What do managers' survey responses mean and what affects them?

The case of market orientation and firm performance

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ABSTRACT

Using cross-sectional surveys to support proposals of causal sequences in theoretical models is problematic, especially when the surveys are of managers and performance is a dependent variable. The

results of such surveys reveal more about managers' sensemaking processes than the actual processes, a rival causal theory that marketing potentially ignores. This problem leads to unsound conclusions and management advice. The study illustrates the argument using the case of research on the relationship between market orientation and firm performance and shows how sensemaking theory can account for existing results and some that otherwise lack explanation. The issues raised challenge many accepted interpretations of research results and point to important areas for future research.

Keywords: Management surveys, sensemaking, causal models, market orientation, firm performance, market environment

1. Introduction

Much research and model building in marketing and management is in danger of leading research and management astray because it fails to consider alternative models that fit the data equally well but which have quite different theoretical and causal implications and because it fails to take into account the impact of management sensemaking on measurement biases and feedback effects.

Reported research tends to have the following characteristics. (1) Based on prior literature and insight the researcher proposes theory in a model to explain a causally dependent variable such as firm performance. (2) The model comprises a set of independent or explanatory variables that are assumed to be directly or indirectly causally antecedent to the dependent variable. (3) The models assume unidirectional causality. More complex structural equation models can have layers of dependent variables and associated independent variables but generally retain a unidirectional causal structure. (4) Surveys of managers'

perceptions and recall are used to measure the variables. (5) Various methods are used to fit the proposed model to the data. If the results show that the proposed model is consistent with the data it is regarded as supported and the proposed causal sequences are explicitly or implicitly accepted.

Two issues cause problems with this approach that researchers tend to ignore. First, the methods used do not provide a test of the causal directions assumed in the model because they are based on cross-sectional, correlational data. As we know and teach, correlation does not equal causation, only association, and yet many models are interpreted and described, once model fit is established, in causal terms using causally loaded words such as affects, impacts, enhances, determines, produces, and leads to conclusions such as: "Overall, the results demonstrate that market orientation has a positive impact on organizational performance" (Kirca, Jayachandran and Bearden, 2005, p. 37). Only rarely are attempts made to test alternative causal sequences and feedback and interaction effects.

The second issue is that alternative causal sequences among variables based on theory are ignored. Some of our reviewers argue that we are entitled to use such causal interpretations because these stem from our theories and the model fit is not inconsistent with the theory. But, as we all agree, the causal directions proposed are not confirmed or tested by the model fit and it is dangerous to assume otherwise without first examining the possibility of alternative, theoretically grounded, causal sequences and the possibility of spurious associations due to omitted variables, which fit the data equally well. This is clearly shown in Henley, Shook, and Peterson's (2006) systematic retesting of 79 structural equation models reported in top management journals. They find that 75% of the models have at least one equivalent model i.e. models that have the same structure or number of parameters but the alternative models have radically different theoretical implications and causal structures. If we ignore alternative possible explanations and theories we

are not conforming to the norms of evidence based science but are engaged in a process that is more one of advocacy. The theories we use are not usually so robust that alternative causal sequences can be ignored and, in many cases, rival causal sequences have been proposed based on existing theory. For example, there is the everlasting debate about whether attitude change drives behaviour change or the reverse and, in studies of inter-firm relations, the direction of the causal links between variables such as commitment, trust, conflict, communication and power can be and are argued to occur either way in different researchers' models. The causal direction is probably two-way, not one way, as the state of a relation in one period affects its state in the next period so all dimensions of relations are interconnected over time.

Such feedback effects over time imply different causal sequences to those usually included in reported models, especially if they are tested using cross-sectional survey data. Most models in marketing are static not dynamic. For example, models of firm performance do not allow performance to switch roles and become an independent variable, yet March and Sutton (1997) describe a number of potential mechanisms by which performance at an earlier time can affect future performance e.g. investment, motivation and learning effects.

Another type of feedback effect arises due to the reliance on management perceptions and recall to measure variables in a model, as a result of managers perceptual and sensemaking processes (Weick, 2000). These refer to the way managers process incoming information and make sense of their organization, its environment and its performance. As we will show, sensemaking processes affect the way managers' view their firm and the way they answer questions about its characteristics. These result in feedback effects and rival causal explanations that also fit the data (March and Sutton, 1997).

These kinds of problems apply to any model tested using cross sectional survey data based on

people's perceptions and recall. They are especially important when the data comes from surveys of managers and performance is a key dependent variable in the proposed models because such models and their inferred causal sequences are used as the basis of normative theories advising managers and policy makers about how to improve managers' and firm performance and behaviour. Theories with different causal sequences that explain the observed data equally well are likely to lead to different types of management advice in terms of which things to focus on to achieve a firm's objectives. We need to face up to these issues and work out ways to better deal with them, rather than hiding them and pretending they do not exist.

The purpose of this paper is to call attention to these problems, and to demonstrate how an alternative theory and associated hypotheses, that is equally if not more strongly established, can account for the results of the many studies testing the link between a firm's market orientation and its performance, including results that are hitherto not well explained. These issues result in rather different implications in terms of the nature and degree of support for our theories of marketing's impact on firm performance and lead to a number of important issues to accept and deal with in future research. We will show that the results reported are equally consistent with theories about the way managers perceive and make sense of their firm, its environment and its performance and the way they respond to survey questions. In short, we argue that performance drives managers perceptions of their firm and its environment, including its market orientation. The reverse of the usual story told.

The focus here is on research concerning market orientation and performance because these concepts are of central importance to the marketing discipline, extensive research has been carried out based mainly on surveys of managers and most marketing academics are familiar with the research. The purpose is not to

argue that this research area is more guilty than others in terms of the issues we raise; far from it, it is used only to highlight and illustrate the issues that are of much more general importance. We believe in the concept of market orientation and that marketing can and does play an important role in firms' performance. What we do not believe is that the results of cross sectional surveys of managers' perceptions and recall support claims of a causal link between market orientation and performance. It has nothing to do with the reliability and validity of the measures we use, though this of course does affect results, it is about the way managers' answer survey questions and what affects their answers.

We could have focused on other dimensions of firms that have been used to explain performance and firm behaviour, such as research on technology, entrepreneurial, relational or international orientations or research on various types of firm competences such as innovative, learning, relational and network competences.

We are not the first to raise these issues. Although we developed our ideas independently, we take comfort in finding James March and Robert Sutton's important 1997 paper in *Organization Science* on this issue (March and Sutton, 1997). They reassure us that the issues are real and important and yet ignored and helps to further develop our own ideas. The marketing literature largely ignores the March and Sutton article, in particular researchers studying market orientation and performance.

The paper is organized as follows. Section two reviews MO-Performance (MO-P) research and methodology showing some of the inconsistencies and problems that have arisen. Section three describes the problems that threaten the validity of cross-sectional survey research, illustrating them with examples drawn from MO-P research. Section four describes a psychological sensemaking perspective that can account for existing MO-P results, as well as some unexpected and otherwise unexplained research findings.

Finally, the paper discusses possible solutions to the problems identified and future research opportunities.

2. Market orientation and firm performance research

The impact of market orientation (MO) on business profitability is of managerial and academic importance (e.g. Deshpande, 1999). Starting in the 1990's (e.g., Kohli and Jaworski, 1990; Narver and Slater, 1990) a number of studies of the MO-performance link have been undertaken, replicated and extended in various contexts (e.g., Bhuian, 1998; Greenley, 1995; Pulendran, Speed and Widing, 2000), including manufacturing and service industries (e.g., Agarwal, Erramilli and Dev, 2003; Sandvik and Sandvik, 2003; Slater and Narver, 1994). The hypotheses underlying this research are: (a) that a high level of MO leads to superior business performance; and (b) that the causal link between MO and performance is stronger in the presence of greater market turbulence, greater competitive intensity, and lower technology turbulence (referred to as environment subsequently) (Narver and Slater, 1990; Kohli and Jaworski, 1990).

