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Article *in* Administrative Science Quarterly · September 2004

DOI: 10.2307/4131439

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Strategic Planning as an Integrative Device

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While alleviating the adverse effects of employees' pursuit of their subgroups' goals over organizational goals is important, finding ways to avoid them may be even more important. In this paper, we investigate whether strategic planning can be used to reduce organizational members' position bias, or the extent to which they direct their attention toward the immediate goals and priorities attached to their position. We examine the hypothesis that involving employees in the strategic planning process and communicating the agreed-upon priorities to them afterwards enhance goal convergence by attenuating position bias. We examine these questions in a sample of 164 manufacturing plants from five countries and three industries, where we asked middle-level managers to assess the importance of various organizational goals. We find that participation and communication function as complements to jointly reduce managerial position bias.

Organizational members tend to focus on the immediate goals of their own unit as opposed to those of the whole organization (Dearborn and Simon, 1958; Lawrence and Lorsch, 1967; Nauta and Sanders, 2001), a phenomenon that March and Simon (1958: 152) have termed "subgoal pursuit." When employees tend to identify with their role in the formal structure or position, they exhibit position bias. As an example, the task of the research and development (R&D) function is to develop new technologically advanced products. While the R&D or scientific community might find these new products or technologies valuable, they may add little value to the customer. Because position bias is likely to lead to selective perception (Dearborn and Simon, 1958) and thus "make compromise difficult and lead to 'entrenched' positions on the strategic direction of the firm" (Dess, 1987: 265), it may have serious adverse effects on the strategy process, especially in contexts in which requisite integration—the required cooperation between different functions or departments—is high (March and Simon, 1958; Lawrence and Lorsch, 1967). Ultimately, it can prevent the organization from achieving its overall performance goals (Lawrence and Lorsch, 1967).

Dearborn and Simon (1958: 142–143) pointed out that organizational members exhibit position bias even when they are explicitly encouraged to examine the issues from a company-wide perspective, implying that they have internalized position bias and are not necessarily even aware of its existence. This presents a fundamental challenge for both strategy formulation and implementation. In the extant empirical literature on the topic, researchers of subgoal pursuit have tried to uncover whether functional affiliation affects decision making (Dearborn and Simon, 1958; Walsh, 1988; Beyer et al., 1997), but the evidence is mixed. Dearborn and Simon (1958) found that managers view organizational priorities from their own functional perspective, but Beyer et al. (1997) challenged this conclusion by arguing that a manager's functional background does not necessarily lead to selective perception in the way that it has been portrayed. Beyer et al. (1997) also argued that some of the mixed evidence may be due to the differences in the empirical methods used. In addition to mixed evidence, there are neither systematic empirical examina-

0001-8392/04/4903-0337/$3.00.

We would like to thank the three anonymous reviewers and the associate editor, Martin Kilduff, for their valuable comments during the review process. In addition, we gratefully acknowledge David Knoke's comments on earlier versions of this paper, as well as the comments received from the participants at a research seminar at HEC School of Management (Paris), where we presented an early version of this paper. Finally, we would like to thank Linda Johanson for editorial assistance.

tions of the more general concept of position bias, which encompasses different functions and hierarchical levels, nor empirical examinations of how position bias could be reduced. These are the two main issues addressed in this study.

Because subgoal pursuit and position bias are, at least in part, the result of the division of labor and structural differentiation, their effects can potentially be alleviated by employing various integrative devices, such as liaison officers or integrating departments that span the boundaries of organizational units (Lawrence and Lorsch, 1967; Pinto, Pinto, and Prescott, 1993), incentives at the collective rather than individual level (Ross, 1973; Porter, 1985), personnel transfer (Edström and Galbraith, 1977; Porter, 1985), and cross-training (Postrel, 2002), as well as socialization into common values (Van Maanen and Schein, 1979; Ouchi, 1980; Schein, 1985). Eisenhardt (1989b), Pinto, Pinto, and Prescott (1993), and Kotter and Heskett (1995), among others, have empirically demonstrated the effectiveness of some of these integrative mechanisms. Pinto, Pinto, and Prescott (1993) in particular found that cross-functional cooperation was related to the implementation success of projects. Their study is important here also because they also examined the role of goal setting as an important antecedent of cross-functional cooperation; given that goals are set in strategic planning, strategic planning itself could be considered another potential integrative device.

March and Simon (1958) wrote about the coordinative role of plans, schedules, and deadlines (see also Galbraith, 1971, 1974; Porter, 1985), and Vancil and Lorange (1975) and Mintzberg (1994) discussed the integrative nature of strategic planning, a specific type of planning process that consists of defining the organization's vision, goals, strategy, and plans for a given period in the future (Chandler, 1962; Ansoff, 1965; Andrews, 1987). Given the extant debate on the value of strategic planning (e.g., Miller and Cardinal, 1994; Mintzberg, 1994), on the one hand, and the pervasiveness of strategic planning in all kinds of organizations, on the other, this is indeed a fundamental issue in management research. Aside from theoretical arguments and illustrations, however, few authors have empirically examined the integrative impact of strategic planning, that is, the extent to which strategic planning efforts lead to organizational members developing a common view of organizational goals, what can be called goal convergence. In their admittedly exploratory small-sample empirical study, Wooldridge and Floyd (1990) found that middle management's involvement in the strategy process is associated with a higher degree of convergence on strategic priorities. Studies of top management team consensus are more common (see Dess and Priem, 1995, for a review). At the same time, while goal consensus is typically defined as total agreement among a group of participants (Dess and Priem, 1995), such as the top management team (Bourgeois, 1985; Dess and Origer, 1987), who engage in decision making as a group, goal convergence can involve organizational members who may or may not all have jointly engaged in discussion and debate. If we wish to uncover the antecedents

of effective strategy implementation, we must augment studies of top management team consensus with studies of goal convergence in the broader organization: while top management team consensus is instrumental in achieving unity of command and direction, goal convergence at different levels of the organization facilitates strategy implementation. Even if the top management team agrees on the strategic goals, subgoal pursuit and position bias at other levels of the organization, middle management in particular, can prevent the organization from achieving them. This is why we need studies that look beyond top management team consensus and examine the ways that the effects of position bias can be alleviated at all levels of the organization.

We suggest that organization-wide effects on position bias can be achieved through the strategic planning process. Two characteristics of strategic planning specifically, participative planning and communicating the resulting goals and priorities to all employees, may reduce position bias and thus enhance goal convergence. Participative planning has its intellectual roots in the human relations literature and the classic study of Coch and French (1948), who found that participation in strategic planning is associated with commitment to the resulting strategies (see also Nutt, 1989). In another classic article, Tannenbaum and Massarik (1950) argued theoretically that participation is associated with greater commitment to the resulting plans but that the association is contingent on factors such as job security and effective communication channels that facilitate participation. Thus although these classic studies and more contemporary ones (Schuler, 1980; Nutt, 1987) have addressed the potential benefits of employee participation in decision making, as well as participation in strategic planning (Wooldridge and Floyd, 1989) in particular, the impact of subsequent communication has received little attention. If top managers make an effort to communicate the agreed-upon priorities to all employees, organizational members will be informed about them (Mintzberg, 1994). Once the priorities have been communicated, employees will have better knowledge of the overall importance of specific organizational goals, not just the goals directly related to their organizational positions. Communication of goals may thus have an important role in organizational integration, helping to reduce subgoal pursuit.

Several theories potentially explain subgoal pursuit. Extending March and Simon's (1958) discussion on subgoal pursuit from the unit level to the level of organizational positions, organizational members can be said to orient themselves toward the realization and achievement of the tasks and immediate goals of their own organizational position (e.g., Latham and Yukl, 1975; Locke et al., 1984). Subgoal pursuit and position bias are therefore at least in part a consequence of both horizontal and vertical differentiation (Simon, 1962; Lawrence and Lorsch, 1967; Lorange and Murphy, 1984; Simon, 1997). To be sure, subgoal pursuit or position bias can arise from individuals' self-interest as well (Ross, 1973; Milgrom and Roberts, 1988). Organizational members may focus on achieving the immediate goals of their position simply because their personal rewards are tied to these goals; by

focusing on these immediate goals, they increase their chances of being rewarded (Lorange and Murphy, 1984; Guth and MacMillan, 1986). The degree of subgoal pursuit and position bias may also correlate with individual characteristics such as organizational and position tenure, functional background, and education (Dearborn and Simon, 1958; Hambrick and Mason, 1984; Lorange and Murphy, 1984; Walker, 1985). For instance, the longer the organization members' tenure in their positions, the greater the likelihood that they will have developed an attachment to their position and their own organizational unit and its objectives.

