

Issues in Accounting Education
Vol. 15, No. 4
November 2000

The Role of Behavioral Research in Management Accounting Education in the 21st Century

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ABSTRACT: Behavioral accounting research (BAR) has a long history in management accounting. It has not had as significant a presence in the management accounting courses. It has tended to be relegated to the responsibility accounting chapter in textbooks. Thus, the extent to which behavioral materials appeared in a course depended on the interests of the instructor. It can safely be described as a matter of taste. In this paper the history of management accounting dating back to the end of World War II is divided into three periods. In each period, the extent of behavioral materials in the management accounting curriculum is reviewed. These periods, called the "cost accounting," "modern management accounting," and "post-modern management accounting" periods, reflect increasing emphasis on behavioral materials in the management accounting courses. The paper focuses on the reasons why the demand for behavioral material in the management accounting curriculum is likely to increase and offers conjectures about what form those materials will take. It is, implicitly, also a call for research on the issues discussed here.

INTRODUCTION

Management accounting courses will always be concerned primarily with techniques such as product costing by which accountants can accumulate and communicate data so that the firm's managers are able to make the best decisions. The various models underlying the techniques have changed over time, though their intent has not. However, it is hoped that in the new management accounting courses the choice of models and the assumptions underlying those models will be informed by our knowledge of how individuals and groups respond to our data and our models. A change of this sort would imply a change in the view of the role of accounting and the environment in which it exists.

Currently, many of the behaviors we observe that are inappropriate responses to the accounting data are deemed dysfunctional or opportunistic. The behavior and not the system is considered to be the problem. However, when we recognize the changing environment within which managers must act, their actions reflect appropriate responses to inappropriate accounting systems. These opportunistic or dysfunctional behaviors are likely to have

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The author would like to thank W. Robert Knechel, the editor, and an anonymous referee for helpful comments on this paper.

more serious consequences in the post-modern management accounting period as managers strive to deal with a dynamic environment, new organizational structures, and a significant number of users in nonmanufacturing firms.

Regardless of the changes that are taking or may take place, the primary focus of the management accounting course will continue to be the various cost-accounting techniques with which we all are familiar. Topics such as cost measurement, budgeting, and standards will evolve to reflect new developments such as ABC, benchmarking, and the addition of qualitative measures, but they will continue to reflect of the traditional core topics of the course. Behavioral issues in management accounting courses, therefore, never will occupy more than a supplementary role. However, as discussed below, they do offer the potential to enrich the relevance and appropriateness of the course to the students and users of management accounting information.

This paper consists of six sections. The first describes the evolution of management accounting over the past 60 to 70 years. The second reviews the role of behavioral accounting research (BAR) in modern management accounting, providing a benchmark against which changes in the post-modern period can be assessed. The third section discusses the factors expected to lead to an enhanced role for BAR in management accounting courses during the post-modern period. The fourth and fifth sections discuss behavioral accounting topics that are likely to be included in the post-modern management accounting courses. The fourth section discusses the topics currently covered in management accounting courses, while the fifth speculates on the changes that will take place in the

post-modern period. Inclusion of these topics in the post-modern management account course will require additional BAR. The final section summarizes the earlier discussion.

DEVELOPMENT OF MANAGEMENT ACCOUNTING

Three distinct periods emerge that reflect different views of the function of management accounting. These periods are:

1. The cost-accounting period
2. The modern management accounting period
3. The post-modern management accounting period

The above list is not inconsistent with Böer (2000).

The integration of BAR into the management accounting courses parallels the developments taking place in management accounting. Each period had/has a different view of the purpose of management accounting and, therefore, posited a different role for the BAR included in the management accounting course.

The Cost-Accounting Period

During the cost-accounting period, management accounting was intended to provide management with "accurate" measures of product cost. The focus was primarily on measuring costs both *ex post*, e. g., for inventory costing, and to a lesser degree *ex ante*, e.g., standard costs and budgets. There is little indication that behavioral accounting issues played any significant role during this period (see Birnberg and Shields 1989).

