in the physical sciences is to adapt an uncertainty-centric approach to measurement, and that approach can largely address the limitations of current measurement practice in marketing.

Measurement error is pervasive in research design; Viswanathan (2022) examines the components and sources of this error. He stresses the importance of understanding the different types of measurement error, the sources of these different types, the effects of such error on response patterns, and measurement indicators, and how they manifest in results or findings. He presents insights on how items, measures, and methods can be designed before-the-fact to reduce measurement error. While developing the research design, the path from the conceptual to the operational has to be traveled carefully to reduce measurement error. Researchers would do well to follow the recommendations of Viswanathan.

The need to consider measurement invariance testing in cross-cultural research is well established, and van Herk and Goldman (2022) provide a bibliometric analysis of articles on cross-cultural and cross-national topics in marketing. They code cross-cultural articles in the period 1999–2020 to assess whether researchers follow the recommended steps as outlined in the multigroup confirmatory factor analysis approach. Their results show that most studies find partial invariance: some items are not comparable across the cultural groups studied. Researchers

often ignore noninvariant items, which may decrease the validity of cross-cultural comparisons made. They also analyze the dissemination of measurement invariance in the broader literature based on cocitations with Steenkamp and Baumgartner (1998). They note methodological developments in cross-cultural research to enable addressing noninvariance and provide suggestions to further advance insight into cross-cultural differences and similarities.

Careless respondents who do not answer survey questions accurately can significantly distort the findings of survey research. In an insightful article, Baumgartner and Bert Weijters (2022) review the measures of careless responding that have been suggested in the literature. They offer a classification of existing measures of careless responding along two dimensions and discuss their relative strengths and weaknesses. Their conceptual framework is demonstrated by an empirical study that also shows how these measures are related to each other.

Scales for measuring marketing constructs have traditionally been developed using the classical test theory paradigm or its variant. This paradigm typically assumes that items and respondents are the only sources of variance and respondents are the objects of measurement. Yet, several applications in marketing require scaling of objects, rather than respondents, such as firms, products, brands, retail stores, etc. Drawing upon their earlier work (Finn & Kayande, 2005), these authors show that a multivariate multiple objective random effects methodology (M-MORE) could be used to identify construct dimensionality and select appropriate items for multiple objects of measurement. Finn and Kayande (2022) apply M-MORE to multivariate generalizability theory data collected to assess online retailer websites to identify the dimensionality of, and to select appropriate items for scaling website quality. They compare their results with those produced by traditional methods. They found that the scale developed by the M-MORE approach has better criterion validity than the traditional scale when scaling websites, thus demonstrating the value added by the M-MORE approach.

A significant part of what and how consumers feel, think, and behave is determined by automatic (or "implicit") cognitive processes and measurement procedures specifically designed to tap into these automatic cognitive processes are referred to as implicit measures. Along with a proliferation of implicit measures over the last two decades, the understanding of the mechanisms as well as the conditions under which these mechanisms operate has been changing. Thus, it can be challenging for marketing researchers to select the implicit measure best suited for a particular situation. Slabbinck and Spruyt (2022) review the pertinent literature and develop a utilitarian taxonomy that has the potential to facilitate the selection of the appropriate implicit measures.

Together these chapters lead to new insights, approaches, and directions for research on various aspects of measurement in marketing. It is hoped that collectively the chapters in this volume will substantially aid our efforts to theoretically conceptualize the constructs, collect data to empirically examine the measures, and formulate appropriate measurement models to establish their psychometric properties and to provide a broader arsenal of research methods as well as fertile areas for future research. I thank Hans Baumgartner and Bert

Weijters for such an outstanding volume. The *Review of Marketing Research* continues its mission of systematically analyzing and presenting accumulated knowledge in the field of marketing as well as influencing future research by identifying areas that merit the attention of researchers.