Another potential explanation of subgoal pursuit comes from the social network perspective. Burt (1992), for instance, argued that structural position in a network of relationships can provide information benefits. Applied here, one could argue that actors who bridge structural holes in the network can use this network position to their advantage and further their individual goals as well as the goals attached to their position (Burt, 1997); the greater the number of structural holes in the organization, the greater the degree of position bias and subgoal pursuit. Another network explanation could involve exploring the relationship between tie strength and access to information and position bias (Granovetter, 1973; Hansen, 1999; Floyd and Wooldridge, 2001): lack of ties could be associated with poor access to information and thus higher position bias.

In sum, subgoal pursuit can arise from a number of sources. Our goal is not to assess the relative importance of different sources of subgoal pursuit or position bias; rather, we focus on how structural differentiation leads to position bias and subgoal pursuit and, more importantly, whether strategic planning can be used as a potential integrative device. Integrative mechanisms that are effective in attenuating subgoal pursuit that arises from organizational members' self-interest or opportunism are outside the scope of our theoretical argument.

STRATEGIC PLANNING AS AN INTEGRATIVE MECHANISM

Most organizations, for-profits and non-profits alike, periodically engage in a process of strategic planning. Even if a new organizational vision might not be generated every year, contemporary budgeting norms and practices call for an annual assessment of performance goals. In planning and budget settings, organizations identify priorities and translate them into resource allocations (Vancil and Lorange, 1975; Bower, 1986). Strategic planning thus becomes an instrument for managing the interdependencies that horizontal and vertical differentiation across units and hierarchical levels has created (Porter, 1985: 403).

Managers engage in strategic planning in an attempt to generate a consistent set of organizational goals, which they can then communicate to the different organizational levels. If the resulting goals are communicated to the entire organization, strategic planning can be a means for top managers to ensure that all employees are aware of the desired organizational goals (Vancil and Lorange, 1975). Ensuring that organi-

zational members in general and middle managers in particular perceive organizational goals and their relative importance similarly is not only a necessary condition for their implementation and realization in a top-down planning approach but is also critical in guaranteeing that middle managers autonomously develop strategic initiatives and take actions that are congruent with the organizational priorities (Burgelman, 1983; Bower, 1986; Schilit, 1987). If consistent action is in any way a determinant of organizational success, strategic planning may indeed lead to higher performance.

While Vancil and Lorange (1975) argued that strategic planning can be used in diversified corporations to create consistency among the goals of different organizational business units and management levels (see also Porter, 1985), the strategic planning process needs to include two specific characteristics in order to become an integrative mechanism: employees must participate in the strategic planning process (Wooldridge and Floyd, 1990; Mintzberg, 1994), and top managers must communicate the resulting goals and priorities (Mintzberg, 1994). Incorporating both these features into the strategic planning process helps reduce position bias and thus promotes goal convergence. Dess (1987) argued that one of the main reasons for lack of consensus or convergence is that individuals view goals from their individual formal positions in the organization. He further argued that top management team consensus on organization-level goals cannot be achieved unless everyone is "privy to the same 'strategy-related' information" (Dess, 1987: 265). Reducing position bias is thus likely to take place when organizational members are aware of, understand, and are committed to the organizational goals that emerge from the planning process.

In examining strategic planning, we do not assume that managers can accurately predict the future environment, an assumption that Mintzberg (1994), among others, has criticized. Rather, our arguments echo Mintzberg's (1994) critique that strategic planning often fails because it is confined to the top management team or planning experts, thus excluding organizational members who are responsible for implementation and who have detailed and valuable information about the organization, its competitive position, and the relationship between the organization and key external actors such customers, suppliers, and regulators.

Participatory Strategic Planning and Position Bias

In a participative strategic planning process, top management usually forms a number of temporary groups comprising employees from different units and hierarchical levels. The task of these groups is to analyze the performance of past strategies and the organizational environment and to propose goals, as well as strategies, plans, and budgets for achieving those goals. According to the general literature on participation (e.g., Tannenbaum and Massarik, 1950; Mitchell, 1973; Schuler, 1980) as well as the strategic planning literature (Wooldridge and Floyd, 1990), participation in the strategic planning process should generate informational, affective,

and motivational effects that attenuate position bias, thus increasing goal convergence.

Informational benefits of participatory planning. Similar to Tannenbaum and Massarik's (1950) argument for participation in decision making in general, Wooldridge and Floyd (1990) claimed that involving middle managers in the strategic planning process leads to a better understanding of the emerging plans, goals, and strategies. Participatory planning can also help participants better comprehend not only the resulting goals but also the broader challenges facing top management (McGregor, 1944; Tannenbaum and Massarik, 1950) as well as the context in which the strategic planning process takes place. Tannenbaum and Massarik (1950) discussed the different advantages of employee participation in decision making by means of incorporating employees' suggestions and enhancing their understanding of organizational goals and managerial directives. This is likely to reduce participants' focus on the immediate goals of their own positions, or at least they will be able to see them as part of a broader strategy and set of goals. Empirical tests of the effects of employee participation support these arguments: involving employees in the process of defining their own job descriptions, goals, and rewards reduces role ambiguity and conflict and thus enhances employees' understanding of how their position tasks and goals relate to the tasks and goals of the whole organization (Mitchell, 1973; Schuler, 1980; Fry and Hellriegel, 1987).

Compared with involvement in designing one's job description, however, participation in the definition of the broader organizational goals is likely to have an even stronger effect in reducing goal ambiguity. Awareness and understanding of organizational goals is necessary for employees to orient themselves toward the achievement of the organization's goals, not only the goals associated with their position. Wooldridge and Floyd (1990) provided small-sample exploratory evidence that involving middle managers in the strategic planning process increases understanding of the resulting goals, leading to convergence between top and middle managers in the definition of organizational goals.

Affective and motivational effects of participatory strategic planning. Involving employees in the strategic planning process can also have affective or emotional effects, such as a stronger sense of organizational recognition and individual ownership of the goals. This, in turn, leads to two motivational effects, in that employees may become more interested in broader organizational goals and be more inclined to agree with them, which should reduce their position bias.

McGregor (1944: 60) argued that "through participation . . . [subordinates obtain] a genuine satisfaction in knowing that [their] opinions and ideas are given consideration in the search for solutions." Being asked to participate in strategic planning, probably the most important organizational process, is a signal of top management's recognition of one's worth or ability to contribute to the organization (see also Nutt, 2001). Participation in strategic planning can thus instill in those who are involved in the process a feeling of organizational appreci-

ation. This sense of appreciation and belonging can prompt those involved not only to participate actively in the strategic planning process but also to develop a genuine interest in its outcomes and a stronger identification with the resulting organizational goals (Kogut and Zander, 1996). Further, involvement in the strategic planning process can also generate a sense of individual ownership of the goals that emerge from the process; even if the emerging goals do not fully reflect the views of all participants, the fact that they were given the opportunity to participate might nonetheless increase the likelihood of adoption and commitment among the participants (Tannenbaum and Massarik, 1950), which should reduce position bias:

Hypothesis 1 (H1): Employee participation in the strategic planning process reduces position bias.

Goal Communication

A second feature of strategic planning that can reduce position bias is top managers' effort to communicate and articulate to the entire organization the priorities that emerge from the planning process. While Simon (1997: 208–249), Thayer (1968), and Burke and Wilcox (1969), among others, have argued for the benefits of enhanced communication within organizations, we have no systematic empirical evidence of its effectiveness in the context of strategic planning. Obviously, participation in strategic planning involves communication in that a dialogue is established among participants in the different groups created for that purpose. Here, the focus is on the one-way communication of the results of the strategic planning process once it has been brought to its conclusion.

Knowing what the organizational goals are is a prerequisite to being able to take them into account. As Lorange and Murphy (1984: 30) pointed out, inconsistency among different goals reflects insufficient coordination and communication between different management levels. If top managers communicate the goals emerging from the strategic planning process—participatory or not—to the rest of the organization, employees will have a clearer idea of what the organization as a whole wants to achieve. If top management is further capable of articulating the organizational goals in a way that is understandable from the perspective of each unit and hierarchical level, employees will also develop a better sense of how the tasks and goals of their position and unit may relate to the organization's goals, thus reducing potential role ambiguity. Communicating and articulating goals can reduce position bias by making employees aware of the organizational goals and providing them with a sense of organizational direction (Miller, 1992) and an understanding of their position in the organization as a whole. We therefore hypothesize:

Hypothesis 2 (H2): Communicating the organizational priorities derived from strategic planning throughout the organization reduces position bias.