The cost-measurement period ended with the post-World War II evolution of business education that was characterized by the development of the M.B.A. degree and the efforts of the Ford Foundation to integrate the innovations in

management into business education (Maher 1997). It was during this period that the materials related to internal accounting began to be known as “management” rather than “cost” accounting. The major impact of this change was to refocus management accounting from inventory cost measurement more toward the inclusion of costs for decision making. With regard to contrasts between the typical textbooks of the 1940s and even the 1950s with those that began to appear in the 1960s (e.g., Horngren 1962), the most obvious differences were the decision-making focus of these new texts and their emphasis on recent developments in economics and quantitative methods. For a more extended discussion see Böer (2000). The texts in the modern management accounting period reflected the limited role behavioral science played in the “new” business programs. In short, the role of behavioral accounting research was limited relative to that of economics and quantitative methods.

Modern Management Accounting

Modern management accounting texts during this period reflected the influence of two research studies funded by the Financial Executives Institute (FEI). The first, by Simon et al. (1954), focused on the reporting aspects of the controllership function, i.e., the scorecard, problem identification, and special decision-making functions. These ideas constituted the core topics of what I have labeled the modern management accounting period. The other FEI-sponsored study, Argyris (1952), identified implementation issues inherent in these systems: how do subordinates respond to these scorecard systems, i.e., budgets and standards? In contrast to the traditional Theory X view—that workers

were lazy and anti-authority—that characterized both the cost-accounting and modern management accounting periods, Argyris (1952) advocated the Theory Y view that workers were willing to work and responded to nonmonetary incentives that made the work environment more pleasant.

During this period, much of the behavioral materials were relegated to what could be called the “responsibility accounting ghetto.” Behavioral concepts were introduced in the chapter on responsibility accounting that usually preceded the materials on budgets. The role of behavioral topics in management accounting textbooks was either to explain anomalies, such as dysfunctional behaviors, or, in this preagency approach to management accounting, to attempt to develop mechanistic techniques intended to achieve what now would be called the “first best” solution.

Behavioral concepts also were often discussed as part of problems and mini-cases that followed text material. Dopuch et al. (1974) represented a text that provided, relative to other texts, a reasonable amount of behavioral material for this period. Its behavioral content reflected the ideas found in Argyris’ (1952) work and Stedry’s (1960) dissertation. These issues included the importance of participation in the manager’s/worker’s internalizing the budget and the role of budgets as motivators for managers/workers. Many of the homework problems in the texts were intended to illustrate the manager’s/worker’s response to incentive plans. This highlights the difference between designing plans to achieve *behavioral* congruence, the desire of the subordinate to perform the action the superior prefers, as opposed to *goal* congruence, where the superior and the subordinate share a common goal.

Behavioral congruence is more consistent with the intent of the textbooks in modern management accounting design of the "right" incentive system. The textbooks typically reflected issues related to the manager's/worker's response to standards and budgets, or the manner in which budgets were set, i.e., imposed or through participation.

The analytical models included in management accounting textbooks published during this period generally were viewed as being ahead of the then-current practice. This was not the case with the behavioral techniques included in these textbooks. As Maher (2000) argues, for many areas of management accounting, practice appears to have been ahead of textbook materials. Many of the problems included in the books published during the period were based on articles appearing in *Management Accounting* (the name of the Institute of Management Accountant's monthly publication at that time). During this period, *Management Accounting* published numerous articles describing, for example, how particular firms dealt with motivation and budget-setting problems. These articles provided real-world relevance to the text materials.

The behavioral effects of improperly designed or implemented incentive systems were a significant problem to organizations long before the introduction of the principal-agent model. Thus, it would appear that the texts published during the modern management accounting period lagged behind practitioners in their concern over implementation of control and incentive systems. The professional literature in management accounting was not the only source of behaviorally oriented materials for modern management accounting textbook authors. The uniform CPA and CMA exams also were

listed as sources of behaviorally oriented problem materials. This would suggest that professional practice, too, was aware of the importance of human behavior in determining the effectiveness of accounting systems (see Horngren 1962; Dopuch et al. 1974).

The issue of incentives also was at the core of discussions about how to assess the performance of unit managers. The topics included divisional performance, e.g., ROI or various profitability indices, and decision making, e.g., interdivisional transfer pricing. However, these topics often were discussed in the context of the economic model of the multidivision firm or the capital investment model. Like topics such as budgets and standard cost, the assumption too often was that the economic model could be adopted without any changes by management. Little consideration was given to the behavioral point of view.