The empirical results vary. Though many studies support the hypotheses, a number of researchers find negative or non-significant relationships between MO and performance. For example, Greenley (1995), Harris (2000) and Appiah-Adu (1997) all conduct research in the UK following Slater and Narver (1994)'s method. The first two studies find a non-significant relationship between MO and performance, while the last study supports a positive relationship. Grewal and Tansuhaj (2001) investigate the role of MO on firm performance in Thailand after the financial crisis in 1998, using self administered questionnaires, and find a negative link. In addition, longitudinal studies do not support a significant relation between MO and performance. For example, using a longitudinal design, Noble et al. (2002) find a positive relationship between competitor orientation and objective performance but the customer orientation-performance and

the inter-functional coordination-performance links are not significant. Among the 20 studies that examine the moderating effect of the environment identified by Kirca, Jayachandran and Bearden (2005) 18 studies report opposite/insignificant relationships.

Meta-analyses of the MO-performance-environment research argues that both contextual issues and methodological issues can explain such inconsistent results (Kirca, Jayachandran and Bearden, 2005; Cano, Carrillat and Jaramillo, 2004; Ellis, 2006). Contextual issues, including industry variation or culture/country differences, are essentially about empirical generalization and replication; methodological issues, including the nature of performance and MO measures, are more fundamental because they determine the types of knowledge claims that can be made using this type of data.

Here we present an alternative theoretical interpretation of the link between managers' perceptions of their firm's MO, environment and firm performance and the research results reported. Attention focuses on how firm performance and environmental conditions shape managers' perceptions and attributions regarding their firm's characteristics, including its MO. We argue that cross-sectional self-administered survey research captures manager's sensemaking processes to a significant extent and this challenges traditional interpretations of results.

3. Problems with cross-sectional surveys of managers

Cross sectional surveys have various strengths and limitations (Rindfleisch et al. 2008). Five types of factors can be identified that potentially affect the results of cross-sectional survey research of managers. Each of them need to be considered when designing surveys and interpreting results: (1) the impact of organizational culture on managers' perceptions and reports; (2) the impact of information flows and team

effects on managers' perceptions of their firm's environment and the degree of uncertainty; (3) issues related to the conceptualization and measurement of firm performance; (4) ambiguous measures, and (5) issues related to the causal ordering of the link between managers' reports of their firm and firm performance.

First, the local context in which managers operate shapes their perceptions and knowledge of their firm and this affects how they respond to surveys. For example, cultural phenomena like MO rest fundamentally on cultural values (Gebhardt, Carpenter and Sherry, 2006) and individuals in organizations behave according to local cultural norms and artifacts (Homburg and Pflesser, 2000). Such cultural values play an important role in shaping communication processes in firms and are for example "the basis for market-oriented behaviors, namely, the generation of, dissemination of, and responsiveness to market intelligence" (Gebhardt, Carpenter and Sherry, 2006, p.52). Deshpande, Farley, and Webster (1993) and Narver and Slater (1990) define MO as a type of corporate culture and an associated set of beliefs, which implies a rich content for MO that requires a thick, multi-layered representation and interpretation (Arnould and Wallendorf, 1994). However, existing research does not, in the main, attempt to do this. Researchers adopt either a cultural perspective or behavioral perspective in empirical tests and claim a consensus/connection between the two streams. Measuring MO as a cultural construct runs the risk of missing mediating interacting layers, such as those identified by Homburg and Pflesser (2000), shared basic values, behavioral norms, artifacts and behavior, but measuring MO as a behavioral construct may not be able to capture the latent, embedded, and symbolic meaning of MO and organization values. The oversimplification of MO draws attention away from alternative, complex, distributed, multi-layered models (Mason and Harris, 2005). Instead of obtaining information on organization-wide norms and values,

cross-sectional surveys rely on the perceptions and interpretations of certain managers from particular parts of a firm at a certain point of time (Mason and Harris, 2005). Such surveys are not able to detect the different components of organizational culture or the way MO varies across an organization. In addition the perceptions of consumers about MO are not included, such as the extent to which a firm is consumer oriented, relying instead on the perceptions of managers from the supplier firm. This is particularly problematic when research has shown that customer and supplier perceptions of customer orientation are only weakly, if at all, correlated and, moreover, that customer measures are more strongly correlated with consumer satisfaction and performance (Deshpande, Farley and Webster, 1993; Webb, Webster and Krepapa, 2000). Methods to measure MO that draw on responses from different types of respondents within and outside the firm have been proposed that overcome a number of the measurement problems but have not been widely adopted because they are more difficult to administer (Webb, Webster and Krepapa, 2000; Harris, 2002).

Another type of problem with the measurement of MO is that "many practitioners inaccurately perceive their companies to be market oriented despite objective evidence to the contrary" (Mason and Harris, 2005, p.373). Mason and Harris (2005) point to eight types of reasons why managers misinterpret their firms level of MO, including confusion regarding the definition and components of MO, flawed measures, measures based on simplistic cultural assumptions, cultural impacts on perceptions, arrogance, selective perception and distortions in information flows. Related to this is the problem of self generated validation effects of measurement on beliefs, attitudes, intentions and behaviour resulting from asking questions about them when they do not pre-exist or are not known (Feldman and Lynch, 1988; Nisbett and Wilson, 1977).

One example of the problems involved in measuring MO are the scale items used (e.g. MKTOR and MARKOR) which are ambiguous and open to different kinds of interpretation by the respondent, even though they appear to be factual. For example, one item in MARKOR is "our business unit periodically circulates documents that provide information on our customers". Since the word "periodically" is a relative measure, managers can have different interpretations, as there is no benchmark provided and it is very likely that they have no idea how frequently their competitors circulate documents, so comparing their own behavior to competitors is problematic. In addition, respondents may have quite different interpretations of what "customer information" means. Is the information that managers obtain the "right" information? Lest we be accused of cherry picking items consider these: "In this business unit, we do a lot of in-house market research." "A lot of informal talks in this business unit concern our competitors' tactics or strategies." "A lot of informal "hall talk" in this business unit concerns our competitors' tactics or strategies." "It takes us forever to decide how to respond to our competitors' price changes." "The activities of the different departments in this business unit are well coordinated." In all cases the words are open to different interpretations by managers, including the standards to apply for terms such as "lot," "informal talks," "forever," "well coordinated," and the standards being applied to the nature and quality of the activity involved e.g. market research, coordination. All the items used have been subject to careful testing and we have not argument with that. But tests of reliability and validity do not test how "factual" the answers are going to be and whether they are immune to management sensemaking processes. The tests reveal communalities among items, which could reflect a link to an underlying market reality or to a common source of sensemaking such as performance. The only measure that has been tested against actual data is performance and this shows that managers' perceptions and reports are strongly correlated with objective

measures. In other words managers do know their firms performance and that this therefore forms part of their sensemaking process. The implications of this are discussed further below.

Second, managers' perceptions of their firms' environment depend on factors such as information processing (Reger and Palmer, 1996) job responsibilities (Payne and Pugh, 1976) and team characteristics and structure (Sutcliffe, 1994). In addition, their perceptions are not as accurate as we may expect (Sutcliffe, 1994; Salgado, Starbuck and Mezias, 2002). For example, a firm with a superior information and market research system is likely to know more about its competitors and customers; whereas a firm that is more internally oriented is likely to neglect important information from the market (Deshpande, Farley and Webster, 1993). But even good information access does not guarantee accurate evaluation and survey responses. In the end all managers face uncertainty about their firm's environment, no matter how good their information systems are, which results in them relying on partial and even misleading information as well as personal judgment, which affect their perceptions of the environment (Day and Nedungadi, 1994).

Third, meta-analysis shows that performance measures have an impact on the estimated strength of the MO-performance link (Kirca, Jayachandran and Bearden, 2005; Ellis, 2006) with researchers assessing performance by using either managers' perceptions or objective accounting numbers - the former being most popular (Dawes, 2000). These two means of measurement are correlated (Dawes, 2007; Ailawadi, Dant and Grewal, 2004; Hult, David and Slater, 2005; Wall et al. 2004), suggesting, as noted, that managers do know their firms' performance, but the estimated MO-performance relationship is more likely to be positive and significant when using subjective measures than objective measures (Kirca, Jayachandran and Bearden, 2005).[1] Neither measure is perfect. Personal recollections, perceptions, and biases greatly affect subjective measures; while objective measures are limited in terms of what aspect of performance they

measure (March and Sutton, 1997). Objective measures, such as ROA, ROE, and PE ratios, are also subject to financial manipulation as has been revealed spectacularly in some of the collapses of prominent firms in recent times. In addition, while objective and subjective measures are correlated, managers do not know everything about their firms' performance (Alba and Hutchinson, 2000; Wilkinson, 2005). Managers' personal experience of their firms' past and present performance, as well as other contextual factors such as time frame, focal groups, strategy, and environment drive their beliefs and perceptions (Devinney et al. 2005). Making performance the dependent variable denies the possibility that performance may act as a cue for perception and interpretation.