Naresh K. Malhotra, *Editor-in-Chief*

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MEASUREMENT IN MARKETING: INTRODUCTION BY THE VOLUME EDITORS

Hans Baumgartner and Bert Weijters

Over 40 years ago, Jack Jacoby famously stated that *"too large a proportion of the consumer (including marketing) research literature is not worth the paper it is printed on or the time it takes to read"* (Jacoby, 1978, p. 1, emphasis in original). Among the litany of sins committed by marketing researchers, measurement shortcomings figured prominently in Jacoby's tirade. According to Jacoby, researchers frequently failed to sufficiently define the concepts they were interested in or defined the concepts inconsistently across studies; ignored potential respondent and instrument errors when conducting surveys; and used measures of questionable reliability and validity (e.g., single measures of complex constructs). Likely in response to these problems identified by Jacoby, several influential articles appeared in the marketing literature that tried to improve upon then-current measurement practices (e.g., Bagozzi, 1984; Churchill, 1979; Peter, 1979, 1981). With the advent and rapid adoption of structural equation modeling, detailed measurement analyses became the norm (e.g., Anderson & Gerbing, 1988), particularly in scale development studies and in the marketing management and consumer research literature, and various extensions of the initial measure development paradigm presented by Churchill (1979) were proposed (e.g., Baumgartner & Weijters, 2017; MacKenzie, Podsakoff, & Podsakoff, 2011).

In a recent monograph devoted to measurement in marketing, Baumgartner and Weijters (2019) attempted to broaden the notion of measurement by distinguishing three related but distinct conceptions of measurement. In a first sense, measurement entails conceptualizing theoretical constructs and selecting observable indicators of these constructs. In a second sense, measurement involves collecting data (or using previously collected data) so that the theoretical issues of interest can be studied empirically (frequently via the use of surveys). In a third sense, measurement means specifying, estimating, and testing measurement

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models that link the observed indicators to the latent factors (presumably) representing the constructs of interest. These three senses of measurement imply that researchers have to be adept at three different things if they want to measure empirical phenomena well: they need to know how to construct good measurement scales; they have to have a deep understanding of the psychology of survey response and the sources of error that may distort respondents' answers to survey questions; and they have to be able to formulate (possibly sophisticated) measurement models to assess the quality of their measures.

Some of the chapters included in this volume deal with topics that are traditionally discussed in expositions of measurement (e.g., the role of random and systematic measurement error and their impact on reliability and validity; the need to test the invariance of measurements across cultures). However, there are other topics that are sometimes neglected. For example, important philosophical questions arise about what it means to measure something or whether the routinely used common factor model is adequate as a measurement model. These questions have important implications for the measurement of complex constructs and the modeling of uncertainty in measurement. One alternative to measurement analysis based on the common factor model is generalizability theory. Although this method has often been promoted as a more versatile option for measurement analysis, particularly because of its explicit consideration of sources of variance other than items and respondents, it is rarely used in scale development studies. One recent development in empirical research has been the increased reliance on online data collection via panels such as Amazon Mechanical Turk. The use of data from "professional" survey takers whose primary interest is probably not to provide accurate data raises special problems and necessitates that researchers carefully screen their data prior to using them in subsequent analyses. Finally, researchers sometimes need measures of processes that are not consciously mediated (i.e., they are automatic or implicit). The selection and use of such measures requires a careful analysis for which traditional measurement methods are entirely inadequate. The chapters represented in this volume deal with all these issues, and it is our hope that readers of this volume will gain a new appreciation for the important role of measurement in the research enterprise.

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PHILOSOPHICAL FOUNDATIONS OF CONCEPTS AND THEIR REPRESENTATION AND USE IN EXPLANATORY FRAMEWORKS

Richard P. Bagozzi

ABSTRACT

Concepts equip the mind with thought, provide our theories with ideas, and assign variables for testing our hypotheses. Much of contemporary research deals with narrowly circumscribed concepts, termed simple concepts herein, which are the grist for much empirical inquiry in the field. In contrast to simple concepts, which exhibit a kind of unity, complex concepts are structures of simple concepts, and in certain instances unveil meaning going beyond simple concepts or their aggregation. When expressed in hylomorphic structures, complex concepts achieve unique ontological status and serve particular explanatory capabilities. We develop the philosophical foundation for hylomorphic structures and show how they are rooted in dispositions, dispositional causality, and various mind–body trade-offs. Examples are provided for this emerging perspective on "Big concepts" or "Big Ideas."