An interesting observation about the developments that took place during this period is the relative success of the behavioral materials and quantitative models. While behavioral issues were a distant second to the economic issues, these ideas did ultimately achieve greater importance in the management accounting courses than the operations research models (Maher 2000).

In summary, the critical change that occurred in management accounting during the "modern management accounting" period was the introduction of economic-based decision models. These models were intended to lead to optimal behavior by the members of the firm *given that the situation to which they were applied met their assumptions*. Quite often that was not the case and opportunistic behavior would result. Despite this obvious behavioral issue and the beginnings of BAR in

management accounting, behavioral topics were not a significant theme in the typical management accounting course. Those instructors who did include behavioral issues in their management accounting course to any degree did so by supplementing the textbook materials. The most common method was the use of photocopies of journal articles or, in the early part of the period, by adopting a readings book, such as Schiff and Lewin (1974). These readings books collected both BAR papers in the area and relevant papers from the behavioral sciences.

Post-Modern Management Accounting

The "post-modern" period in business has been demarcated by the shift from a mechanistic view of the organization to a view of the organization as a complex set of interdependencies and relationships; a shift from production based on the synergy of men and machines to one more dependent on information and technology. While other areas within business have begun to discuss their disciplines in terms of the post-modern period, accounting has moved more slowly. It is not readily apparent when the "post-modern" period began in management accounting. It is fair to conclude that it began at different times for different groups within management accounting.

Post-modern management accounting differs from the modern period in two significant ways. One is the role played by the framework provided by principal-agent research. The other is the broadening of management accounting to recognize the significance of strategic issues as well as operating issues in determining the relevant questions and issues covered in management accounting and texts. The latter is most noticeable in the

recent expansion in the number of texts dealing with management control systems. While Anthony and his various co-authors go back as far as the 1970s (e.g., Anthony and Young [1999] is the sixth edition of a text first published in 1975), it is only relatively recently that other texts have begun to enter the field. This clearly reflects the increased demand for materials related to viewing management accounting in a broader context (see Merchant 1985, 1997; Simons 2000). This context includes social controls and organizational culture as relevant aspects of any control system.

The following sections will discuss why these changes are occurring and the directions behavioral topics in management accounting are likely to take. As the reader will note, many of the topics at the present time are in their infancy. However, changes in firms will require that accountants adapt if they are to remain relevant to the post-modern organization.

WHY BEHAVIORAL RESEARCH MAY BE INCLUDED TO A GREATER EXTENT

It is likely that just as classical economic analysis was the model utilized by management accounting during the modern period, management accounting texts in the post-modern period will continue to reflect the economic model *du jour*. Thus, the principal-agent model will exert a profound influence during the post-modern period. Recent texts intended for M.B.A. audiences already reflect this, e.g., Zimmerman (1997).

There are a variety of factors, however, that will work to mitigate the dominant influence of the economic models and potentially strengthen the influence of the behavioral models. These are:

1. The development of management control as a discipline/course

2. The increasing emphasis on management accounting courses as *service* courses.

The initial point was alluded to in the previous discussion of the nature of management accounting in the post-modern period. What this illustrates is that the breadth of issues considered in management accounting courses is likely to expand and many of these new issues will be behavioral issues. For example, the typical modern accounting text dealt with issues related to operations, e.g., cost measurement, budgets, costs for decision models. There was an implicit if not explicit assumption that the role of management accounting was to facilitate the achieving of an optimal decision. This was consistent with the economics and operations research literature of the period that emphasized optimality.

With a more dynamic environment and increased competition, organizations must be structured so that they are able to respond quickly to any internal or external changes. Their activities must be managed in the most effective manner possible. This requires flexibility in the organization's systems and the ability to adapt the accounting systems and data to the changing environment. For example, the notion of measuring costs accurately and setting standards correctly once and for all requires not only a high degree of knowledge, but also a stable environment. However, these assumptions are no longer appropriate. One reason is that managers have realized that we cannot set a standard as if we have perfect knowledge of the process. The other is that even an appropriate standard may be quickly rendered obsolete by changes in the environment or process.