Winter (2003) suggests that academics are able to get accurate perceptual data from managers only if research meets the following four criteria: (1) the manager knows the answer because it is part of their work; (2) the questions are understandable to the manager; (3) the circumstances of the interview permit an accurate answer; and (4) there is no incentive for the managers to lie (p. 41). But in reality seldom do all these conditions hold. For example, senior managers have problems in understanding basic business terms like "industry" (Mezias and Starbuck, 2003; Starbuck and Mezias, 1996). Given these types of problems the measures of MO must be treated with some caution.

Previous MO research ignores alternative causal sequences, also based on strong theory, which can explain the same research results. These are theories of selective perception, interpretation and recall that are basic, well established in psychology. These theories suggest that much MO-performance research, that relies on management surveys, may reveal more about the way performance shapes managers' perceptions of their firm, and managers' corresponding behaviors, rather than the effect of MO on firm performance. We explain this in the next section. What this means is that, at the very least, both types of causal

possibilities need to be acknowledged and taken into account when interpreting the results of survey results.

4. A sensemaking model of managers' survey responses

MO, performance, and environmental factors are complex constructs covering a great range of information. To answer survey questions managers have to resort to their memories and make retrospective recalls (March and Sutton, 1997; Phillips, 1981). This leads to common rater effects, measurement context effects and measurement item effects, which can distort research results. Podsakoff, et al. (2003) summarize these effects as "common method bias", which refers to "[the] variance that is attributable to the measurement method rather than to the constructs the measures represent… [S]ystematic measurement error is a particularly serious problem because it provides an alternative explanation for the observed relationships between measures of different constructs that is independent of the one hypothesized" (p.879). Most of the five problems discussed in the previous section reflect causes of common method bias.

Because the measurement scales ask about organizational circumstances, subjects are engaging in sensemaking (Weick and Sutcliffe, 2005), a process involving placing stimuli into some kind of framework (Starbuck and Milliken, 1988). From a behavioral perspective, sensemaking is the process of information scanning, interpretation, and action (Thomas, Clark and Gioia, 1993). Louis (1980) summarizes sensemaking as a dynamic mechanism with a feedback loop: "[Sensemaking] can be viewed as a recurring cycle comprised of a sequence of events occurring over time. The cycle begins as individuals form unconscious and conscious anticipations, which serve as predictions about future events. Subsequently, individuals experience events that may be discrepant from predictions. Discrepant events, or surprises, trigger a need for explanation… and correspondingly, for a process through which interpretation of

discrepancies are developed" (p.241)

The imperative element in the sensemaking process is a cognitive map, what Starbuck and Milliken (1988) refer to as the "framework" and which others use terms such as mental models, schemas or theories in use. A manager's cognitive map reflects how they understand and interpret their world, including their firm and its environment, and how to respond to it. It includes a "cause map" indicating how they think things affect each other in their firm, market and environment context. It emerges over time as a result of a manager's training and education and their past experience (Daft and Weick, 1984) and Figure 1 summarises the main features of a manager's sensemaking process and how it affects their response to survey questions. It is based on Podsakoff et al.'s (2003) "stages of response process" (p.886).

<Take in Figure 1 about here>

The model begins with incoming stimuli to be perceived, interpreted and responded to or not, which include survey questions, environmental factors, MO dimensions, and feedback about performance. Managers perceive these stimuli based on unconscious and conscious anticipations and assumptions, based on education, work experience, business knowledge and memories, i.e., the cognitive maps that they have already formed (Louis, 1980). This leads them to perceive information selectively i.e. to selectively attend to, perceive, process and remember it. Selective perception is one of the fundamental and well established concepts of psychology. The perceived information is compared to existing ideas about the way the world works, their cause maps and the expectations they hold. A match between what is perceived and their cause map supports and reinforces it. For example that "being market oriented leads to good performance." But mismatches cause cognitive dissonance, such as "why is there a high level of MO, a favorable environment but poor performance?" This dissonance must be dealt with in some way in order to achieve psychological

comfort, as has been well demonstrated in research concerning cognitive balance processes (Festinger, 1962; Weiner, 1985). A manager could dismiss the new information; revise their perceptions of the environment or their firm's market orientation. The efforts of interpreting and rebalancing cognitions are due to the nature of the problem and the novelty of the environment and stimuli relative to the cause maps (Bettman and Weitz, 1983). If the new information makes more sense, is difficult to dismiss, and challenges their assumptions, they tend to adapt their cause maps and a learning process occurs. On the other hand, if the existing cause maps make more sense to them, managers may take further actions to selectively devalue, distort, ignore, or forget discrepant information. Some items are less easy to rebalance than others, such as information about actual performance, which then can be used as a cue for judging other factors such as MO and the environment. This leads to our first proposition.

Proposition 1: Managers are likely to use information about performance as an indicator of the degree of MO and the nature of the environment.

Given the complicated nature of the MO, environment and performance constructs and the ambiguity of some of the items designed to measure MO, seldom can managers respond to the questions asked without further sensemaking. Various psychological principles such as selective perception and self-serving attribution govern this perception and interpretation process and are summarized in Table 1. A person perceives what they expect to perceive to a large extent, based on their familiarity with, controllability of, and comprehensibility of the information. And they tend to explain what they perceive in a way consistent with their psychological interests, including self-esteem, face, and cognitive consistency. It is these psychological mechanisms that underlie the existence of various potential types of biases that distort managers' reports about MO, performance and the environment.

<Take in Table 1 about here>

Table 1: Summary of the Sensemaking Mechanism, its Underlying Psychological Principles, and their Implications for MO-Performance Studies

Psychological mechanisms/principles	Description	Manifestations in MO research
Sensemaking		
Cause map	• Aggregate of causal information; Mental structure built by previous outcomes	• Platform of the other psychological mechanisms
Positive illusion		
Positive views of self	• Recall more success than failure	• Overestimate performance, MO and environment
Illusion of control	• Underestimate uncertainty	• Underestimate environmental factors' moderating effects • Moderating effect
Attribute Evaluability		
	• Overemphasize easy-to-evaluate attributes • Underemphasize difficult-to-evaluate attributes	• Industrial variation (service vs. manufacturing) • Inaccurate perception of performance, MO and

	• Use substitute elements for perception	environment
Attribution		
Discounting principle	• Given that different causes can produce the same effect, the role of a given cause in producing the effect is discounted if other plausible causes are present	• Moderating effects of MO and environment on self-serving bias
Augmentation principle	• Given that different causes can produce the same effect, the role of a given cause in producing the effect is augmented if other inhibitory causes are present	
Self serving bias	• Attribute good outcome to oneself while attribute bad outcome to external factors	• Attribute good performance to being highly market-oriented • Attribute poor performance to environmental factors

Understanding these biases and their impact can help us to explain some of the inconsistent results reported about the MO-performance link. We discuss them in terms of the different stages of the sensemaking process described in Figure 1. Two psychological principles identified in the social

psychology literature are relevant to the perception stage of a sensemaking process: positive illusion and attribute evaluability. The most relevant psychological mechanism in the interpretation stage is causal attribution. The timing of a survey can also affect the observed causal direction.

Positive illusion. Positive illusion is a self-enhancing perception, a belief in personal control and an optimism about self that appears to foster motivation, persistence at tasks, and more effective performance (Taylor and Brown, 1988). Positive illusion has two dimensions that are relevant to the sensemaking framework: "positive-views-of-self" and "illusion-of-control". "Positive-views-of-self" is the tendency of individuals to show poorer recall of information related to failure than to success (Silverman, 1964), and to recall their task performance as more positive than it actually was (Crary, 1966). The "illusion-of-control" refers to "an expectancy of a personal success probability inappropriately higher than the objective probability would warrant" (Langer, 1975, p.311). This means that people often act as if they feel they have control in situations that are actually determined by chance. For example, when investigating people's perceptions of lotteries, Langer and Roth (1975) find that "the more similar a chance situation is to a skill situation, the greater the likelihood of there existing an illusion of control" (p. 951). People tend to neglect the odds because they are seeking controllability in the situation.