Complementary Effects of Participation and Communication

We have thus far treated participation and communication as independent of one another, but in addition to their having an individual impact on position bias, they may have a mutually reinforcing effect. If the top management team involves the employees in the strategic planning process, it may gain more from subsequent communication efforts, that is, the attenuating effect of participation on position bias may be amplified if the resulting goals are communicated afterwards. This makes these two integrative features of strategic planning complementary (Milgrom and Roberts, 1990: 514; see also Siggelkow, 2002) in that the effects of participation and communication are mutually reinforcing. Not only are they compatible and can be used in conjunction with one another, they are also complementary.

When organizational members have an opportunity to participate in the strategic planning process, they are more likely to be interested in its outcome. Further, this involvement in charting the future of the organization through the strategic planning process is likely to generate in participants an expectation that top management will communicate—as a sign of recognition of participants' efforts—the emerging goals and priorities to them and other organizational members. Being asked to participate in the process generates an implicit contract between participants and those asking for participation that participants will at least be compensated by being informed about the outcome of the process, which can be viewed as an expectation of minimal reciprocity. Thus, if top management communicates the priorities resulting from the planning process to the different managerial levels and functions after having engaged in a participatory process, participants' expectations will be fulfilled, even if they do not fully agree with the announced goals. Participating employees might perceive this communication as another signal of organizational recognition for their contributions and effort in the planning process. Such subsequent goal communication therefore complements or reinforces the motivational effects of participation to jointly reduce position bias.

Conversely, prior participation can also reinforce the effects of subsequent goal communication: employees who have participated in the strategic planning process will become interested in its outcome. Having participated in the discussions and debates on future strategies and objectives not only provides involved individuals with clues on how to interpret and understand the goals but also directs their attention to the resulting goals when they are being communicated (Ocasio, 1997; Simon, 1997). Therefore, once goals are communicated, participants are likely to understand the content of the message better and thus understand the organizational goals, which should reduce position bias.

Hypothesis 3 (H3): Participation and communication complement one another to further reduce position bias above and beyond their individual main effects.

METHOD

Data and Sample

The data used in the analysis were collected in 1994–1997 from 164 mid-sized to large (at least 200 employees) manufacturing plants in five countries (Germany, Italy, Japan, the United Kingdom, and the United States) in three industries (automotive suppliers, machinery, and electronics) as part of the second round of the World-Class Manufacturing Project (Flynn, Schroeder, and Sakakibara, 1994). We collected the data using written surveys, with multiple informants at each plant, ranging from the plant's top management and business-unit-level informants to shop-floor supervisors and employees. We used stratified sampling to obtain a similar number of plants for each industry-country combination. Only one plant per business unit or corporation was included, to avoid interdependence of observations. Data in each country were gathered in the native language of each country, and questionnaires were translated and back-translated to check for consistency across the five countries.

Sixty-five percent of the plants contacted agreed to participate in the study. This high response rate was achieved by personally contacting each plant manager by telephone and by promising the participating plants a profile report in which the plant would be compared with others in the industry. The psychometric measurement instruments used in the study were pilot tested and checked for reliability and validity (Flynn, Schroeder, and Sakakibara, 1994). Analyses of the industry, size, and location of responding and non-responding firms indicate no significant differences (Flynn, Schroeder, and Flynn, 1999: 259). Table 1 presents the descriptive statistics and correlation coefficients.

Dependent Variable

In testing the hypotheses, we focused on the participants' perceptions of the intended strategy (Mintzberg and Waters, 1985). We approached this by examining middle-level managers' perceptions of the priorities within the manufacturing function for the next five years. More specifically, we examined middle-level managers' assessment of the relative importance of various dimensions of future operational performance at the plant. Because we were addressing priorities

Table 1

Descriptive Statistics and Pearson Correlation Coefficients (N = 164, country and industry not controlled)

Variable	Mean	S.D.	1	2	3	4	5	6	7	8
1. Number of employees	958	1432	—							
2. Monthly sales ratio	1.90	1.20	–0.03	—						
3. Number of product lines	11	17	0.00	–0.01	—					
4. Cross-functional cooperation*	2.86	0.43	0.13	–0.07	0.07	—				
5. Participation*	2.09	0.43	0.26	–0.13	0.01	0.48	—			
6. Communication*	3.37	0.55	0.23	0.03	–0.10	0.42	0.52			
7. Plant manager bias†	0.87	0.63	–0.29	–0.06	–0.09	–0.11	–0.07	0.08	—	
8. Plant research coordinator bias†	1.16	0.91	0.24	–0.08	–0.08	0.07	0.01	0.01	–0.29	—
9. Plant superintendent bias†	1.29	0.85	–0.11	0.13	0.22	–0.08	–0.11	–0.07	–0.11	–0.13

* Five-point Likert scales.
† Factor scores from the MTMM analysis.

at the plant level, looking at operational priorities instead of financial goals was more appropriate (Venkatraman and Ramanujam, 1986: 804). We view these dimensions of operational performance as the most relevant priorities for the operational unit in question; for example, "flexibility to change rapidly daily or weekly production volumes" might be an important priority for a plant. To emphasize that we are measuring intent, not performance, we use the term priority as a common label for the variables measured, in accordance with the manufacturing strategy literature where such variables are labeled competitive priorities (Ward et al., 1998), rather than use the term capability (Hayes and Wheelwright, 1984).

Three middle-level managers—the plant superintendent (an informant from the strategic business unit to which the plant belongs), the plant manager, and the plant research coordinator (a manager overseeing research activities at the plant)—were asked to assess the importance of eight specific dimensions of operational performance on a 1–8 scale (1 = most important, 8 = least important). Informants were asked to assess the following eight operational priorities: (1) low costs, (2) high conformance (to engineering specifications) quality, (3) high product-performance quality, (4) high volume flexibility, (5) high design flexibility (the ability of the manufacturing unit to adapt rapidly to changes in product designs), (6) fast delivery, (7) on-time delivery, and (8) short cycle times (Hayes and Wheelwright, 1984; Hill, 1999).

In operationalizing position bias, we assumed that there are three factors that affect how managers respond when they are asked to prioritize goals (Campbell and Fiske, 1959; Bagozzi and Phillips, 1982; Bagozzi, 1984): (1) the true degree of importance of the goal for the organization, (2) the organizational position of the informant, and (3) non-systematic effects, such as measurement error. This is effectively a classic multitrait-multimethod (MTMM) design (Bollen and Paxton, 1998; Campbell and Fiske, 1959), and the method factors can be used to operationalize position bias (Bollen and Paxton, 1998). If the respondent is fully aware of the organization's goals, the true degree of importance component is prevalent. To the extent that the respondent exhibits position bias, however, the organizational position component will be stronger. The goal of the analysis is to explain the variance in the strength of the organizational position component.

To operationalize position bias, we chose four of the eight operational-goals variables—volume flexibility, design flexibility, fast delivery, and short cycle time—for MTMM analysis, because they exhibited the highest average within-plant variance. If this within-plant variance can be attributed to managerial position, these four variables will provide us with empirical estimates of position bias (Bollen and Paxton, 1998: 473). To examine this, we used the confirmatory factor analysis approach CFA-MTMM (Jöreskog, 1971; Phillips, 1981; Bagozzi and Phillips, 1982) to analyze the MTMM model with four traits and three methods. We followed the procedure proposed by Widaman (1985) to examine convergent and discriminant validity. Specifically, we tested three different nested MTMM models using CFA-MTMM: (1) the null model, (2)

the trait-only model, and (3) the trait-method model. We provide a synopsis of the results in table 2, which also contains measures of overall fit for all models and the number of improper estimates, that is, correlations in excess of 1.00, excessively large standard errors, or negative error variances. We used AMOS 5.0 to analyze the data.

The null model posits, much like the null hypothesis in a conventional hypothesis test, that all measured variables are uncorrelated in the population, meaning that there are neither trait nor method effects. This highly unlikely hypothesis can be rejected based on the χ^2-statistic of 624.70 with 66 degrees of freedom ($p < .001$), indicating that significant correlations exist, as expected. In general, the null model gives a baseline model against which other theoretically more interesting models can be compared (Bollen, 1989).

The trait model assumes that all item covariances can be explained by four intercorrelated traits. In this context, the model tests the measurement hypothesis that priorities are so salient that individuals' reports reflect only the true scores, with some non-systematic error. The trait model thus assumes no position bias. The χ^2-statistic is 299.15 with 48 degrees of freedom ($p < .001$). While the fit is significantly better than for the null model, it is far from satisfactory. First, there are 12 residuals (out of 78) that exceed 2 in absolute value. In a structural equation model, significant residuals imply that the model does not adequately explain the observed covariance structure, and the model is misspecified (Bollen, 1989). Second, there are two improper estimates for two of the intertrait correlations. Third, the modification indexes (e.g., Hair et al., 1998: 615) suggest that error covariances should be estimated: the seven highest modification indexes are for error covariances in which the items in question share the informant, which is evidence of common method variance. Clearly, the trait model is misspecified. This implies that individual managers' reports are affected by factors other than, or in addition to, the true scores and measurement error (Phillips, 1981).