This complexity adds to the need to consider potential behavioral issues. Principal-agent considerations such as information asymmetry, absence of contractible measurements, and the absence of reliable monitoring mechanisms are not easily resolved in a complex environment, and behavioral considerations/models may provide second-best solutions. This happened during the modern period when the management accounting literature recognized the issue of inappropriate contracts (those permitting dysfunctional behaviors) under the title of *opportunistic behavior*. The principal-agent model provided a way initially to structure the problem and later to analyze it. In the absence of an analytical solution, BAR is useful because it affords insights into how the systems may work, i.e., laboratory studies, or do work, i.e., field studies, in practice.

Management accounting courses of the future must take into consideration today's "customer-driven" orientation to the academic market place. The students taking the courses will be interested in *how* to use the data rather than the mechanics of measuring costs, setting budgets, and other topics that constituted the management accounting course during the cost accounting period. In addition, mature M.B.A. students with significant real-world experiences will recognize the limitation of discussing topics like costing and budgeting in isolation from the problems of implementing them. This is most apparent when case materials are used. Students often bring relevant experiences in comparable situations that enrich a realistic discussion, but can frustrate a discussion that ignores the behavioral issues. For example, students sometimes have worked for the company discussed in the case.

All of these factors point toward the demand for materials that increase the emphasis placed on the *process* inherent in the utilization of these techniques such as the management control courses discussed earlier (e.g., Merchant 1997; Simons 2000). The courses must also relate to the issues being discussed in other courses such as "flat organizations" or the "balanced scorecard." Instructors will tailor courses to the interests of this student-customer mix, e.g., production, marketing, MIS.

Students seeking careers in business share a common characteristic and interest. They are interested in managing (what accountants call "controlling") their unit's activities. They must deal with both the data *and* the behaviors resulting from utilizing the data produced by the accounting system. They use them not only as part of the planning process, but also as part of the evaluation process. These students are likely to be more concerned with issues such as implementation problems (MIS students), responses to nonquantitative cues (marketing), or the broader considerations present in evaluation (human resources). As the result, course materials will be more strongly oriented toward what happens when the techniques are utilized than the mechanics of the techniques themselves.

The link between technique (model) and implementation (behavior) was highlighted to the author in the mid 1960s when he sat in on a management control system course taught by Bill Cooper, Neil Churchill, and Charlie Kriebel at (then) Carnegie Tech's Graduate School of Industrial Administration. Cooper taught a case (I believe it was Breitman Co.) in which a consultant was required to propose a solution to the firm's product-mix problem. The

case itself was not difficult and the students reached the appropriate solution rather quickly. Cooper then raised, what turned out to be, the hard part of the case. How can you get the rather stubborn owner of the firm to adopt the proposal? Without his acceptance, the proposal was useless. Because of the richness of the case setting and the interests of the students, the behavioral dimension was salient. In a traditional management accounting class taught to accounting students, the case would have ended with the solution to the optimal product-mix problem.

Ideally, the various factors discussed earlier will lead to a synergistic blending of the modeling (principal-agent) and the behavioral topics. The former can provide the basic framework within which so much of the firm's activities can (and should) be viewed. Behavioral materials in the form of cases and/or research papers provide insight that can put the model in perspective and confirm or raise questions about the appropriateness of the modeler's findings.

BEHAVIORAL MATERIALS FROM MODERN MANAGEMENT ACCOUNTING

Given that one is optimistic over the role of BAR in post-modern management accounting, there is a need to specify which topics are likely to be included in courses. Which topics are most likely to fit our needs? These topics can be divided into two broad categories. One is the set of topics presently found in the texts, e.g., participation, and dysfunctional consequences of performance measurement. The other set includes those that are the likely to reflect the changes occurring in organizational processes, e.g., control in teams and the use of multiple performance measures. The former are discussed in

this section, while the latter are discussed in the next section.

Participation

These materials have been included in one form or another in most modern management accounting textbooks. The course usually stresses either the positive role of participation in achieving *goal congruence* or the potentially negative effect caused by slack created by the managers when the organization adopts participation. There is ample case literature on participation that can enrich class discussion. Much of this material is found in the goal-setting literature that deals with essentially the same issue from a different perspective.