In the presence of positive-views-of-self, respondents tend to recall more positive information about performance, and hence rate performance better. In the presence of illusion-of-control, respondents tend to downplay or ignore environmental factors, and may exaggerate the capabilities and resources of a respondent's firm—including how market-oriented it is. For example, Harris (2002) concludes that "managers are either overestimating the value of developing a marketing orientation or underestimating the impact of competitive hostility" (p.34) as a possible explanation for the results of a study in which he finds

that the moderating effect of competitive hostility on the relationship between MO and performance is not monotonic. This leads to our second proposition.

Proposition 2: Managers are more likely to report positive aspects of their firm and regard their capability higher than it actually is, all else being equal.

Attribute evaluability. This is the tendency to overemphasize easy-to-evaluate attributes or information in ambiguous or complex situations (Hsee et al. 1999). People frequently use easy-to-evaluate attributes (e.g., profit margins) as substitutes for difficult-to-evaluate attributes (e.g., service satisfaction). Correspondingly, managers may use easy-to-evaluate attributes as cues to infer abstract constructs. They may use tangible attributes/measures, such as relative market share, profitability and sales growth, to evaluate performance; whereas the degree of market orientation is more difficult to evaluate[2]. This is a further argument in support of proposition 1.

Attribute evaluability provides an alternative explanation for Kirca et al's (2005) result that the MO-performance relationship is stronger for manufacturing industries than for service industries. First, a number of items measuring MO and the environment are open to interpretation as they are not readily evaluable for service firms, which are more intangible in nature. As a result, managers will tend to use surrogates to determine their responses. Examples include: "the product lines we sell depend more on internal politics than real market needs" and "there is minimal communication between marketing and manufacturing departments concerning market developments" (Jaworski and Kohli, 1993). Service firms do not have "product lines" and "manufacturing departments", so researchers have to modify the measuring items, otherwise managers in service firms are likely to use other dimensions of MO or environmental factors as surrogates. Second, the stronger relation between MO and performance found in manufacturing

industries may be attributable to the easier evaluability of resources related to products and their quality of production. Resources, investment and capabilities related to manufacturing and product output are more tangible and visible in terms of their features and functions, their capacity, and quantity, while the resources and capabilities of service firms are more intangible, perishable and customized (e.g., relationships and human capital) and are therefore harder to assess. As a result, managers in manufacturing firms more easily evaluate how market-oriented they are, and in turn have a clearer idea about how able (or not) they are to deal with the markets and customers to achieve good performance.

More tangible attributes lead to a stronger feeling of control in one's sensemaking process. Hence managers in manufacturing industries, compared to service industries, are more likely to report a stronger link between MO and performance and a less sensitive moderating effect of environmental factors.

The foregoing lead to the next two propositions:

Proposition 3a: The correlation of MO and performance is stronger for manufacturing firms than for service firms, all else being equal.

Proposition 3b: The moderating effect of the environment (simplifying market turbulence, competitive intensity and technology turbulence as a single variable) on the MO-performance link is weaker in manufacturing firms than in service firms, all else being equal.

The next principles deal with the next stage of the sensemaking process, the way incoming stimuli are interpreted in terms of an existing cognitive map and whether they can be incorporated in it or not.

Causal attribution. Attribution refers to the linking of an event to its causes (Ross and Fletcher, 1988). People make attributions to build cause maps and make sense of the world. In psychological terms, attribution is the means of maintaining self-esteem and maximizing a sense of control (Miller and Ross,

1975). Causal attribution is consistent with the implications of positive illusion. Festinger's (1962) cognitive dissonance theory also implies that attribution biases can help people to reach cognitive consistency.

Attributions of performance have been widely investigated in psychology. Heider (1958) suggests that an individual's level of performance would be attributed either to factors within the person or to factors within the environment. The two personal factors are "ability" and "effort" and the two environmental factors are "luck" and "task difficulty". "Ability" and "task difficulty" were regarded as stable factors while "effort" and "luck" are variable factors. Heider (1958), Kelley (1972; 1973), and Weiner (1985) further extend and summarize the stability (i.e., internal vs. external) and locus (i.e., stable vs. variable) of causal dimensions as the discounting/augmentation principle and self-serving biases.

The discounting/augmentation principle is the tendency for a cause to be underemphasized or overemphasized given other plausible or inhibitory causes. The self-serving principle is the inclination for people to attribute success to themselves and failure to others or to external factors.

When performance is good managers will tend to perceive that they are less affected by adverse environmental events and have less need to explain these effects (Thomas, Clark and Gioia, 1993; Bowman, 1976). They will tend to attribute good performance to a high level of MO due to the interaction of the discounting principle and self-serving bias. On the other hand, when performance is not satisfactory, managers have to find excuses and search for information both internally and externally to justify their experience (Clapham and Schwenk, 1991). The justification given could be the claim that poor performance is due to either a lack of top management support or a lack of inter-functional coordination (blame internal factors), or a fierce market environment (blame external factors). Perceivers are likely to augment the negative effects of external factors because such attributions help to save face and "are more likely to satisfy

[managers'] desire for a stable, predictable and controllable world". This reflects the interaction of the augmentation principle and self-serving bias and is summarized in the following propositions.

Proposition 4a: In the presence of good performance, managers are more likely to believe that they have done a better job of placing organizations in favorable niches and buffering themselves from market turbulence.

Proposition 4b: In the presence of poor performance managers will tend to attribute the cause to external factors beyond their control, such as lack of support from other parts of the firm or an unfavorable environment.

Studies show that subjective methods measuring performance produce stronger self-serving bias than objective methods (Reifenberg, 1986), because the former methods take into account individual differences in the perception of success. For example, managers may not think of a firm's sales growth as a success because that growth is below the average level of the industry. However, the manager in the firm may consider the growth to be an achievement and attribute it to the firm's MO, because they compare the growth rate with the firm's poorer historical records rather than make industry comparisons.

Proposition 4c: The effect of performance on attributions of MO and environment is stronger for perceptual measures of performance than objective measures.

The perceptions of MO and performance involve a process of cognitive adjustment, including causal attributions, in the light of experience and outcomes. Such adjustments help us to account for some otherwise troubling results about the MO-performance link. For example, both Greenley (1995) and Appiah-Adu (1997) replicate and extend Narver and Slater's (1990) framework in the UK. However, the two studies report different results: Greenley fails to find a positive and significant link between MO and

performance, while Appiah-Adu supports that association. A relevant factor here is that the UK was suffering from a recession when Greenley collected his data but Appiah-Adu collected his data during growing market conditions. The varying results may be in part attributable to the use of different measurement scales for MO and sample characteristics, but an alternative explanation is that, during the recession, companies in the UK perform worse than in the growing period. Therefore, managers in Greenley's study are more likely to attribute their unsatisfactory financial outcomes to market turbulence, while managers in Appiah-Adu's study are more likely to attribute their more satisfactory financial outcomes to being market-oriented (or being learning oriented/technology oriented). The experience of failure (poorer performance) evokes a greater force for cognitive consistency and attribution biases than success because attributions represent a search for the causes of the negative outcome Weiner (1985). This leads to the "contradictory" result that the MO-performance relationship is non-significant in Greenley's study but significant in Appiah-Adu's study.

Timing effect. Another implication of sensemaking is that the timing of a survey may greatly affect the results because a cause map keeps developing as a result of ongoing sensemaking and learning processes. In other words, the MO-performance relationship depends on a manager's cognitive cycle. Daft and Weick (1984) propose that, in the development of cause maps, dimensions of active and passive search interact with managers' assumptions about their environment (i.e. unanalyzable or analyzable), and causal relationships are either reinforced or undermined. The following proposition results.

Proposition 5: A significant relationship between MO and performance will tend to be reported when managers are asked to give their perceptions of MO and performance at a time when cause maps are being reinforced; whereas a non-significant relationship is likely when they are being

undermined.