Table 2

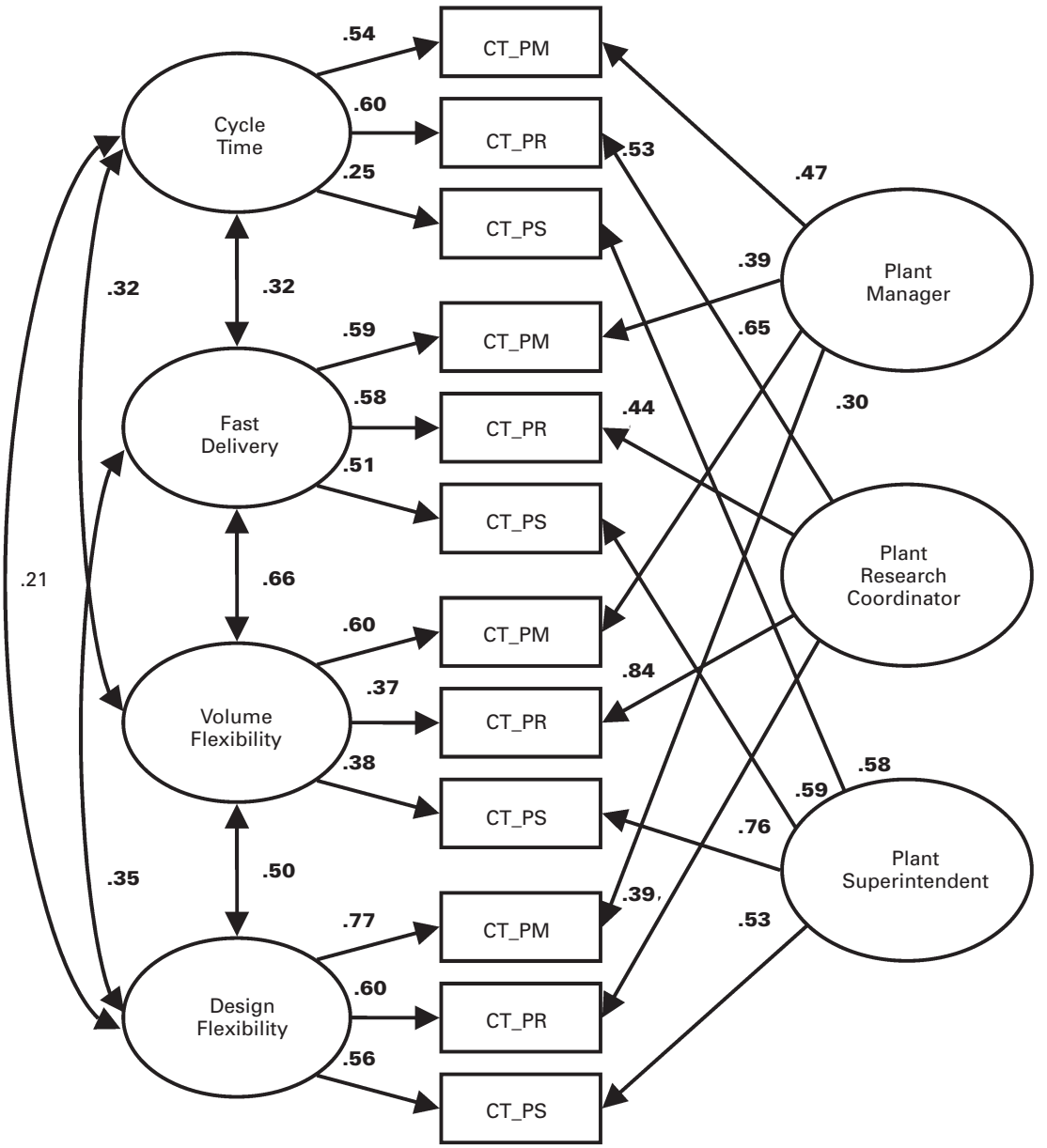
Overall CFA-MTMM Model Fit*

Model	χ^2-statistic (d.f.) (*p*-value)	Improper estimates	95% confidence interval for RMSEA	CFI	TLI	Number of residuals |r| > 2 (out of 78)
Null	624.7 (66) (0.000)	N/A	[0.212, 0.244]	0.83	0.80	40
Trait	299.15 (48) (0.000)	2	[0.160, 0.199]	0.93	0.88	12
Trait-method (CTUM)	29.12 (36) (0.785)	0	[0.000, 0.038]	1.00	1.02	1

* CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; and CTUM = Correlated-Traits-Uncorrelated-Methods.

The trait-method model incorporates both trait and method factors to explain the observed covariance structure. This model fits the data well: $\chi^2 = 29.122$ with 36 degrees of freedom ($p = .785$), 95-percent confidence interval for root mean squared error of approximation = [.000, .038], comparative fit index = 1.00 and Tucker-Lewis index = 1.00. Further, there is only one residual that exceeds 2 in absolute value (2.049), and there are no improper estimates or excessively large standard errors. The parameter estimates for the correlated-traits-uncorrelated-methods (CTUM) model are given in figure 1.

Figure 1. The trait-method (CTUM) model.*



* PM = plant manager, PR = plant research coordinator, PS = plant superintendent, CT = cycle time, FD = fast delivery, VF = volume flexibility, and DF = design flexibility. Bolded estimates are significant at $p < .05$; error terms are omitted for clarity.

In specifying the trait-method model, one usually models the method factors as being intercorrelated. Here, we would allow the position biases to correlate with one another. Unfortunately, however, the model containing correlated traits and correlated methods is often empirically underidentified (Marsh, 1989), and in trying to fit the correlated-traits-correlated-methods (CTCM) model, we did experience empirical identification problems in that the algorithm failed to converge to a proper solution. The recommended action is to estimate the more stable correlated uniquenesses (CU) model (Marsh, 1989; Marsh and Bailey, 1991). In this case, because we needed the factor scores for the method factors in subsequent analyses, we had to model the method factors explicitly, which is why we chose to use the CTUM model. Although this is a compromise, because the CTUM model fits the data well, using the CTUM model in further analyses does not seem to present a problem. We thus computed the estimates for position bias by creating factor scores of the method factors (Bollen and Paxton, 1998: 473) based on the CTUM model. We estimated the factor scores for each method factor using the regression method (Johnson and Wichern, 1998). In this approach, each method factor score is estimated as a weighted linear composite of all the indicators. Therefore, each informant receives a method factor score that is a measure of whether he or she is over- or underemphasizing the traits in question (Bollen and Paxton, 1998: 474).

Because MTMM models are known for being prone to overfactoring and empirical underidentification in general (Rindskopf, 1984; Marsh, 1989), we reestimated the CTUM model with generalized least squares and the bootstrap method to compare the results with the original maximum-likelihood estimates and examine estimation stability across these different estimation methods. The results were similar: typical discrepancies in the standardized solutions were around .02, with a maximum discrepancy of .06 (less than a 10 percent discrepancy from original estimates).

Trait validity and reliability in the MTMM model are only mediocre: while all traits pass the test of weak convergent validity and discriminant validity (Bagozzi and Yi, 1991), in that all factor loading estimates are statistically significant and all intertrait correlations less than one, item reliabilities (squared trait factor loadings) are very low for many items, as shown in table 3. This is a clear indication that different informants do not perceive organizational priorities (traits) similarly, which is one of our key theoretical starting points; low trait validity and reliability are not surprising observations in light of our theory. Because we are not interested in the traits, however, it is not a threat to the validity of this study. Only if we were interested in questions such as "Do the Japanese emphasize flexibility more than their U.S. competitors?" would these low reliabilities be a major cause for concern. We were interested in the method side of the MTMM model, that is, measures of position bias. Low trait validities and reliabilities can also be due to the fact that we chose these four priorities, which exhibited higher within-organization variance than the others.

Table 3

Proportions of Trait, Method, and Error Variance in the CTUM Model (in percent)*

Item	Trait	Method	Error
Cycle time PM	29	22	49
Cycle time PR	36	28	36
Cycle time PS	6	34	60
Fast delivery PM	35	15	50
Fast delivery PR	34	19	47
Fast delivery PS	26	35	39
Volume flexibility PM	36	42	22
Volume flexibility PR	14	71	16
Volume flexibility PS	14	58	28
Design flexibility PM	59	9	32
Design flexibility PR	36	15	49
Design flexibility PS	31	28	41
Average	30	31	39

* PM = plant manager, PR = plant research coordinator, and PS = plant superintendent.