The issues discussed in modern management accounting under "participation" have always retained the underlying (and possibly inherent) conflict between workers and managers. This literature has focused more on information exchange between/among the parties than the development of true goal congruence. However, in the post-modern period one change taking place within organizations is the emphasis on greater cooperation among group members. This emphasis, and any research flowing from it, will emphasize goal *congruence*, the agreement of management's and worker's goals, rather than information exchange in an environment where goal conflict still exists.

The post-modern version of the participation question will include a dimension not found in the modern period. It could be labeled "horizontal" (as opposed to the more traditional "vertical") participation. The rise of cross-functional teams means that teams composed of members from different departments must work cooperatively. The essence of teamwork is a variation of the participation problem. In the case of horizontal participation, team members, as

representatives of a particular department, can experience a conflict between their loyalty to their department and loyalty to the team. In the more traditional vertical participation, the conflict is between loyalty to self and to the superior/organization (see Rowe and Shields 1998).

The use of teams is one response to the need to minimize the time required to adapt to changing conditions or to bring new products to market. The auto industry is often cited as an example of an industry where new-product development has been accelerated by reorganizing the process (Senge 1990). It uses cross-functional teams, whose members now have dual loyalties, i.e., to the design team and to their functional group/department. Such teams are successful when the team members accept the goal of the team as *their* goal, i.e., achieve goal congruence. However, accepting the team's goal(s) may conflict with the best interests of the team member's department, e.g., marketing or production. From an accounting perspective, the questions relate to the role the accounting system plays in either reducing the department-team conflict or in mitigating it. At present there is little work in this area. Rowe (2000) is currently investigating these issues.

Dysfunctional Behavior

The literature in many business functions and other disciplines is replete with examples of dysfunctional behavior under a wide variety of economic and incentive systems. There are numerous examples of how an improperly set performance indicator has led to dysfunctional behavior under the communist system. For example, when the quota for production of nails in a Russian factory was set in pounds, an obvious measure that permits the aggregation of diverse products, managers

produced spikes and heavier nails late in the period when performance was being evaluated in order to meet the quota. Similar stories are told about Russian shoe factories producing shoes that were mismatched on sizes, styles, and the proper foot. The manager achieved the goal that was set in number of shoes, but failed to produce useful output, i.e., *pairs of shoes*. In both cases, managers met the quota but did not achieve the objective of the plans.

Modern management accounting texts include similar anecdotes about U.S. firms. Horngren et al. (1997, 950) highlights Sears' abortive effort to increase sales in their automotive department by paying its mechanics a commission on any added business they generated from customers. When customers complained of mechanics trying to sell them unnecessary repairs, Sears dropped the plan. The text also discusses the saga of James Jett and Kidder Peabody (Horngren et al. 1997, 749) where the trader apparently deliberately exploited a weakness in Kidder Peabody's recording system. Phantom trades, i.e., nonexistent trades, were recorded and the profit on these phantom trades was included in Jett's bonus.

Other potential class materials on the dysfunctional consequences of poorly designed incentive systems exist. For example, firms have set quotas for their sales people without allowing for the "quality" of the customer (e.g., profitability) or the potential for opportunistic behavior by the salesperson. For example, it is reputed that some firms that wanted to become players in the real estate boom of the 1980s offered commissions based on the dollar amount of real estate loans generated without any consideration of risk. Because their supervisors also were rewarded based on the amount of business generated, the result was a

superfluity of high-risk and many failed loans.

The response of the manager/worker in each of these cases is readily apparent *after the facts are known*. It is even more disturbing that these systems, and many more like them, were implemented in a relatively stable or predictable world. Why were problems like these not anticipated by the designers? What aspect(s) of human behavior did they omit?

The question for the teacher in management accounting in the post-modern world, where the firm's environment is even more unstable and less predictable, is how to integrate this material into the course in a meaningful way. It would appear that case materials, which are becoming more important as a teaching tool, are the best means to convey these issues. As illustrated earlier by the control class at Carnegie Mellon, cases provide the opportunity to include the discussion of both system-design issues, e.g., how should the budget be set, and implementation issues, e.g., the behavior of the parties involved, in the same discussion. This should help the student to see that the issues are related and complementary, not two separate and unrelated topics.