This process helps explain Grewal and Tansuha's (2001) result, which finds a negative link between MO and objective performance in Thailand after the financial crises in 1998, that is stronger in high competitive environments. They suggest that "learning firms would be locked into set modes of cognition and response because crises are low-probability events and preclude creative sensemaking. The inertia created by being market-oriented often hampers learning pertaining to the changes in the environment after crisis." (p.76) In line with the cause map concept, respondents in that study possessed cause maps that were not consistent with perceived performance: though the crises had come to an end and the business environment had changed, managers' cause maps were still the ones developed during the crises. "Rapid changes in environment and uncertainty about future conditions lead managers to de-emphasize the significance of new data, to refine their knowledge rather than to reformulate it." (Salgado, Starbuck and Mezias, 2002, p.179)[3].

Figure 2, which is adapted from Podsakoff et al's (2003, p.886) table "how common method biases influence the question response process", depicts the various dimensions of the sensemaking process and the way managers' perceptions, recall and answers to survey questions are linked tor not to actual market behaviour. In the left hand box real market factors are depicted with causal links based on the model proposed by Kohli and Jaworski (1990). MO effects performance but is moderated by the environment. Performance results after some delay. The other parts of the model depict what goes on in a manager's mind as they make sense of incoming stimuli and answer questions about real market behaviour. When managers respond to questions about real market behaviour a sensemaking process is involved in which they rely on selectively recalled and attributed memories and experiences (C in Figure 2). Sensemaking is a

process in which psychological principles such as positive illusion, attribute evaluability and attribution biases, have effects. Firstly, positive illusion and evaluability affect the information managers scan for. They may recall positive information, overestimate their performance, underestimate uncertainty in the environment, and substitute easy-to-evaluate attributes for difficult ones. Secondly, attribution biases affect the way scanned information is incorporated into the cause map (B in Figure 2) when that information does not make sense to the manager (Kelly, 1972). For example, it is hard for a manager (especially marketing managers) to make sense of a market-oriented firm performing badly in a favorable environment because they are likely to possess a cause map, learnt in part at business school, that implies that a high level of MO causes good performance. To deal with this discrepant information, they interpret the data and make attributions selectively, based on mechanisms like the augmentation principle and self-serving bias. Managers may as a result overestimate the role of the environment and link that to the poor performance to rebalance cognitions. The sensemaking process results in managers developing particular views of their firm and environment, which shape the way they answer survey questions and the actions they take. The actions taken, which result in real changes in the degree of MO, result in a feedback loop that begins at B in Figure 2. The delay in this loop reflects time to implement change.

<Take in Figure 2 about here.>

In sum, cross-sectional surveys based on managers' recall and memories are problematic because they are in effect studying the results of managers' sensemaking processes rather than real market forces. They capture subjective performance, perceived environment and self-judged market orientation components that may not align with real market behaviour and market forces (Harris, 2002). This means that we can no longer simply treat reports of MO, performance, and the environment as independent variable, dependent

variable and moderator, respectively (Wilkinson, 2005; Uncles, 2000). A sensemaking perspective provides an alternative theory for explaining the results.

5. Conclusion and research implications

Cross sectional survey research has much strength and obviously plays an important part in research in marketing, management and other disciplines (Rindfleisch et al. 2008). That this type of research is inappropriate is not the argument; instead such surveys face a number of problems, especially when they are based on managers' perceptions and recall and when performance is a dependent variable. Furthermore, these problems have been neglected in marketing and management research but they need attention, otherwise our interpretations of survey results can misdirect research efforts.

As Das (2003) points out, "the inaccuracies of manager perceptions should be taken as a given," and "[it is more important] to see where the inaccuracies arise from and what their consequences are in practice" (p.23). Managers engage in a constant process of trying to understand and make sense of what they know and believe about themselves and their firm and to reconcile this with their ongoing experience of firm behavior and performance in a particular environment—what Weick (2000) describes as sensemaking. The process of sensemaking does not result in an accurate and unbiased view of the firm and its environment but one that is governed by various psychological principles related to the way managers seek and process information about their firms, the causal attributions they tend to make, and their desire for cognitive consistency (Ailawadi, Dant and Grewal, 2004).

Sensemaking theory suggests an alternative causal ordering of variables such as MO, performance and the environment, to that usually proposed. In the case of MO-Performance research it is a theory that is

consistent with existing results and is even capable of explaining some results that are otherwise difficult to explain. The relevance and significance of sensemaking biases go way beyond the study of MO and performance, important though this is, because such biases force us to reassess how academics use and interpret the results of any survey research based on management perceptions and recall. The impact of such sensemaking bias is an important issue because explaining variations in firm performance has been the subject of many proposed models and research studies in marketing and management and most of these are tested using cross sectional surveys based on managers' reports. In these studies firm performance is linked to various types of factors including firm orientations, resources and other characteristics and environmental characteristics. The resource-based theory of the firm (Barney, 1991) and resource-advantage theory (Hunt and Morgan, 1996) are examples of general theories of this form. Examples of research on specific factors affecting firm performance include, technology orientation (Gatignon and Xuereb, 1997), production orientation (Pelham, 2000), learning orientation (Barker and Sinkula, 1999), entrepreneurial orientation (Matsnuno, Mentzer and Ozsomer, 2002) and strategy type (Matsuno and Mentzer, 2000).

In addition to research on firm performance, management perceptions and recall are used in a variety of other types of research. In each case management sensemaking processes offer another potential theoretical explanation for causal links between variables in the model. One example is studies of organizational characteristics and how they are interrelated, including studies of organizational culture, innovation, information flows, growth and decision-making. A manager's perceptions and recall of one type of organizational variable is likely to influence and be influenced by their perceptions of other types of variables thus introducing potential bias and other causal directions linking variables. Another example is studies of inter-organizational and buyer-seller relations that examine the effects of relation dimensions such

as power, conflict, trust and commitment on each other and on other characteristics of relations such as longevity, cooperativeness, growth and innovation. For this research managers from only one side of the relation may be interviewed and asked about both sides of the relationship. This results in additional sensemaking problems for the respondent as they use various types of information to determine the way a counterpart sees the relation. Other types of survey research potentially affected by management sensemaking, including studies of firm strategic behaviour, supply chain management, customer relationship management, organizational buying behaviour and so on. But, no matter what the specific focus of the research, the potential impact of management sensemaking on the results cannot be avoided and should not be ignored.

Given the problems and limits of cross-sectional survey based research based on management perceptions and recall, why do researchers persist with this type of research and why is it published? We are all aware that cross sectional surveys cannot determine causality and that research based on management perceptions and recall is subject to potential bias – this is not new. March and Sutton (1997) argue: "properties of the research context, rather than individual ignorance or journal incompetence, may be primary contributors to this curiosity" (p.702). There are barriers to carrying out the kind of longitudinal and detailed studies required to overcome the problems identified, including short term research funding, the publications required for career advancement and what professional journals require. The managerially focused environment in business schools also encourages academics to develop and promote the types of theories that managers want (Gray and Wilkinson, 2007), i.e. ways of predicting and controlling firm performance, even if the research support is equivocal. This leads to research that is believed and accepted more because it fits with researchers' management orientation not because of its research standards and

attention to causal inferences. We could even see this is a reflection of researcher sensemaking, where the research culture serves to limit the attention given to rival hypotheses such as those resulting from management sensemaking.

6. Future research

Studying the problems and issues of management sensemaking in survey research inform two kinds of research suggestions. The first is the use of alternative methodologies that reduce the effect of sensemaking bias on the measures used and which provide better tests of causal ordering of model variables. The second focuses on the nature, significance, antecedents and impact of management sensemaking biases in different research contexts.

The first type of research includes longitudinal studies in which causal variables are measured at one time and causally dependent variables later, e.g. Marsh (1990) and Marsh and Perry (2005). This controls for feedback effects such as management perceptions of performance affecting their ratings of other variables. Such studies are not common, as noted, in part because they are more costly and time consuming to conduct. Examples in marketing include Ailawadi et al. (2004) and the study by Noble et al (2002). Ailawadi et al. (2004) use measures of relationship dimensions and objective and subjective performance over time to estimate the effect of various sensemaking biases on model estimates. A problem with such research is that performance tends to be correlated over time so past management experience of outcomes is a good indicator of future performance. This means the same sensemaking biases may still underlie the results rather than real market processes.

Another way of controlling the potential bias of a single management informant is to use multiple

respondents (Podsakof et al. 2003). One example is Deshpandé et al's (1993), who used customer ratings of MO as well as the firm's self-ratings. They found that customers' and suppliers' ratings of supplier MO did not correspond well, suggesting the impact of sensemaking biases as well as differences in the information each was exposed to. This approach is further developed by Webb et al. (2000) and Harris (2002), who propose measuring MO using several types of respondents from inside and outside the firm, each familiar with different aspects of MO,.