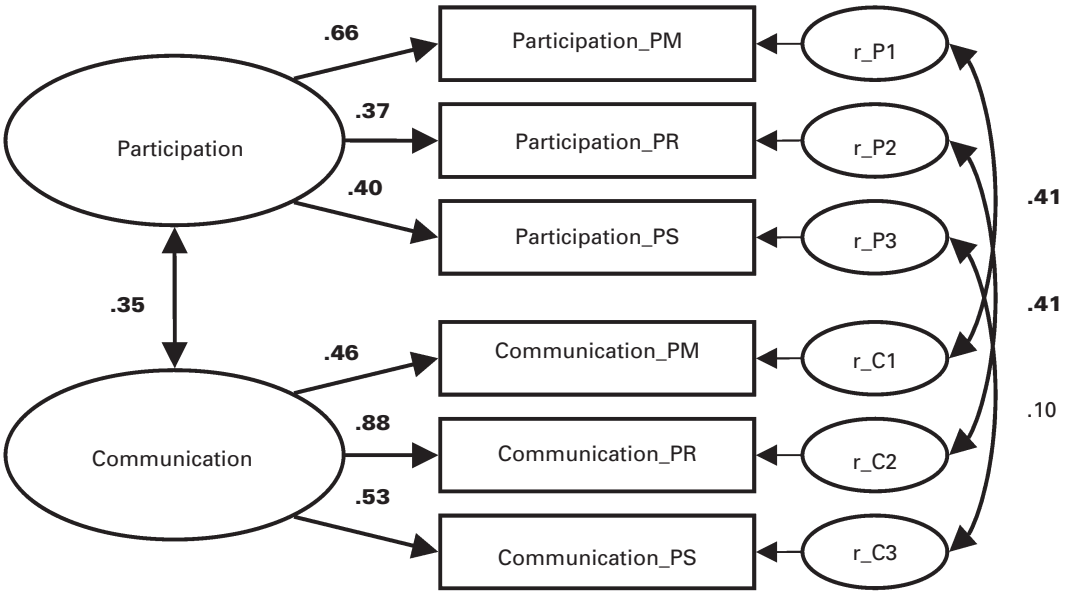
Independent Variables

Participation. We asked each of the three informants in each organization to assess the following statement on a 1–5 Likert scale: "Plant management is not included in the formal strategic planning process. It is conducted at higher levels in the corporation" (a multi-item psychometric scale indicates that in 87 percent of the sample companies, a formal planning process exists in one form or another). We reversed this scale so that a high value indicates a high degree of plant management participation. Using a single item is somewhat problematic, but getting three informants' assessments of the item increases reliability. Also, given that the question of whether or not middle management participates in the planning process is fairly straightforward, it can be addressed by asking a single question, as long as multiple answers are solicited to avoid single-informant bias.

Communication of priorities. We asked the same informants to assess the following statement on a 1–5 Likert scale: "Our business strategy is translated into manufacturing terms." From the perspective of operational management, the most important manifestation of communication of strategy is the attempt to translate the business's competitive strategy into meaningful operational terms (e.g., Skinner, 1974; Hobbs and Heany, 1977; Kaplan and Norton, 1996).

We used CFA to examine the convergent and discriminant validity of the participation and communication constructs. Given that we only had two traits, we could not conduct a full-fledged MTMM analysis, but we took into account potential informant effects by estimating the correlated uniquenesses (CU) model (e.g., Kenny, 1979; Marsh and Bailey, 1991), which provides good fit for the data: $\chi^2 = 7.25$ (5 d.f., $p = .202$), RMSEA = .053, TLI = .996 and CFI = .999. The results are shown in figure 2. Convergent validity was achieved, at least in its weak form, given that all trait loadings are statistically significant and positive. Discriminant validity is demonstrated in that fixing the intertrait correlation to 1.0 results in a change of 14.9 in the χ^2-statistic ($p < .001$): the two constructs are empirically separable (Jöreskog, 1971).

Figure 2. CFA of the participation and communication constructs.*



* PM = plant manager, PR = plant research coordinator, and PS = plant superintendent. Bolded estimates are significant at $p < .05$.

Composite reliabilities for communication and especially for participation are low to mediocre, .67 and .47, respectively, and thus are a cause for some concern. Although this does not automatically lead to erroneous substantive conclusions (Little, Lindenberger, and Nesselroade, 1999: 207), we had to take this into account when testing the substantive hypotheses. Because the limited sample size did not enable us to test the substantive hypotheses using latent-variable modeling, we obtained estimates for the participation and communication constructs by computing factor scores from the confirmatory factor analyses, again using the regression method (Johnson and Wichern, 1998).

Control Variables

We controlled for a number of variables that may also affect position bias. First, to control for potential sample heterogeneity, we included country and industry controls in the model. Some dimensions of national cultures, such as collectivism and uncertainty avoidance (Hofstede, 1980), may systematically affect position bias in that firms located in more collectivist and uncertainty-avoiding countries might exhibit lower position bias. Also, because position bias may be more prevalent in some industries than others, we added industry controls to the models as well. Second, we controlled for environmental uncertainty and task complexity: if the organizational task is ambiguous or changes rapidly, managers may be more inclined to pursue their own subgoals. Following Duncan (1972), we operationalized environmental uncertainty as the ratio of the highest to the lowest monthly demand volumes in a given year, because this is probably the most relevant indicator of uncertainty in a manufacturing context. We operationalized complexity, following Galbraith (1971: 38), as the number of product lines the plant serves, which he

argued may be associated with "less precise estimates regarding priorities." Third, given that managerial position bias may also be alleviated by cross-functional cooperation (Lawrence and Lorsch, 1967; Pinto, Pinto, and Prescott, 1993; Adler, 1995), we controlled for it by measuring it with a four-item psychometric scale (standardized loadings are in parentheses): (1) "Direct labor employees are involved to a great extent (on teams or consulted) before introducing new products or making product changes" (.81); (2) "Manufacturing engineers are involved to a great extent before the introduction of new products" (.72); (3) "There is little involvement of manufacturing and quality people in the early design of products, before they reach the plant" (.79); and (4) "We work in teams, with members from a variety of areas (marketing, manufacturing, etc.) to introduce new products" (.70). The composite reliability for the scale is .84. Finally, we added the logarithm of the number of employees to control for size.

Other Methodological Issues

We took a number of steps to address other methodological issues. First, because we used the general linear model in our analyses, we were forced to assume that the factor scores used as independent variables contained no measurement error. But we know that this is not the case: in creating the factor scores as linear combinations, any measurement error in the indicators will be incorporated into the factor scores as well. Also, the reliability of the participation measure in particular is low. Although low reliability does not necessarily lead to erroneous conclusions (Little, Lindenberger, and Nesselroade, 1999: 207), we performed an alternative analysis of model 1 using a structural equation model, which can incorporate measurement error into the independent variables. Because of sample size limitations, we were not able to use a full-fledged latent-variable model, nor were we able to perform a similar analysis of model 2. For an alternative analysis of model 1, we modeled the participation and communication constructs as latent but incorporated measurement error by fixing their residual variances so that the reliabilities of the two constructs were the same as in the earlier analysis. We found that although measurement error seems to have caused some bias in the parameter estimates, the main result of this analysis was identical with the general linear model result. Thus, measurement error in the other independent variables did not seem to affect our estimation and substantive conclusions. Measurement error in the position-bias dependent variable is not an issue because measurement error in the dependent variable is incorporated into the error term and does not bias parameter estimates (e.g., Neter et al., 1996: 164). Therefore, the measurement error in the factor scores for the bias variables, and the associated concern about reliability, is not an issue, at least insofar as bias in the parameter estimation is concerned.

Second, with a relatively small sample size of 164, the statistical power to test elaborate models is not high. Potential lack of empirical support may thus be in part due to low statistical power. Related to this, CFA-MTMM builds on asymptotic theory (Bollen, 1989), which means that estimates have their desirable properties only in large samples. We conduct-

ed the MTMM analyses using alternative estimation methods, including a nonparametric bootstrap technique. These analyses yielded estimates very close to the maximum likelihood estimates. Nonetheless, this does not alleviate the potential problem of low statistical power.

Third, though rank-ordered scales, used for the dependent variable, are useful in that they force informants to prioritize different goals, the use of this so-called ipsative data may cause problems in factor analyses of the data (Cornwell and Dunlap, 1994). Given that we gave informants the option of equal ranking, however, the data are not purely ipsative, they are a mix of ipsative and normative scales. There are no telltale signs of ipsativity, such as negative covariances, in the covariance matrix of the priority variables. A cross-validation of the results should be performed, however, using both ipsative as well as normative scales.