NEW BEHAVIORAL MATERIALS LIKELY TO BE INCLUDED IN POST-MODERN MANAGEMENT ACCOUNTING

The change in organization practices resulting from the changes described earlier will affect the organizational environment within which management accounting systems operate. Some, like the increased use of teams to solve problems or design new products, are the result of new approaches to planning that are intended to increase efficiency and effectiveness. These changes may require the need

to answer old questions, e.g., participation, in a new and different context. However, this change in context also changes the problem significantly. Old solutions should not be uncritically applied to these new forms of the problem. Other behavioral topics that may appear in post-modern management accounting textbooks will reflect new approaches to measuring performance. One example of this approach is the balanced scorecard. Others include the use of qualitative rather than quantitative (monetary and nonmonetary) measures. Finally, greater concern with the activity where the techniques are used and the manner in which they are used may give rise to an increased emphasis on the cognitive issues of heuristics and biases in decision making. The following sections discuss each of these in greater detail.

Groups

The use of functional teams (groups where individuals are selected to membership either as representatives of particular functions or because of the skills they possess) causes a significant change in the control function. If the output of the team is truly a collective output rather than merely the sum of each individual's output, traditional responsibility accounting rules and techniques stop at the level of the functional team. What happens *within* that team cannot be addressed easily by traditional responsibility accounting methods. Some of the questions that quickly come to mind include:

- The nature of rewards in such situations
- The need to balance the conflicting goals of encouraging a culture of cooperation within such teams and the tendency of accounting systems to pursue costs and benefits to the lowest possible level in the organization

- The role of the accounting/accountability system

These questions are illustrative of those questions of interest to nonaccounting students taking management accounting courses. The most pressing need in these courses is to expand their understanding of the impact of systems on people *and* the impact of people on systems.

The issue of organizational culture can be viewed as a return to the Theory X, Theory Y, and Theory Z discussions. Much of the management accounting in the modern period usually assumed that the managers/workers were best described by Theory X: self-interested individuals as described by the economic model *and* decisions by these managers, which are intended to optimize the organization's goals when these conflict with those of individuals. Theories Y and Z share certain assumptions about the relationships between individuals and work and individuals and the organization: people are capable of cooperating, respond positively to those aspects of work that make the task more pleasant, and are willing to work toward those goals that benefit the firm. Theory Y and Z differ in the extent to which they assume that individuals will place the organization's goals ahead of their own. Phrased differently, Theory Z assumes that goal congruence exists between the individual and the organization, while Theory Y argues that individuals in an organization are sensitive to the organization's goals and can be motivated to accept goals that are in the firm's best interest, but are contrary to their self-interest. A Theory Z environment is the ultimate result of a company properly managing Theory Y employees.

Those organizations that organize work and recruit workers to support a

team-oriented culture must develop accounting reporting and measurement systems consistent with those norms and values. The traditional responsibility system, found in modern management accounting texts, is appropriate down to the team-leader level. Below that level the team leader needs different types of information and controls. The system of accountability must be consistent with the values and culture of the team. Post-modern management accounting courses must recognize this issue of "fit" between the organization's culture and structure, i.e., tall or flat organization, and its controls. The contingent nature of control systems is likely to be stressed. However, these contingencies will differ from those discussed during the modern period, where the emphasis was on the nature of the task. One contingent dimension significant for the group's reward structure is the culture of the organization. Rewards are more consistent with the cooperative nature of the team, particularly when the rewards can be related to the *group's* performance. Extant research supports this conclusion. For example, in a Theory Y or Theory Z setting, rewards may be significantly more effective than punishment, and a *fair wage* relative to firm profits may elicit greater efforts than a market clearing wage. In both cases, the outcome for the firm will be increased profits (see Hannan 2000).

At the present time, behavioral research in accounting raises many questions in this area and provides few answers. However, the acknowledged significance of teams is likely to lead to these questions being asked. As Horngren et al. (1997, 950) note as part of a discussion of the topic covering approximately one-third of a page, many firms have adopted teams and team-based incentive plans. Field research may provide authors with the insights needed to formulate a more extensive

discussion and certain rules for the design of reward systems in such settings. It is likely that the management accounting texts may recognize the link to the compensation segment of the human resources literature.