The second type of research focuses on identifying and explaining sensemaking biases and their impacts. One opportunity is to revisit existing models and research results, like MO and Performance, to see whether sensemaking provides an alternative explanation for the results obtained and whether methods exist to distinguish between them. Another way of studying sensemaking is to use managers' reports. For example, Bettman and Weitz (1983) investigate the patterns of causal attributions used to explain corporate performance based on reports to shareholders. They focus on managers' self-serving biases and the attribution principles of discounting and argumentation.

Experimental designs may be useful for examining sensemaking biases using realistic case studies as stimuli. Cases can be varied in terms of key variables influencing sensemaking bias, such as performance, environment and MO, and managers asked to assess the cases in terms of relevant dimensions. By comparing managers' responses and attributions under different case conditions, researchers can reveal the nature and strength of various sensemaking biases. The problem here is that managers are not responding to their firm, no matter how realistic the case, and this will reduce the strength of potential biases. Instead of using cases studies another way is to use management simulations, which have been used previously to study management perceptions and decision making e.g., Clark and Montgomery (1987), Malter and

Dickson (2001), and Marinova (2004). An example is Curren et al. (1992) who used simulations to study the decision makers' explanations of successful and unsuccessful marketing decisions. They found that "decision makers are likely to have self-serving biases in their causal attributions for performance" (p.18). The biases were in turn linked to the decision makers desire to succeed, their expectations about future performance and planning behaviour. Simulations are limited in that subjects may not treat the simulated firm as seriously as their own, and students may not be considered representative of real managers.

Finally, in depth studies can be undertaken of managers' sensemaking processes to see how their perceptions and attributions are formed, how they answer different types of questions, the kinds of information they use and the factors influencing these. Mason and Harris (2005) provide an example of this type of research; they identify the problems affecting how managers interpret and misinterpret questions about their firm's MO.

References

Agarwal, S., M., Erramilli, M. K., Dev, C. S., 2003. Market orientation and performance in service firms: Role of innovation. Journal of Services Marketing, 17 (1), 68-82.

Ailawadi, K. L., Dant, R. P., Grewal, D., 2004. The difference between perceptual and objective performance measures: An empirical analysis. Working Paper 04–001, Marketing Science Institute, Cambridge

Alba, J. W., Hutchinson, J. W., 2000. Knowledge calibration: What consumers know and what they think they know. Journal of Consumer Research, 27 (2), 123-156.

Appiah-Adu, K., 1997. Market orientation and performance: Do the findings established in large firms hold in the small business sector? Journal of EuroMarketing, 6 (3), 1-26.

Arnould, E. J., Wallendorf, M., 1994. Market-oriented ethnography: Interpretation building and marketing strategy formulation. Journal of Marketing Research, 31 (4), 484-504.

Barker, W. E., Sinkula, J. M., 1999. The synergistic effect of market orientation and learning orientation on organizational performance. Journal of the Academy of Marketing Science, 27, (4), 411-427

Barney, J., 1991. Firm resources and sustained competitive advantage. Journal of Management 16, 99-120

Bettman, J. R., Weitz, B. A., 1983. Attributions in the board room: Causal reasoning in corporate annual reports. Administrative Science Quarterly, 28 (2), 165-183.

Bhuian, S. N., 1998. An empirical examination of market orientation in Saudi Arabian manufacturing companies. Journal of Business Research, 43 (1), 13-25.

Bowman, E. H., 1976. Strategy and the weather. Sloan Management Review, 17 (2), 49-62.

Cano, C. R., Carrillat, F. A., Jaramillo, F., 2004. A meta-analysis of the relationship between market orientation and business performance: Evidence from five continents. International Journal of Research in Marketing, 21 (2),

179-200.

Clark, B. H., Montgomery, D. B., 1996. Perceiving competitive reactions: The value of accuracy (and paranoia). Marketing Letters, 7 (2), 115-129.

Clapham, S. E., Schwenk, C. A., 1991. Self-serving attributions, managerial cognition, and company performance. Strategic Management Journal, 12 (3), 219-329.

Crary, W. G., 1966. Reactions to incongruent self-experiences. Journal of Consulting Psychology, 30, 246-252.

Curren, M. T., Folkes, V. S., Steckel, J. H., 1992. Explanations for successful and unsuccessful marketing decisions: The decision maker's perspective. Journal of Marketing, 56 (2), 18-31.

Daft, R. L., Weick, K. E., 1984. Toward a model of organizations as interpretation systems. Academy of Management Review, 9 (2), 284-295.

Das, T. K., 2003. Managerial perceptions and the essence of the managerial world: What is an interloper business executive to make of the academic-researcher perceptions of managers? British Journal of Management, 14 (1), 23-32.

Dawes, J., 2000. Market orientation and company profitability: Further evidence incorporating longitudinal data. Australian Journal of Management, 25 (2), 173-199.

Day, G. S., Nedungadi, P., 1994. Managerial representations of competitive advantage. Journal of Marketing, 58 (2), 31-44

Deshpande, R., 1999. Developing a Market Orientation, Sage Publication, London:

Deshpande, R., Farley, J. U., Webster Jr. F. E., 1993. Corporate culture customer orientation, and innovativeness in Japanese firms: A quadrad analysis. Journal of Marketing, 57 (1), 23-37.

Devinney, T. M., Richard, P. J., Yip, G. S., Johnson G., 2005. Measuring organizational performance in management

research: A synthesis of measurement challenges and approaches. Working Paper, Australian Graduate School of Management , University of New South Wales, Australia

Ellis, P. D., 2006. Market orientation and performance: A meta-analysis and cross-national comparisons. Journal of Management Studies, 43 (5), 1089-1107.

Feldman, J. M., Lynch Jr., J. G., 1988. Self-generated validity and other effects of measurement on belief, attitude, intention, and behavior. Journal of Applied Psychology 73 (3), 421-435.

Festinger, L., 1962. A Theory of Cognitive Dissonance. Stanford University Press, California

Gatignon, H., Xuereb, J-M, 1997. Strategic orientation of the firm and new product performance. Journal of Marketing Research, 34 (1), 77-90

Gebhardt, G. F., Carpenter, G. S., Sherry, J. F., 2006. Creating a market orientation: A longitudinal, multifirm, grounded analysis of cultural transformation. Journal of Marketing, 70 (4)37-55.

Gray, D., Wilkinson, I. F., 2007. The production and consumption of marketing theory. Australasian Marketing Journal 15 (1), 39-52.

Greenley, G. E., 1995. Market orientation and company performance: Empirical evidence from UK companies. British Journal of Management, 6 (1), 1-13.

Grewal, R., Tansuhaj, P., 2001. Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility. Journal of Marketing, 65 (2), 67-80.

Harris, L. C., 2001. Market orientation and performance: Objective and subjective empirical evidence from UK companies. Journal of Management Studies, 38 (1), 17-43.

Harris, L. C., 2002. Measuring market orientation: Exploring a market oriented approach. Journal of Market Focused Management, 5 (3), 239-270.

Heider, F., 1958. The Psychology of Interpersonal Relations, Wiley, New York

Henley, A. B., Shook, C. L., Peterson, M., 2006. The presence of equivalent models in strategic management research using structural equation modeling: Assessing and addressing the problem. Organizational Research Methods, 9 (4), 516-535.

Homburg, C., Pflesser, C., 2000. A multiple-layer model of market-oriented organizational culture: Measurement issues and performance outcomes. Journal of Marketing Research, 37 (4), 449-462.

Hsee, C. K., Loewenstein, G. F., Blount, S., Bazerman, M. H., 1999. Preference reversals between joint and separate evaluations of options: A review and theoretical analysis. Psychological Bulletin, 125 (5), 576-590.

Hult, G. T. M., David, Jr., J. K., Slater, F. S., 2005. Market orientation and performance: An integration of disparate approaches. Strategic Management Journal, 26 (12) 1173-1181.

Hunt, S., Morgan R. M., 1996. The resource advantage theory of competition: Dynamics, path dependencies and evolutionary dimension. Journal of Marketing, 60 (4), 107-114

Jaworski, B. J., Kohli, A. K., 1993. Market orientation: Antecedents and consequences. Journal of Marketing, 57 (3), 53-70.