RESULTS

We examined two separate general linear models, one univariate (model 1) and one multivariate (model 2). Model 1 takes the average bias as the sole dependent variable, resulting in a univariate analysis of covariance (ANCOVA) design. The average bias is calculated for each plant as the arithmetic average of the three individual position bias scores. Model 2 takes all three individual position bias variables as separate dependent variables. With multiple dependent variables and both categorical (industry and country) and continuous (other controls, participation, and communication) independent variables, the resulting model is effectively a multivariate analysis of covariance (MANCOVA). Table 4 provides the parameter estimates for the two models.[1]

Both models show similar results and provide empirical evidence for strategic planning as an integrative device, providing support in particular for the complementarity hypothesis (H3). The parameter estimates for the participation and communication coefficients are non-significant, while the parameter estimate for the interaction is significant. In this case, however, we must be cautious in drawing conclusions about the main effects and the interaction effect based on these coefficients and their statistical significance: the non-significance of the communication coefficient does not necessarily mean that the main effect of communication is zero, it only means that the conditional effect of communication would be zero if the participation score were zero. But because we do not have organizations with zero participation scores in our sample and do not want to extrapolate beyond the range of our data (Cohen et al., 2003: 207), we cannot conclude that the main effect of communication is zero. The same applies to the interpretation of the participation coefficient.

To interpret correctly what these parameter estimates tell us about the effects of participation and communication, we followed Aiken and West (1991) and Cohen et al. (2003: 267–268) and calculated three simple regression equations and plotted the corresponding regression lines for model 1, shown in figures 3 and 4, using the following procedure. First, we chose three different values for participation, based on the range of the data in our sample: high (2 standard devi-

1
We also estimated the models without the interaction term. In these models—both the ANCOVA and MANCOVA—all coefficients for the individual effects of participation and communication were statistically insignificant at the .05 level. This leads us to conclude that the observed interaction effect is not caused by the combination of the main effects being significant and the interaction being correlated with the main effects.

Table 4

General Linear Model Results (N = 164)*

Independent Variable	Model 1 ANCOVA Average bias	Model 2 MANCOVA Individual Parameter Estimates PM bias	PR bias	PS bias	Wilks' lambda
Intercept	1.44$^{\bullet\bullet\bullet\bullet}$	1.48$^{\bullet\bullet\bullet\bullet}$	1.49$^{\bullet\bullet\bullet}$	1.35$^{\bullet\bullet\bullet}$	0.750$^{\bullet\bullet\bullet\bullet}$
Size	4.6×10^{-6}	$-1.1 \times 10^{-4\bullet\bullet\bullet\bullet}$	$1.7 \times 10^{-4\bullet\bullet\bullet\bullet}$	-4.4×10^{-5}	0.843$^{\bullet\bullet\bullet\bullet}$
Cross-functional cooperation	–0.01	–0.02	0.07	–0.09	0.989
Complexity	-5.3×10^{-6}	-7.2×10^{-5}	$-1.5 \times 10^{-4\bullet}$	$2.1 \times 10^{-4\bullet\bullet\bullet}$	0.939$^{\bullet\bullet}$
Uncertainty	-2.3×10^{-3}	–0.01	–0.01	0.01	0.974
Participation	–0.02	0.03	–0.11	0.01	0.994
Communication	0.01	–0.09$^{\bullet}$	–0.01	0.13	0.981
Participation x Communication	–0.07$^{\bullet\bullet\bullet}$	0.03	–0.12$^{\bullet\bullet}$	–0.13$^{\bullet\bullet}$	0.949$^{\bullet\bullet}$
Country effects					0.660$^{\bullet\bullet\bullet\bullet}$
Germany	–0.51$^{\bullet\bullet\bullet\bullet}$	–0.42$^{\bullet\bullet\bullet}$	–0.09	–1.03$^{\bullet\bullet\bullet\bullet}$	
Italy	–0.49$^{\bullet\bullet\bullet\bullet}$	–0.46$^{\bullet\bullet\bullet}$	–0.29	–0.73$^{\bullet\bullet\bullet}$	
Japan	–0.32$^{\bullet\bullet\bullet\bullet}$	–0.11	–0.44$^{\bullet\bullet}$	–0.41$^{\bullet\bullet}$	
United Kingdom	–0.10	–0.29$^{\bullet}$	0.25	–0.26	
USA	0†	0†	0†	0†	
Industry effects					0.918$^{\bullet\bullet}$
Electronics	0.04	0.19	0.18	–0.26$^{\bullet}$	
Machinery	0.07	–0.13	0.29$^{\bullet}$	0.05	
Transportation	0†	0†	0†	0†	
R^2	0.29	0.24	0.16	0.25	
Box's test of equality of covariance matrices (F-test)	N/A	1.251 n.s.	1.251 n.s.	1.251 n.s.	
Levene's test for equality of error variances (F-test)	1.091 n.s.	1.034 n.s.	1.089 n.s.	1.737 n.s.	

$^{\bullet}$ $p < .10$; $^{\bullet\bullet}$ $p < .05$; $^{\bullet\bullet\bullet}$ $p < .01$; $^{\bullet\bullet\bullet\bullet}$ $p < .001$; n.s. = not significant at .05 level (for F-tests).
* PM = plant manager, PR = plant research coordinator, and PS = plant superintendent. Wilks' lambda is the multivariate equivalent of the univariate F-statistic.
† Parameter is set to zero by design.

ations above the sample mean), average (sample mean), and low (2 standard deviations below the sample mean). For these three values, we plotted in figure 3 the conditional regression lines for communication. In figure 4, we plotted the corresponding conditional regression lines for participation. The scaling on the X and Y axes in figures 3 and 4 is based on the range of the data in the sample.

Figures 3 and 4 clearly illustrate the individual as well as the joint effects of participation and communication on position bias. First, the main effects of both participation and communication are in the hypothesized direction: all six slopes in figures 3 and 4 are negative. These negative slopes are consistent with H1 and H2, but we cannot conclude that H1 is supported in the sense that the negative slope for participation would be observed even in the absence of communication, because the range of our data does not contain zero values for communication. The same caveat applies to H2. Second, the bias-attenuating effect of one characteristic of the planning process is stronger when the other is at a higher level (figures 3 and 4). H3 is therefore supported without qualifications: the effects of participation and communication are clearly complementary.

Because the measurement units for all variables are arbitrary, further interpreting the significance of the effects of communication and participation on position bias is complicated. For instance, it is difficult to say how substantial a reduction of

Figure 3. Simple regression lines for communication.

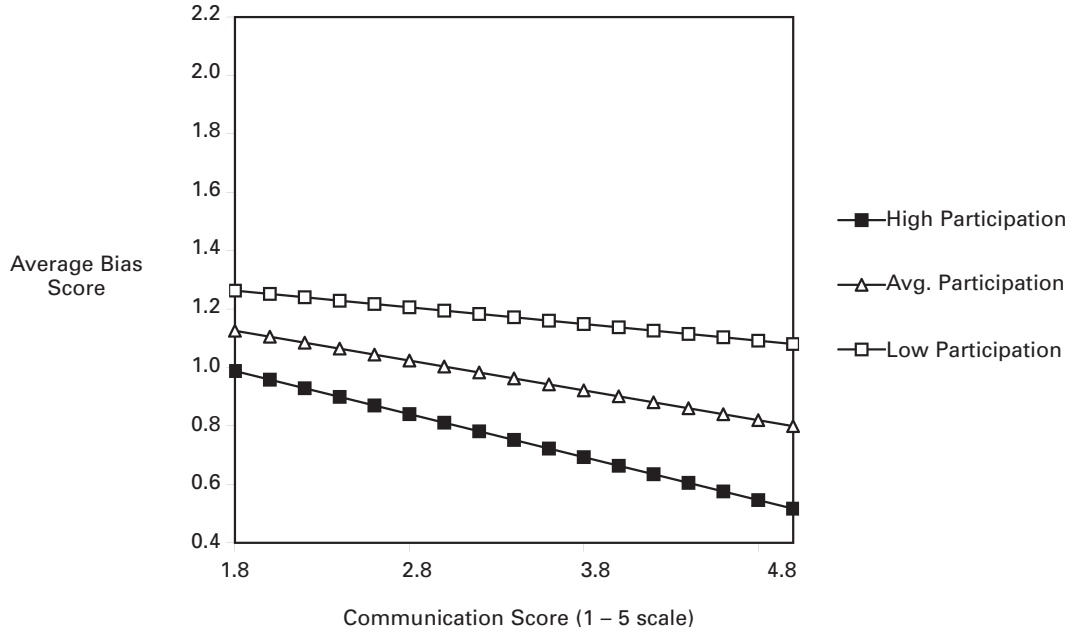
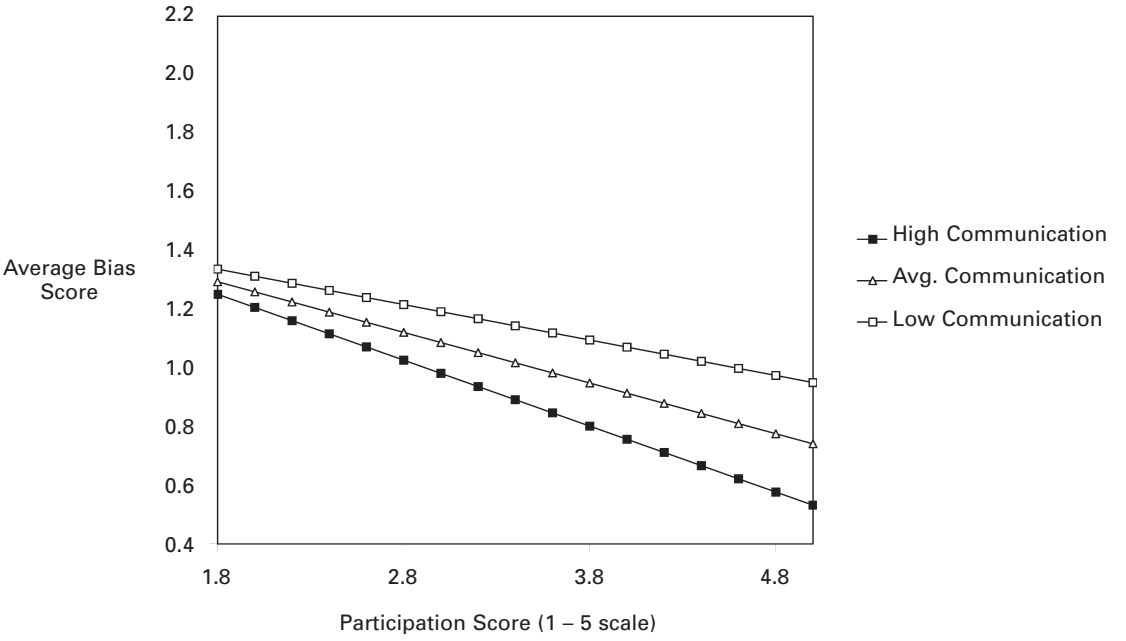