Keywords: Concepts; constructs; scales; consumer behavior; measurement; structure; emergentism; hylomorphism; Big Ideas

Concepts go by many names (e.g., variables, variates, constructs, categories, attributes, properties) and are used as building blocks in the formation of hypotheses and theories, as well as in testing hypotheses and theories (Margolis & Laurence, 2019). In this paper, I consider philosophical aspects of concepts with an aim to providing a foundation for their use in explanatory frameworks.

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Researchers frequently take for granted the meaning and validity of concepts, without recognizing that the assumptions that undergird them are often violated and hence bring into question the research they underpin.

My treatment of concepts addresses their logical and conceptual foundations residing in ontological and metaphysical issues. Ontology, often considered a subarea of metaphysics, "is the philosophical discipline that tries to find out what there is: what entities make up reality, what is the stuff the world is made from?" (Hofweber, 2005, p. 256). Metaphysics explains, of those things that exist, what they are and what their natures entail (Quine, 1948; van Inwagen & Sullivan, 2020).

I consider three categories of concepts found in contemporary research and their implementations for measurement and theory testing. The first I call, simple concepts, and give brief treatment because these are long-standing, familiar, and pervade the vast majority of research. The next two categories are complex concepts and consist of structures of simple concepts. These have arrived late on the scene and are less understood than simple concepts. I term the first of the complex concepts, compositional structures, the second, hylomorphic structures. A technology exists for representing complex concepts empirically by use of structural equation statistical models (Bagozzi, 2021), but to date the meaning and validity of complex concepts have not been addressed deeply, and especially for hylomorphic structures, numerous pitfalls await the user.

SIMPLE CONCEPTS

Simple concepts are things treated as unitary wholes. Most variables in marketing, in general, and consumer behavior, in particular, are simple concepts. So the price of a product or loyalty toward a brand, or states of decision-makers (e.g., beliefs, attitudes, feelings, choices, intentions), or their traits (e.g., conscientious, kindly, conservative, frugal, expert, novice, innovative, laggard) or discrete emotions (e.g., happy, satisfied, angry, frustrated, sad, disappointed, anxious) are all simple concepts.

Unitary wholes may have parts. Think of the definition of attitude as "a relatively enduring and general evaluation of an object, person, issue, or concept on a dimension ranging from negative to positive" (American Psychological Association Dictionary of Psychology). Here attitude is conceived as a bipolar evaluation directed to various targets and thought to be relatively stable. Most mental states examined in marketing research have the property of intentionality, by which is meant in philosophy "the power of minds and mental states to be about, to represent, or to stand for, things, properties and states of affairs. To say of an individual's mental states that they have intentionality is to say that they are mental representations or that they have contents" (Jacob, 2019, p. 1). But the contents of simple concepts in research are typically limited to definitions, or left implicit, or if addressed at all, are restricted to brief verbal mention in discussions of the concepts. The representation of simple concepts in hypotheses, theories, and tests of hypotheses is generally handled as discrete wholes and singular entities. Thus attitude is considered a reaction along a bad–good continuum, and

tested empirically by a single measured evaluative item or average of evaluative items (e.g., bad–good, unfavorable–favorable, con–pro).

It is easy to lose sight of the meaning of a concept when we use a specific term to designate it conceptually and a particular measured number to summarize its observational essence. After all it is these terms that enter our hypotheses and theories and these measures that our analytical and statistical procedures operate on to explore their implications. Any other information beyond the terms and measures as such are easily overlooked or ignored. Surplus meanings, if any, typically become relegated to assumptions but remain too loosely connected to the interpretations of hypotheses/theories and their tests to enter transparently into effective resolution of differences in opinions among researchers concerning conceptual and empirical issues. Thus there is a tendency to oversimplify things and focus on each concept as a unity or whole without fully considering the relationship between what is abstract and what is real, or even its parts, abstract or real, if they exist.