Kelley, H. H., 1972. Causal Schemata and the Attribution Process, General Learning Press, New York

Kelley, H. H., 1973. The processes of causal attribution. American Psychologist, 28 (2), 107-128.

Kirca, A. H., Jayachandran, S., Bearden, W. O., 2005. Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. Journal of Marketing, 69 (2), 24-41.

Kohli, A. K., Jaworski, B. J., 1990. Market orientation: The construct, research propositions, and managerial implications. Journal of Marketing, 54 (2), 1-18.

Langer, E. J., 1975. The illusion of control. Journal of Personality & Social Psychology, 32 (2), 311-328.

Langer, E. J., Roth J., 1975. Heads I win, tails it's chance: The illusion of control as a function of the sequence of outcomes in a purely chance task. Journal of Personality & Social Psychology, 32 (6), 951-955.

Louis, M. R., 1980. Surprise and sense making: What newcomers experience in entering unfamiliar organizational settings. Administrative Science Quarterly, 25 (2), 226-251.

Malter, A. J. Dickson, P. R., 2001. The effect of individual learning on competitive decision-making and firm performance. International Journal of Research in Marketing, 18 (1/2), 99-117.

March, J. G., Sutton, R. I., 1997. Organizational performance as a dependent variable. Organization Science, 8 (6), 698-706.

Marinova, D., 2004. Actualizing innovation effort: The impact of market knowledge diffusion in a dynamic system of competition. Journal of Marketing, 68 (3), 1-20.

Marsh, W. H., 1990. Causal ordering of academic self-concept and academic achievement: A multiwave, longitudinal panel analysis. Journal of Educational Psychology, 82 (4), 646-656.

Marsh, W. H., Perry, C., 2005. Does a positive self-concept contribute to winning gold medals in elite swimming? The causal ordering of elite athlete self-concept and championship performances. Journal of Sport and Exercise Psychology, 27 (1), 71-91.

Mason, K., Harris, L. C., 2005. Pitfalls in evaluating market orientation: An exploration of executives interpretations. Long Range Planning, 38 (4), 373-391.

Matsnuno, K., Mentzer, J. T., Ozsomer, A., 2002. The effects of entrepreneurial proclivity and market orientation on business performance. Journal of Marketing, 66 (3), 18-32

Matsuno, K., Mentzer, J. T., 2000. The effects of strategy type on the market orientation-performance relationship. Journal of Marketing, 64 (4), 1-16

Mezias, J. M., Starbuck, W. H., 2003. Studying the accuracy of managers' perceptions: A research odyssey. British Journal of Management, 14 (1), 3-17.

Miller, D. T., Ross, M., 1975. Self-serving biases in the attribution of causality: Fact or fiction? Psychological Bulletin, 82 (2), 213-325.

Narver, J. C., Slater, S. F., 1990. The effect of a market orientation on business profitability. Journal of Marketing, 54 (4), 20-35.

Nisbett, R., Wilson, T., 1977. Telling more than we can know: Verbal reports on mental processes. Psychological Review 84 (3), 231-259.

Noble, C. H., Sinha, R. K., Kumar, A., 2002. Market orientation and alternative strategic orientations: A longitudinal assessment of performance implications. Journal of Marketing, 66 (4), 25-39.

Payne, R., Pugh, D. S., 1976. Organization structure and climate. In Dunnette, M. D. (Eds.), Handbook of Industrial and Organizational Psychology, Rand McNally, Chicago, pp.1125-1173.

Pelham, A. M., 2000. Market orientation and other potential influences on performance in small and medium-sized manufacturing firms. Journal of Small Business Management, 38 (1), 48-67

Phillips, L. W., 1981. Assessing measurement error in key informant reports: A methodological note on organizational analysis in marketing. Journal of Marketing Research, 18 (4), 395-415.

Podsakoff, P. M., MacKenzie, S. B., Lee, J-Y, Podsakoff, N. P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88 (5), 879-903.

Pulendran, S., Speed, R., Widing, R. E. I., 2000. The antecedents and consequences of market orientation in Australia. Australian Journal of Management, 25 (2), 119-143.

Reger, R. K., Palmer, T. B., 1996. Managerial categorization of competitors: Using old maps to navigate new

environments. Organization Science, 7 (1), 22-39.

Reifenberg, R. J., 1986. The self-serving bias and the use of objective and subjective methods for measuring success and failure. Journal of Social Psychology, 126 (5), 627-631.

Rindfleisch, A., Malter, A. J., Ganesan, S., Moorman, M., 2008. Cross-sectional versus longitudinal survey research: Concepts, findings and guidelines. Journal of Marketing Research, 45 (2), 261-279

Ross, M., Fletcher, G. J. O., 1988. Attribution and social perception. In Gardner Lindzey and Elliot Aronson, (Eds.), Handbook of Social Psychology, 3rd ed. Random House, New York, pp.73–122.

Salgado, S. R., Starbuck, W. H., Mezias, J. M., 2002. The accuracy of managers' perceptions: A dimension missing from theories about firms. In March, J. G. and Augier, M. (Eds.), The Economics of Choice, Change, and Organization: Essays in Memory of Ricard M. Cyert, Edward Elgar, Cheltenham, pp.168–185.

Sandvik, I. L., Sandvik, K., 2003. The impact of market orientation on product innovativeness and business performance. International Journal of Research in Marketing, 20 (4), 355-376.

Silverman, I., 1964. Self-esteem and differential responsiveness to success and failure. Journal of Abnormal and Social Psychology, 69 (1), 115-119.

Slater, S. F., Narver, J. C., 1994. Does competitive environment moderate the market orientation-performance relationship? Journal of Marketing, 58 (1), 46-55.

Snyder, M. L., Wicklund, R. A., 1981. Attribute ambiguity. In John H. Harvey and William John Ickes and Robert F. Kidd, Eds. New Directions in Attribution Research, 3. L. Erlbaum Associates, New York, pp.197-221

Starbuck, W. H., Mezias, J. M., 1996. Opening Pandora's box: Studying the accuracy of managers' perceptions. In: Journal of Organizational Behavior, 17, John Wiley & Sons

Starbuck, W. H., Milliken, F. J., 1988. Challenger: Fine-tuning the odds until something breaks. Journal of

Management Studies, 25 (4), 319-440.

Sutcliffe, K. M., 1994. What executives notice: Accurate perceptions in top management teams. Academy of Management Journal, 37 (5), 1360-1378.

Taylor, S. E., Brown, J. D., 1988. Illusion and well-being: A social psychological perspective on mental health. Psychological Bulletin, 103 (2), 193-210.

Thomas, J. B., Clark, S. M., Gioia, D. A., 1993. Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes. Academy of Management Journal, 36 (2), 239-270.

Uncles, M., 2000. Market Orientation. Australian Journal of Management, 25 (2), i-ix.

Wall, T. D., Michie, J., Patterson, M., Wood, S. J., Sheehan, M., Clegg, C. W., West, M., 2004. On the validity of subjective measures of company performance. Personnel Psychology, 57 (1), 95-118.

Webb, D., Webster, C., Krepapa, A., 2000. An exploration of the meaning and outcomes of a customer-defined market orientation. Journal of Business Research, 48 (2), 101-112.

Weick, K. E., 2000. Making Sense of the Organization, Blackwell Publishers, Malden, MA

Weick, K. E., Sutcliffe, K. M., 2005. Organizing and the process of sensemaking. Organization Science, 16 (4), 409-421

Weiner, B., 1985. "Spontaneous" causal thinking. Psychological Bulletin, 97 (1), 74-84.

Wilkinson, I. F., 2005. When do managers think their firm is market oriented? Australia New Zealand Marketing Academy Annual Conference, Fremantle, Australia.

Winter, S. G., 2003. Mistaken perceptions: Cases and consequences. British Journal of Management, 14 (1), 39-44.