Qualitative and Nonfinancial Measures

Related to the contingent view of the systems' fit to the culture is the issue of the contingent nature of the task. While early work in the contingency area focused on different manufacturing tasks, in the post-modern period the type of tasks being managed will range from the traditional manufacturing tasks to a variety of service tasks. Some, such as the manufacturing task, will retain a strong input-output relation. Others will reflect the role of expertise, and still others will lack a single measure of output that serves as a surrogate for all a task's dimensions. Kaplan and Norton's (1992) balanced scorecard view of performance recognizes this issue. It straddles the modern and post-modern period. It is modern in the sense that it reflects the concern with measurement and little concern with process. The extension of measurements to include something other than a financial measure, e.g., profitability, by itself does not substantively change the process. However, recognition that we must include post-modern dimensions such as customer satisfaction and organizational learning means that some of the dimensions being measured are quite different from the typical performance measures used during the modern period.

The balanced scorecard does present management's message in a very clear fashion. Nonfinancial measures *are* important. There is likely to be a positive response to the signal sent when a balanced scorecard is implemented. The implementation process itself signals

where management's interests lie.

The behavioral issue is accountability, i.e., the manner in which the manager will respond to being held responsible on a particular dimension or series of dimensions. Modern management accounting theory would suggest that the manager should strive to address the indicator(s). Post-modern management accounting would argue that this is subject to added considerations, such as information asymmetry, the ability to observe effort, and other assumptions made under the analytical model (see Tetlock 1985; Birnberg and Heiman-Hoffman 1993; Evans et al. 1994).

In general, research on accountability has found that the presence of the accountability relationship not only focuses the individual's attention on the performance indicator, but also leads to other, less desirable, behaviors. For example, managers will focus on the performance indicator and act in ways that will be defensible *ex post*. That is, they will act in ways easily explained after the fact if the performance indicator is not achieved.

Accountability also can affect the behavior of managers by making them sensitive to the more risky aspects of their actions. Thus, in a dynamic environment the rigidity of the responsibility accounting system and the specificity of the various measures may inhibit the very types of activity that management wants from its managers. Strong central controls in a dynamic environment can defeat the purpose of delegating and decentralizing decision rights. Thus, firms must make trade-offs between control and truly delegating decision-making rights. At some point the number of measures in the scorecard may inhibit the actions of managers beyond a level that is beneficial to the firm (a simple question of costs and benefits). The issue is the extent to which managers are

able to effectively implement such a system. How well do they understand the relationships among the various indicators in the balanced scorecard? Does management have sufficient knowledge of the links among these indicators to properly set the incentives?

The importance of the obvious popularity of these approaches is that the students will encounter them when they enter or return to the world of work. Moreover, a student who enters an M.B.A. program with quality work experience will recognize the limited scope of any text that does not include these materials and discuss their impact on managers' behavior. This lack of credibility will be accentuated by the presence of these or comparable materials in other courses. Thus, at the very least the management accounting course in the post-modern period must take cognizance of them.

The Role of Incentives

There already exists in accounting a significant empirical literature on the impact of incentives (Young and Lewis 1995). This literature primarily addresses the relationship between incentives and performance, usually measured in units of output. However, the more interesting issues may be the role that incentives play in situations where the performance measure is less amenable to measurement than is output, and where the link between effort and outcome is more problematical or more poorly understood. A variety of questions with strong behavioral implications arise. Do incentives work in these areas? What are the characteristics of the situations where incentives are likely to work?

As reviewed by Young and Lewis (1995), the preponderance of the existing literature on incentives in behavioral accounting tests conclusions of

the analytical principal-agent models. However, to the nonaccountant and a student with significant work experience, these models do not appear appropriate or familiar, and, as the result, the analytical models may be rejected as irrelevant. A few papers such as Chow et al. (1994) do investigate possible reasons why we do not see more sophisticated analytical models utilized in practice. Their conclusion could be summarized as "simpler methods used together are equally effective."