The relationship between theory and method or theory and measurement plays a crucial role in our dependence on and use of simple concepts. It is virtually a truism that how we think about concepts and how they enter our hypotheses and theories dictate how we operationalize them and test hypotheses and theories in which they are embedded. This presumes an asymmetrical relation from theory to method. Indeed not only does such a view pervade how researchers think about and do research, but it also shapes how research is presented and interpreted. Witness the common structure of articles in many journals with background, theory, and hypothesis formation presented first, followed by method, results, and discussion in that order. Theory typically guides and constrains methods which proceed along customary practical conventions to measure and test theory in formulaic ways.

It can be argued that the theory–method relationship is better construed as a symmetrical or mutual one. How we think about concepts (and more generally their role in hypotheses and theories, as well as those hypotheses and theories themselves) influences our methods and measurements; but how we measure things can constrain or in a sense alternatively liberate how we think of concepts and their use in hypothesis and theory construction as well.

The received view in much of research is to use simple concepts. Likewise, in testing hypotheses and theories with simple concepts, ANOVA and regression-based methods are the norm. This has contributed to a neglect of complex concepts, especially concepts represented by structures. Indeed, ANOVA and regression-based procedures cannot accommodate concepts as structures. Use of ANOVA or regression-based procedures is limited to simple concepts, and in effect constrains the content of hypotheses and theories accordingly.

Nowadays most simple concepts are operationalized with multiple measures in order to provide a measure of reliability for the items of a scale. The practice is to specify or derive multiple items as parallel indicators of a simple concept and to verify the appropriateness of the measures with a factor analysis. If all items load highly on a single factor, then this confirms the empirical existence of the simple

concepts. Such a point of view is consistent with the requirement that "a single scale ought to measure a single construct" (Briggs & Cheek, 1986, p. 109, emphasis in the original; Guilford, 1954). For a thorough presentation of measurement issues, see Baumgartner and Weijters (2019).

Commonly researchers use the Cronbach alpha formula as evidence showing that a set of proposed items measures a simple concept, with a high alpha value (e.g., 0.70 or greater), and confirming the quality of the items as measures of the simple concept. However, such a practice can be misleading and invalid. Cronbach alpha only applies to single-factored scales (Cronbach, 1951). Reliable items on a single-factored scale will yield a high alpha, but a high alpha by itself does not necessarily imply single-factoredness, as often assumed. For example, a set of items might yield a high alpha but actually load on two or more factors, such that the shared variance of items across factors produces a high alpha. What we have here is a high alpha, but it does not correspond to a simple concept; rather, it applies to multiple items of multiple simple concepts. Yet some researchers use a high alpha to verify measurement of simple concepts.

Many studies over the years in marketing, psychology, and other fields present only Cronbach alpha as evidence for the reliability of items of a single simple concept. One wonders how many studies have misrepresented the concepts and tests of hypotheses, if the high alpha in fact masked the existence of multiple concepts, contrary to claims of the presence of only one simple concept such as a dependent variable. One hopes that such problems are rare. The way studies are conducted typically, with only a small number of items used for a few concepts and placed adjacent to each other, suggests that had a factor analysis been done, unidimensionality of items would have been found most likely. But such a presumption leaves much to be desired because convergence of multiple measurements may be an artifact of number of items, their format and placement, and procedures used to analyze items, and lead one to accept lack of true discriminant validity, while falsely claiming high reliability for nonexistent or invalid measures of a simple concept.

Related to this issue is a frequent outcome in scaling research that undermines the claim of unidimensionality and evidence for simple concepts. Take scale construction in personality research as an example (Bagozzi & Heatherton, 1994). The aim of researchers in scale development is often to develop unidimensional scales where multiple items measure variables well as simple concepts. This was especially the key aim in research in the not-too-distant past. Today, unidimensional and multidimensional scales find emphasis, depending on the context and researcher goals. Of 25 scales reviewed in Baumgartner and Weijters (2019), six scales ultimately resulted in unidimensional scales, whereas the rest were multidimensional (some of the latter by design). Researchers go through elaborate, well-defined, rigorous steps to define concepts, generate items, and refine scales. An exemplary approach can be found in Boateng, Neilands, Frongillo, Melgar-Quiñonez, and Young (2018) where three phases and nine steps are outlined: item development (identification of domain and item generation; content validity), scale development (pretesting of questions; sampling and survey administration; item reduction; extraction of factors), and scale evaluation (tests of