Figure 1

The Sensemaking Process

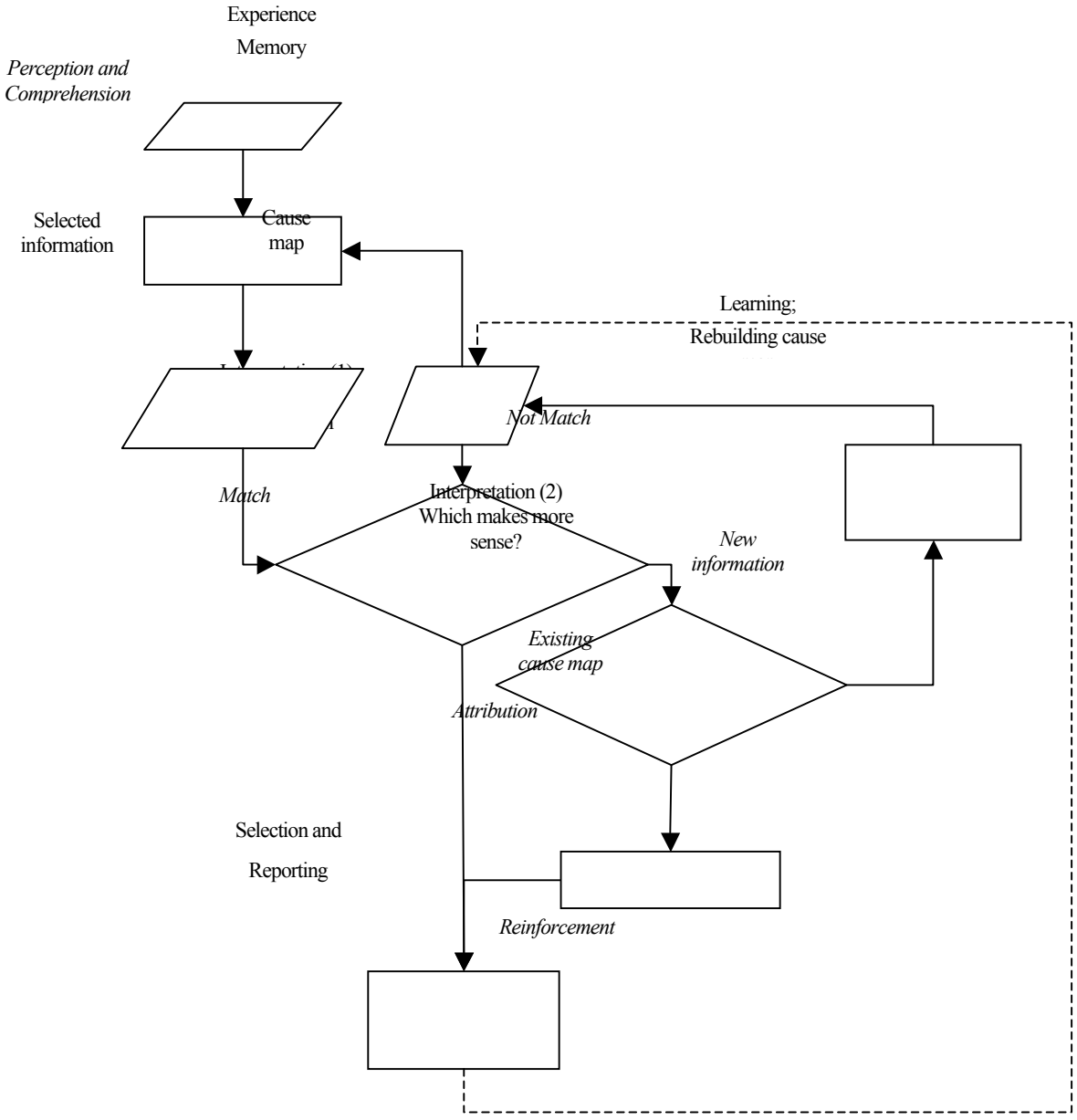
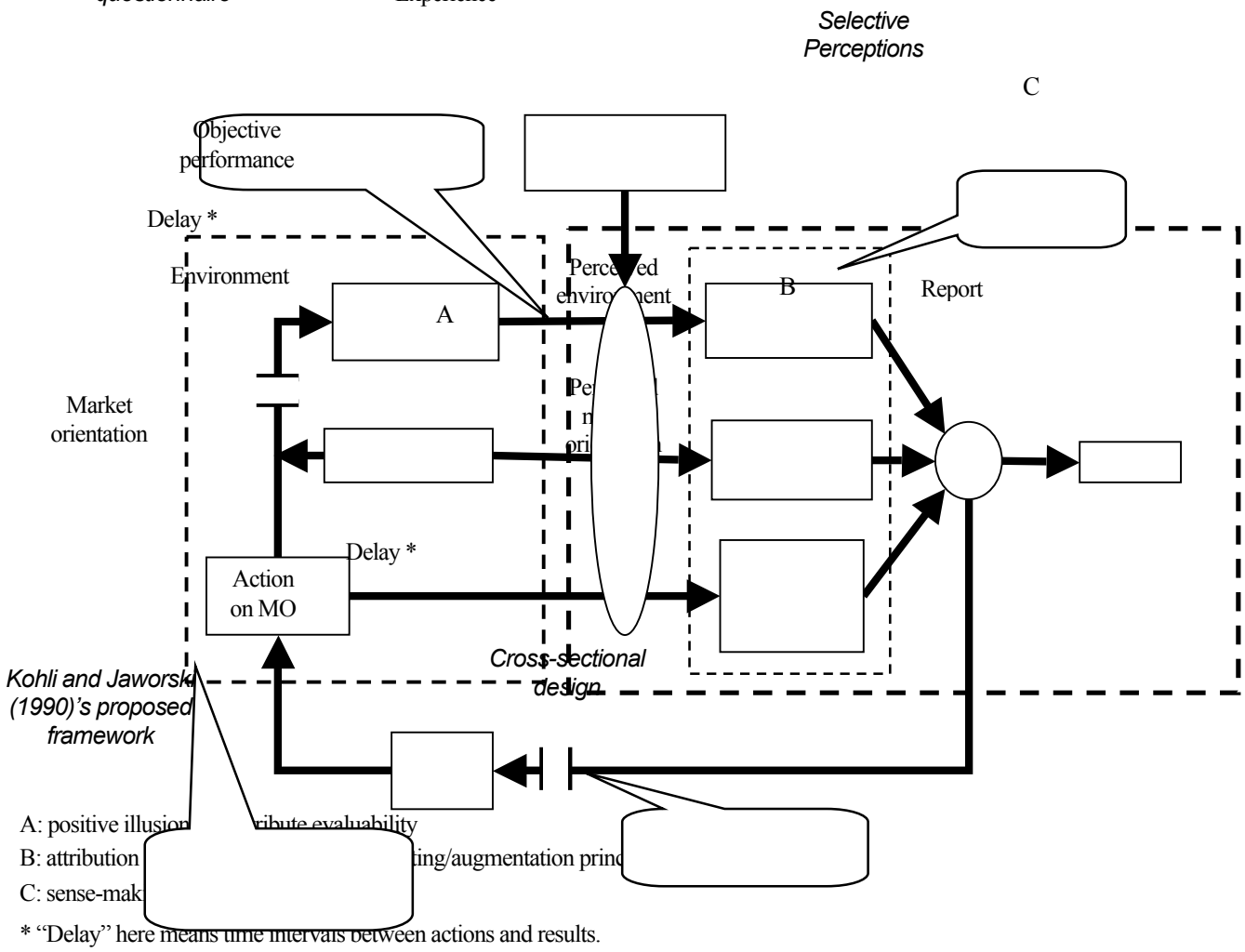

Stimuli
Experience
Memory
Perception and
Comprehension
Selected
information
Cause
map
Learning;
Rebuilding cause
Not Match
Match
Interpretation (2)
Which makes more
sense?
New
information
Existing
cause map
Attribution
Selection and
Reporting
Reinforcement

Figure 2

the Integrated Framework of the MO Constructs



[1] One reason subjective measures may be stronger is because they are generally expressed relative to competition, whereas objective measures are not. However, the difference does not help distinguish between alternative causal models.

[2] Our arguments for Proposition 3a does not conflict with service dominant logic concepts. Our focus is whether a firm's outputs and resources are easy to evaluate or not. It is based on the intrinsic evaluability of services versus products, with services less evaluable because they are more intangible than products.

[3] Grewal and Tansuhaj (2001) only find a positive link between performance and MO in conditions of high demand and technological uncertainty, arguing that the former is due to MO enabling firms to read new patterns of demand quicker and the latter reflects a shift away from expensive innovative products to other marketing instruments.