Figure 4. Simple regression lines for participation.



one unit of position bias is in practical terms. One aid in interpretation is that the range of position bias scores in our data is from 0.4 to 2.2 and that the difference between the average position bias scores of the low-participation-low-communication and the high-participation-high-communication groups is 0.75 units on the position bias scale. This 0.75 measurement units is the same distance as the distance from the 30th to the 80th percentile of the bias scores in our sample, implying that an organization could expect, on average, to improve its place in the "position bias ranking" in the

population considerably if it started actively incorporating participation and communication into its strategic planning process. This would require the organization to go from low to high levels on both participation and communication, however, potentially requiring radical changes in organizational practices.

Of all the control variables, the country effects are the strongest. Germany, Italy, and Japan exhibit relatively more position bias than the U.S. and the U.K. Although we will avoid post-hoc conjecture to explain these differences, at the same time, this suggests that systematic investigations of cultural determinants of position bias may be warranted. Of the other control variables in the model, size and complexity explain some variance, but their effects are not systematic: there are both negative and positive coefficients for different dependent variables measuring bias. Finally, the effects of uncertainty and cross-functional cooperation on position bias are not significant.

DISCUSSION

Organizational Integration, Subgoal Pursuit, and Position Bias

The main result of our analyses is that participation in the strategic planning process and communication of the resulting priorities jointly reduce position bias. Our study thus demonstrates that, much like the other integrative mechanisms discussed in organization theory, certain characteristics of the strategic planning process can have an integrative role. In contrast with the mixed findings on the effects of functional bias (Walsh, 1988; Beyer et al., 1997), our results show that organizational position clearly has a biasing effect. This is particularly interesting given that structural contingency theory (Lawrence and Lorsch, 1967; Galbraith, 1977), which focuses on the effectiveness of structural devices designed to temper the consequences of subgoal pursuit, has not addressed the means by which subgoal pursuit can be reduced at the source. We have specifically addressed this question, and our findings suggest that initiating participative strategic planning processes and later communicating the resulting goals to all employees attenuate position bias and reduce the likelihood of employees engaging in subgoal pursuit and causing an integration problem. By engaging in participatory strategic planning and communication, top managers are likely to achieve less interdepartmental and hierarchical conflict and hence need to undertake fewer integration efforts. This can happen regardless of the degree of structural differentiation, whether vertical or horizontal (Postrel, 2002). Future research, however, should empirically examine whether less position bias does lead to less goal conflict between units and hierarchical levels.

Future researchers should also examine the roles and interdependencies among different integrative mechanisms. Though our results suggest that certain features of strategic planning can have an integrative role, it would be useful to explore whether this effect of participatory and communicative planning holds when all the other integrative devices—such as authority, monetary incentives, rules, cultural values,

and cross-training—are taken into consideration. What are the relative influences of various integrative mechanisms on individual behavior in organizations? It could well be that there are more complementarities but that there are also incompatibilities and substitutabilities among the various mechanisms (Postrel, 2002; Siggelkow, 2002). For instance, applying Williamson's (1985) transaction-cost approach to organizational design, Ouchi (1980) argued that monetary incentives and authority are incompatible for managing the same activity. Similarly, authority-based mechanisms and participation appear to be mutually exclusive. In contrast, certain kinds of organizational values and monetary incentives might be compatible with and even complementary to each other. They might also be complementary to other integrative mechanisms such as rules and participation. Elaborating and testing such substitutability, incompatibility, and complementarity hypotheses would lead to the development of a complete and actionable theory of organizational design.

Strategic Planning

Our fundamental empirical finding is that strategic planning has value. This has strong implications for the strategic planning literature, which has attempted with little success to find a positive relationship between strategic planning and subsequent organizational performance (Pearce, Freeman, and Robinson, 1987; Miller and Cardinal, 1994). Researchers have argued that there are many intervening variables between strategic planning and organizational performance, which could explain the non-systematic empirical observations on how strategic planning is related to performance (Dess and Priem, 1995). In an examination of some of these potential intervening variables, we have shown that if top managers incorporate employee participation and communication into the strategic planning process, they can reduce position bias and thus may enhance goal convergence. While goal convergence may not be universally desirable (Bower and Doz, 1979; Priem, 1990; Mintzberg, 1994), it can provide the organization with two advantages. First, it facilitates the implementation of the intended strategy because employees know and endorse the same organizational goals and, therefore, are likely to pursue them. Second, the strategic initiatives and suggestions employees propose and initiate are more likely to be congruent with the organizational strategy (Burgelman, 1983).

Though the integrative role of participation (Tannenbaum and Massarik, 1950), planning in general (March and Simon, 1958), and strategic planning in particular (Vancil and Lorange, 1975; Wooldridge and Floyd, 1989, 1990) has been addressed in the extant literature, empirical evidence on the integrative nature of strategic planning in particular is scant, exploratory, and mixed (Wooldridge and Floyd, 1989, 1990). Our study overcomes some of the limitations of past research and provides what we believe is the first rigorous empirical study and positive evidence of the integrative role of strategic planning. We further extend the existing literature on the integrative nature of planning in two ways. First, we focus directly on whether certain features of the strategic planning process can reduce position bias, probably one of

the most significant sources of subgoal pursuit behavior. Second, we consider not only the integrative role of participation (Wooldridge and Floyd, 1989) but also the role of subsequent strategy and goal communication. Our results show that communication complements the integrative effect of participation. In contrast with Wooldridge and Floyd's (1990) exploratory small-sample finding that involvement in the strategic planning process leads to a better understanding of the goals but not to a greater commitment to them, we show that participation, combined with subsequent communication of the goals, reduces position bias. Less position bias, in turn, is likely to lead to more goal convergence or less goal diversity (Bourgeois, 1985).

With regard to complementarity arguments in general, this study constitutes one of the first empirical studies to build on the emerging literature on complementary organizational practices (Milgrom and Roberts, 1990; MacDuffie, 1995; Pil and MacDuffie, 1996; Siggelkow, 2002). We have shown that the marginal utility of communication in reducing managerial position bias is higher when organizations also engage in participative planning, and vice versa. Despite the increasing recent interest in and theorizing about complementarities (Milgrom and Roberts, 1990; Siggelkow, 2002), empirical studies are scarce (for exceptions, see Mowery, 1983; Arora and Gambardella, 1990; Pil and MacDuffie, 1996). Further, these empirical studies have focused on complementarity as the explanation for why certain practices or technologies are adopted in bundles (e.g., MacDuffie, 1995) or why companies simultaneously use different sources to obtain knowledge (Mowery, 1983; Arora and Gambardella, 1990). We believe this is one of the first studies that empirically uncovers such complementarity by demonstrating that adopting potentially complementary practices leads to organizational integration through a mutually reinforcing effect (see also Ichniowski, Shaw, and Prennushi, 1997; Ichniowski and Shaw, 1999).