As this paper is being completed, the FBI and Department of Energy are trying to understand what happened to the two hard drives that disappeared from a "secure" location only to reappear behind a copying machine. While there is no indication at this time of *what* happened, it is apparent *why* it happened. The cultures of Washington, D.C. and the Los Alamos National Laboratory were totally different. In Washington the culture was bureaucratic; in Los Alamos it was open. The control system and the related "incentives" designed by the government and imposed on the Laboratory were altogether inappropriate to the quasi-academic culture at the research laboratory. Thus, the threat of punishment had no impact on some members of the Laboratory staff. There was no incentive to follow orders and, for some, there may have been an incentive to violate the rules. Officials of the Department of Energy summed it up by noting that they had developed the appropriate rules but failed to recognize the culture of the Laboratory (see Risen 2000). The lesson is that the incentives or punishments in the control system must be appropriate for the parties whose behavior they are intended to affect. In this case, the cultures in Washington and at the Laboratory were *quite* different.

Heuristics and Biases

This literature has played a significant role in the auditing literature, where the judgment of the practitioner is an integral part of the process (see Knechel 2000). Researchers have studied the professional auditor's judgment process, and have found that rationality cannot be presumed. In the case of management accounting, this literature, for the most part, has been ignored. Formal decision models are prescribed and it is assumed that "good" managers will follow them. If managers do not, they should be trained to do so.

However, there is a substantial literature outside accounting that demonstrates that such biases do exist in nonaccounting contexts. This suggests the need for a research program intended to determine the presence or absence of heuristics and biases among managers making business decisions. If they are found to exist, how can the accounting system or one type of decision aid assist managers so that they are able to avoid inappropriate heuristics or falling victim to biases? Such materials would then be germane for inclusion in the management accounting texts.

SUMMARY

Predicting the future is always a rather risky venture, particularly where taste is concerned. However, there are strong reasons for believing that the demand for added coverage of behavioral topics will increase during what has been herein labeled "post-modern management accounting." The forces that are going to lead to this change in management accounting are the same market forces that are changing other aspects of the business curriculum—the demands of the student-customer and the intense competition for program

ranking. For management accounting, the most vocal customers calling for changes will be the future users, i.e., nonaccounting majors; these students will represent the vast majority of the class. The shift toward greater inclusion of behavioral materials is most likely to occur at those schools and in those programs where accounting courses are viewed more as electives than courses serving the accounting major. This would suggest that meaningful changes are most likely to work their way down from M.B.A. curricula to undergraduate programs. Some of the changes can be seen already in the development of courses in management control systems and texts to use in the course (Merchant 1997; Simons 2000).

It is important that the research be there to motivate and support classroom exercises. Without BAR in the appropriate areas, there will not be adequate materials for class discussion. Fortunately, BAR in management accounting appears to be on the increase, and many researchers are beginning to ask management accounting-oriented, rather than auditing-oriented, questions. However, much research remains to be done, many areas in which were identified earlier in this paper. Researchers conducting field-based studies can be especially helpful in providing research that readily lends itself to use in the classroom (for example, see Merchant 1997), and casebooks do exist (Rotch et al. 1995).

It is important to understand that the changes in management accounting classes and texts are motivated by changes taking place in the real world. This situation contrasts with that of the 1960s, when the economic decision-making materials changed business decision-making practices. This suggests that we

need to establish contacts with "good practices" firms, not to report on method, e.g., what are six sigma techniques, but to discover how the firm's management was able to secure the workers' commitment to the process. Most firms are quite willing to discuss their success with faculty, particularly former students who were involved in the innovation. While fewer firms are willing to discuss their failures, alumni often are interested in finding a "receptive ear" that may even offer some valuable insights. This is not field-based research in the sense that it is published in journals. However, it does represent an expansion of knowledge that can be shared with students and, perhaps, may yield a case that can be published in a journal such as *Issues in Accounting Education* or presented at a professional meeting.

Similar use can be made of stories reported in the newspapers and financial press. If instructors are interested in integrating more behavioral material into their course, stories like the Sears story cited earlier (Horngren et al. 1997, 950) can be discussed in class in greater detail. Why would management enact such a plan? How could the plan have been designed to avoid opportunistic behavior by the mechanics?

Supporting the availability of cases and case-like materials is the new technology for creating one's own course packet. A creative instructor can with relative ease either supplement or extend the scope of an existing text with behavioral items. Ultimately, it is this mix of demand, research, and teaching technology that should lead to greater integration of behavioral materials to complement the other materials in a management accounting course.

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