Future research in strategic planning should focus on the other possible intervening variables in the complex path from strategic planning to performance. One option would be to address in detail each of the informational and motivational advantages of participatory and communicative planning. Tannenbaum and Massarik (1950) and Wooldridge and Floyd (1990), for instance, have discussed the different informational advantages of participation in decision making. They argued that by involving employees, managers can obtain more detailed and accurate information. Given that employees have more fine-grained information than do top managers on the evolution of technology and the market and are able to give a more realistic assessment of the feasibility of implementing certain goals, this will likely lead to better strategies.

Participation

We extend the participation literature by examining the impact of the employee's participation, not in defining his or her task (Schuler, 1980) but in influencing the definition of broader organizational objectives. Further, the finding that

communication complements the effects of participation is relevant for the participation literature: participation appears to be more beneficial when accompanied by communication. Our results also imply that giving employees a voice in the strategic planning process may not only reduce their position bias but may also increase their loyalty and commitment to organizational goals, which could subsequently encourage them to express their dissatisfaction with current organizational practices and propose potential solutions (Hirschman, 1970). Whether inviting employees to participate in strategic planning also decreases the likelihood of their leaving the organization is an interesting question for future research, given that dissatisfied people are usually those who are motivated to improve the organization (Hirschman, 1970).

The explanation for why the effect of participation on position bias is weaker when subsequent communication of the goals is low might be, as Tannenbaum and Massarik (1950) suggested, that individuals might not always be willing to participate. A top management team that involves employees in the strategic planning process but does little to communicate the results of the process to the organization afterwards can easily develop a reputation of being inconsistent in its actions and thus reduce the likelihood of participation.

In our discussion of potential sources of subgoal pursuit, we acknowledged the possibility that in addition to position bias, personal goals or self-interest might also play a role. In contrast to our focus on position bias, Tannenbaum and Massarik (1950) also discussed the possibility that participation in decision making would make personal goals—such as compensation, power, or prestige—and organizational goals converge. This would effectively connect the participation literature with agency theory, which has not examined participation as a mechanism for aligning interests. Instead, agency theorists have concentrated on contracts and compensation (Ross, 1973; Eisenhardt, 1989a). Future research should thus explore the extent to which participation in the strategic planning process leads to convergence among personal, positional, and organizational goals and priorities.

Communication

Our paper makes a number of contributions to work on communication. First, it is important to distinguish between two types of communication: (1) communication that takes place during participation in the planning process in analyzing past organizational performance and the current and future outlook of the environment and deciding future goals and (2) the communication of the resulting goals to the entire organization. Second, in contrast to the extant literature, which has largely focused on communication relative to individual issues, such as superior-subordinate discussions on a subordinate's job design (Burke and Wilcox, 1969) or on problem solving (Tushman, 1979), we focused on communication about organizational goals rather than individual-level issues. Third, instead of focusing on dyadic communication (Tushman, 1979), we focused on planning that involves more than two individuals and messages that are broadcast to the entire organization. Fourth, in addition to examining the effect of

mere information transmission, we investigated the effects of subsequent goal communication, a more complex and demanding communication effort whose aim is to articulate and translate messages at a level that can be understood by recipients (Vancil and Lorange, 1975). Finally, we found that the effect of subsequent goal communication can be reinforced by also engaging employees in participative planning.

Similar to our argument above relative to participation, future research should examine whether the effect of communication on position bias is contingent on the extent and coherence of organizational communication as a whole. The amount of regular communication in the organization might moderate the impact of participative planning and subsequent goal communication on position bias: if a high degree of regular communication among organizational members regarding organizational goals and strategy is already taking place in the organization (Melcher and Beller, 1967; Nelson, 1989), participative planning and communication might have less of an effect on position bias. At the same time, if the regular communication among organizational members indeed includes discussions about organizational goals, one could expect this regular communication to reduce position bias and thus function as a substitute for the strategic planning process.

Methodological Implications

In addition to the theoretical contributions discussed above, our study has a number of methodological implications. First, we have responded to Bagozzi and Phillips' (1982) call for research and taken a rigorous look at measurement by applying their concept of the "holistic construal." This concept was developed and introduced to the management literature over 20 years ago, yet it has received little attention in empirical management research. The applications in strategy research, for instance, are rare (see Murtha, Lenway, and Bagozzi, 1998, for an exception). By applying the concept of a holistic construal and MTMM analysis, we were able empirically to separate position bias from trait and non-systematic variance and subsequently examine different features of the strategic planning process as potential explanations for this method variance. In contrast with past research on the antecedents of goal convergence among managers (Wooldridge and Floyd, 1990; Nauta and Sanders, 2001), we have demonstrated that latent-variable modeling and MTMM analysis can offer us insights that the conventional methods do not offer.

Second, based on the factor-analytic results, we provide further evidence that collecting data, especially on elusive concepts such as goals, using a single informant within the organization is problematic (Phillips, 1981): though informants' reports seem to reflect, at least to an extent, an organization-level construct, a significant portion of the variance is due to organizational position and random error. This does not imply that such data are useless; rather, we conclude that organization-level data on elusive constructs such as organizational priorities must be collected using multiple informants per organization. Thus, we strongly encourage researchers to use

multiple informants systematically in their empirical examinations.

This paper nevertheless has some limitations. In looking at the MTMM analysis results, we observe rather high variance in the method factor loadings. While this is nothing out of the ordinary (Bagozzi, Yi, and Phillips, 1991), our study does not explain why method effects or position bias are stronger for certain managerial positions and for certain traits. To develop a more detailed understanding of exactly how managerial position bias arises and how it manifests itself in the MTMM results, one would have to develop more detailed hypotheses about specific positions and specific goals. It could well be, for instance, that managers who are part of the line organization (e.g., plant manager) might pay more attention to operational goals, such as quality and manufacturing costs, than managers outside of the line organization (e.g., plant research coordinator). By developing and testing such hypotheses, we would gain a better understanding of the dependent variable and thus might be able to identify other ways of attenuating position bias.

Further, we set out to study potential remedies to position bias, not to uncover the determinants of position bias. In particular, we focused on strategic planning and some of its specific features as a potential attenuator of position bias, assuming that strategic planning can reduce one of the fundamental sources of position bias, structural differentiation. While we controlled for another potentially integrative device (cross-functional cooperation), a fuller understanding of how position bias can be reduced would require researchers to assess the effect of all potentially integrative devices on the different possible sources of position bias, such as functional background (Dearborn and Simon, 1958; Walker, 1985; Walsh, 1988; Nauta and Sanders, 2001) or organizational tenure (cf. Walker, 1985).

CONCLUSION

Thompson and McEwen (1958: 30) argued that "to the extent that [the] behavior of organization members is oriented to questions of goals or purposes, a science of organization must attempt to understand and explain that behavior." In this paper, we have examined whether strategic planning can be used to reduce position bias, that is, the extent to which organizational members direct their attention toward the immediate tasks and goals of their organizational position. We have argued that position bias is an antecedent of March and Simon's (1958) concept of subgoal pursuit and began to develop an understanding of its potential remedies. Whereas contingency theorists have proposed structural mechanisms to overcome and manage the conflicts that subgoal pursuit deriving from structural differentiation generates (Lawrence and Lorsch, 1967; Galbraith, 1977), strategic planning should be considered as another mechanism that can attenuate subgoal pursuit by reducing position bias. Our results show that managerial position bias is prevalent in our sample of industrial plants across five countries and three industries. Moreover, simultaneously having employees participate in strategic planning and communicating the outcome

to them significantly diminishes this bias, even when controlling for cross-functional cooperation, a key structural integrative mechanism. The results suggest that if top management wants to attenuate position bias, it should incorporate participation and communication in the strategic planning process.

Position bias is directly related to the broader concept of goal convergence in that reducing position bias enhances goal convergence, but to conclude that strategic planning leads to goal convergence is, strictly speaking, not warranted. There are aspects of goal convergence that have nothing to do with position bias, and strategic planning may or may not be effective with regard to these other aspects. For instance, strategic planning may be of little use in trying to enhance goal convergence when diverging views on goals arise from individuals' self-interest and opportunistic behavior. If an individual simply chooses to ignore organization-level goals, strategic planning cannot do much to alleviate the problem. Instead, other integrative devices, such as incentives at the collective level, may be more effective. An interesting topic for further research would be to examine which integrative mechanisms are effective for the various components or drivers of goal convergence. We have shown that strategic planning is effective in reducing position bias.

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